

Changes in the Regional Differences of the Labor Market in Hungary During the Millennium Change, Especially the Employment Impact of Financial Crisis in the First Decade of the 21th Century

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SUMMARY

The paper attempts to reveal the causes of labour market inequalities in Hungary after the system change, with special regard to the changes caused by the financial crisis. The current labour market trends were determined by the situation emerged by the time of the regime change, as I will discuss it later. Besides general employment relations, it focuses on changes in social positions and on migration processes and examines what kind of possibilities the crisis and the period afterwards may offer for the development of lagging regions.

Keywords: labour market, employment conditions, crisis, social situation, lagging regions.

Journal of Economic Literature (JEL) code: R58, J42, J48.

According to Nemes Nagy and Németh, regional differences in the Hungarian labour market have been increasing ever since the regime change in 1989. The new, more fragmented spatial structure of employment conditions took shape in the early to mid-nineties. Since then, only small quantitative movements have been observed (Nemes Nagy and Németh 2005). I agree only with the first part of this statement, as economic consolidation was followed by the extreme intensification of regional and territorial disparities as well, which has not been modified significantly by the 60 months so far of the economic crisis. The subsequent reversal of labour-market differences seems to have become persistent. Since the initial period of economic transformation up to present, significant regional differences emerged in the rate of the unemployed and in the standards of employment. The explanation of this could contribute to the development of future economic policy.

The crisis is a sign that current driving forces of development are wearing out, and the former mentality can no longer be successful. The crisis highlights that new driving forces should be found and a different mentality is necessary to build an acceptable future for the major part of the society. Although the crisis itself is a negative process, it incorporates the possibility of future recovery and the hope of a new beginning. The lack of

changes facilitating social renewal has caused major harm recently because outdated thinking and the lack of appropriate regulatory instruments harm nature and the base necessary for our life (Nováky 2011). The researcher's responsibilities are not only to determine the facts and relationships, but to seek for constructive solutions, and to aid applied economic policy. This is not necessarily a political attitude, even though it is indisputable that the economic analysis of public policy includes the use of substantive – normative and positive – theories, but on the other hand, it requires a specific theory-building strategy (Csontos 1997).

The study reviews the causes of regional labour market disparities, looking back to the time of regime change, and analyses the effect of the 2008 financial crisis on regional employment.

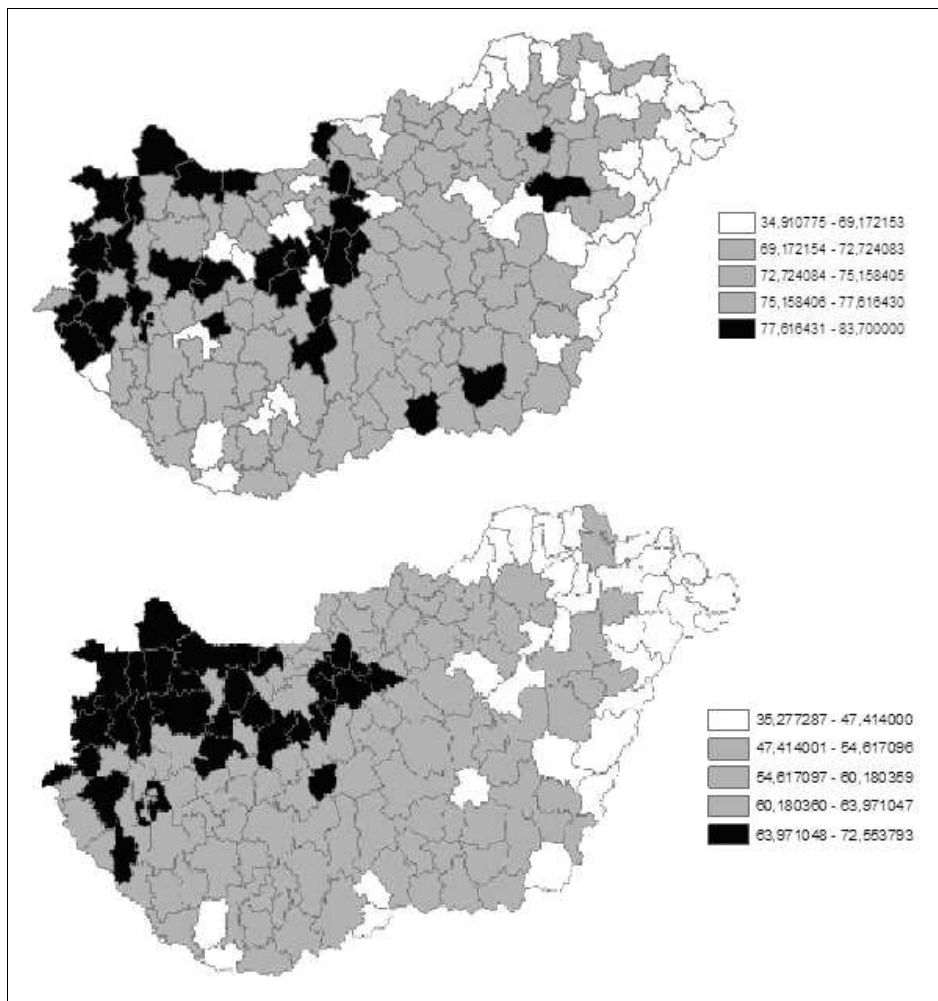
DEVELOPMENT OF DISPARITIES IN REGIONAL LABOUR MARKET, ITS HERITAGE AND EXPLANATION

Unemployment was an unknown concept for the socialist economy; it was considered as an example of the faults of the capitalist system. Economists of the regime change,

however, proved that corporate management, not requiring economic efficiency, employed “space fillers”. There are only estimations about the rates of unemployment inside the gates of the socialist enterprises. According to some surveys, the same production level could have been achieved with 80% of the applied workforce (Dövényi and Tolnai 1993). This may not clearly imply a hidden unemployment of 20%, but explains the fast emerging employment crisis. As far as I am aware, however, estimates do not mention whether the socialist labour market had any hidden unemployment of regionally varying degree.

In contrast, even in summer of 1990, Borsod-Abaúj-Zemplén County provided one-fifth of the total unemployed of Hungary. The extremism is shown by the fact that, while in 1993 Nógrád County had an average unemployment rate of 21.5%, Győr-Moson-Sopron County had only 8.2% over the same period: the difference is 13.3 percentage points. The gap continued to widen by 2008, when the difference between the lowest and highest unemployment rate of the counties was

18.3%. Although the differences among the counties are clearly not negligible, within this, there are also significant differences in the employment situation. The labour market situation can be examined territorially by several aspects: by regions, by counties, by microregions and by settlements. Differences in the labour market are present not only at the county and regional level, but also at sub-regional and district level. In March 1992, the Encs district had the highest unemployment of 27-28% (this was approximately 7 percentage points higher than the county average (Aradi 1992)). This decreased to 18.99% by 2002 (which, however, was still more than a 10-percentage-point deviation from the average), and due to the crisis, it rose to 26.99% again in 2010. Disparities between settlement types and settlements show even greater differences (Fazekas 2002). The economic policy of the past twenty years has not been able to reduce these differences. As an effect of the economic conjuncture between 2000-2004, territorial disparities kept strengthening, which can be considered as a Hungarian speciality.



Source: own compilation based on the repository of HAS, Institute of Economics¹

Figure 1. Employment rate in the labour market districts of Hungary in 1990 and 2001 (The 5-quantiles are called)

¹ Resource map is a software developed by HAS, IoE, www.econ.core.hu

In developed market economies, regional differences in labour market are decreasing through the adjustment processes. In our country, however, differences are large and became permanent and the developed order has remained unchanged (Fazekas 1994). The official economic policy has kept treating the reduction of regional differences as a priority in its communications, but its actions have not been effective enough and its tools have not been synergistic. The causes of regional differences are only to be examined as a process, because more and more new factors were added through the different periods. This did not imply that the causes of the post-1989 situation ceased, but it implies that based on them, the subsequent disadvantages kept aggravating. The stability in regional discrepancies of unemployment and in the position of regions suggests that the emerging differences do not come from short-term, ad hoc reasons, but from stable indicators that have a long-term effect. This implies that long-term treatment may become possible by identifying the causes.

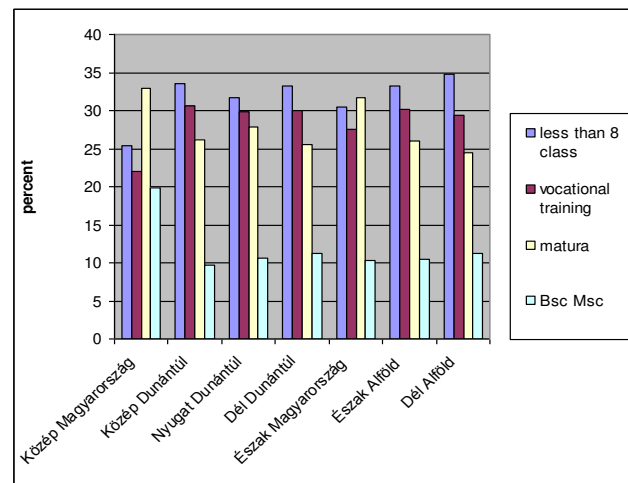
CHANGES IN THE EXPLANATORY CRITERIA OF THE DEVELOPMENT OF REGIONAL LABOUR MARKET DIFFERENCES

Following the change of regime in the early nineties, as seen, higher unemployment and lower employment emerged in the labour market of certain geographical areas. The reasons for this include the developed differences in the industrial structure of socialism, differences in educational attainment and differences in the infrastructure. The regional differences in the unemployment of the Central and Eastern European countries was attributed mostly to the concentration of large socialist industrial enterprises. The change to a market economy brought along the collapse of the socialist economic structure and the transformation of labour market demand, to which the slowly responding, inflexible supply could not respond for a long time. Between 1990 and 1997, the largest decrease in the number of the employed belonged to agriculture. This sector lost one-third of its workforce, compared to the average decrease of 11%. This can partially be explained by the organizational transformation of the sector, by the loss of the sector's traditional external markets, by the decline in domestic consumption and by the sharpening competition. The economic crisis of agriculture mainly affected the eastern part of the country.

Employment in industry also declined significantly. In the first period, the workforce of manufacturing and construction decreased, while the number of those

employed in electricity, gas and heat supply remained unchanged. The crisis in heavy industry affected most severely the labour market of the north-eastern regions (Schwertner 2002). In Borsod, Baranya and Nógrád territories, formerly regarded as great centres of socialist industry, higher unemployment and lower employment became constant.

The different educational level of the population has also been held responsible for the development of regional disparities. The educational level of the population at the regime change was lower than the national average in the eastern and southern counties and in the counties of the Great Plains, as it is illustrated in the following figure.



Source: own compilation based on HCSO data²

Figure 2. Number and proportion of economically active population by education level

While in 1910, 18% of the Hungarian population did not attend school – i.e. they were illiterate – in 1990, this figure was only 2%, and at the very end of the century, it became less than 1%. By 1994, the rate of high school graduates increased from 2% to 20%, and the rate of higher education graduates increased from 1% to 8%. The rate of high school graduates in the 18 years and older population increased from 4% to 32% between 1920 and 1994. Although the schooling of worker-peasant-born, rural children had a major role in propaganda in the socialist system, and the people's colleges and the scholarship system actually improved the education level of the country's population, some segregation has begun in the last 20 years. The hegemony of the capital is undisputed in the field of higher education institutes. Under socialism, the planned economy operated in its untouched form in the educational system: the places available for each programme were centrally regulated; the structure of education was not determined by the demands of the labour market, but the supply was

² less than 8 class – Did not finish Primary School, vocational training – vocational technical school, matura – Secondary school graduate

specified in bureaucratic ways. The authorities consistently limited the rate of entrants to the graduate-level and preparation programmes to higher education; almost one half of each age group was directed towards vocational training and other programmes which did not qualify for further studies. Most of the rural 15-16 year olds – especially boys – were students of vocational schools in this era. Thus, the lower school qualifications of the rural population became conserved by the time of the regime change.

In the central and Western part of the country, the infrastructure was more advanced, which can also explain the development of better labour market conditions. The distance factor had a significant role in the reductions of staff in the nineties. The commuting of rural population was accepted by the socialist large-scale industry, but it did not seem any more effective in a market economy. The density of public transport links had a significant influence on local unemployment in 1993. The research of Bartus (2004) and Kertesi (1997) revealed that transport costs influenced employment much more strongly than before the regime change. At the later stage of the regime change, the differences in unemployment among those settlements well or poorly served by public transportation increased. Nowadays, all employees who live in a rural settlement have difficulties, regardless of their professional experience and qualifications.

It was well known already after the regime change that the Roma population was more concentrated in certain regions. In the knowledge of the subsequent analysis and the later situation, we can conclude that ethnic composition had a role in the development of regional labour market inequalities, as a latent – at that time unacknowledged – cause.

Károly Fazekas, in 1992, mentioned also the lack of entrepreneurial culture as a reason for the deepening of regional differences among labour markets. A poor labour market situation evolved in the industrial regions, in which the dominance of industry, before the change of regime, was combined with underdeveloped entrepreneurial capacities, underdeveloped infrastructure, a relatively unskilled local workforce and the lack of entrepreneurial tradition (Ábrahám and Kertesi 1997). The deepening of regional inequalities that had developed by the late '90s can be explained by the distance factor – indicating the geographical situation – which implies the access of settlements to and their distance from big cities and centres of economy. In addition to the distance factor, regional disparities are also strengthened by the level of urbanisation, which highlights that labour market stress increased in the less urbanised areas. Cities emerged in rural areas as well, but those received the city status only because of administrative reasons and because of the number of inhabitants, while the settlements themselves retained their rural landscapes and characteristics. There was no significant increase in the number of enterprises and neither was there an improvement in the

opportunities of young people for further education and cultural advancement.

Aggravating factor of territorial inequalities developed by the millennium

The Hungarian employment policy can be considered the most successful during the millennium. While after 2000, the unemployment rate in the western counties had fallen because investments had created new jobs, improvement could be felt in the disadvantaged areas as well, but it was to a smaller extent, and its reason was more likely some social policy measures. In these lagging areas showing signs of long-term structural crisis, already the third unemployed generation entered the primary labour market, which had limited capacity. These disadvantaged areas were less affected by job-creating investments. A significant difference was perceptible in the investments. While in the more fortunate areas, foreign capital with its high job creating potential settled, in the East, if there were any such establishments, they were typically job multipliers to a smaller extent.

In the period of regime change, as a result of privatization, it can be seen that retention capacity and some growth of the workforce were characteristics of the foreign-owned companies. In 1998, as a result of the first ten years of market economy, one-third of the corporate sector's employees worked for foreign-owned companies. The rate of foreign-owned employment increased over 80% in some sectors (Adler 2010). By the millennium, huge regional differences emerged in the density of foreign-owned companies, in the weight of foreign-owned employment, in business size, in technological level, in applied management methods, in the composition of the labour force and in wage standards. The higher the rate of the employed in foreign-owned companies became in a region, the lower the local unemployment rate became; the employment rate increased and along with it, the level of earnings of the employed also increased (Fóti 1994; Hamar 1999). Foreign investors were primarily attracted by the capital area and the regions near the Western borders and they avoided the eastern regions of the country. Nearly three-quarters of foreign direct investments was made in the central region (Budapest and Pest County) and two counties near the Austrian border (Győr-Moson-Sopron and Vas). In the eastern part of the country, considerable foreign investment can only be found only in the most industrialized county, Borsod-Abaúj-Zemplén County and it is concentrated in the county seat and its catchment area. Another problem with investments in the east was that they were not looking for untrained people with reduced working capacity, excluded from the primary labour market many years ago. For such people to qualify for support in the midst of the increasingly strict conditions, obtaining the entitlement for support and care was only possible in the supported (secondary) labour

market: they could only survive as employees of non-profit and public employment or public work programs.

In the years following the regime change, the regional differences in employment and unemployment increased and this trend did not change after the millennium: strong polarization has continued to take place in the country. The formation of the relatively well-developed Central and Western-Transdanubian regions and of the Southern-Transdanubian, Great-Plain and NorthHungarian regions, characterized by low employment rate and rigid employment structures became observable. Regional disparities were manifested also in the regional differences of employment rates, which deviated from 46.9% to 63% (Horváth and Hudomiet 2004; Fazekas and Telegdy 2006). On the whole, it is true to state that the flow of working capital to Hungary kept strengthening the regional differences, while the majority of sources for intended equalization was dysfunctional and therefore could not moderate the above-mentioned process.

The turn from latent to open causality in the regional disparity of employment and ethnic composition

My analysis indicates that the relative regional differences in unemployment rates are primarily determined by the human capital stock in the long run in the given area. The decisively low-qualified, discriminated-against Roma population with poor health conditions and low willingness to work has a determining role in this. The uneven spatial location of the Roma population – the most disadvantaged population in the labour market – coincides with the most underdeveloped regions, characterized by the lowest employment. The low employment of the Roma population is regionally different; the employment possibilities depend on the location of residence. Regional differences could already be discovered in the employment records of the 1971 representative survey: the employment rate of the Roma population is lower by 15% in the eastern part of the country (Hajdú-Bihar, Békés, Szabolcs-Szatmár-Bereg), while in Budapest it is higher by 6% than the national average (Lengyel and Janky 2003; Kemény and Janky 2003). After the regime change, the regional structure of labour market participation was radically modified. The 1993 data indicates that the employment opportunities of Roma men depended significantly on which region of the country they lived in. The two extreme cases are the following: in 1993, the employment of Roma men out of the working age population was 40.5% in and around Budapest, while only 18.4% in the eastern counties. While the employment rate stabilized at a low level between 1993 and 2003, regional differences increased considerably: in 2003, 57.7% of the Roma men were employed in Budapest and its surroundings, compared to the rates of 14.2% in the eastern counties, 22.9% in the northern counties and 23.7% in the Great Plains.

Therefore, the employment status of Roma men living in the eastern and northern parts of the country did not even stagnate, but got worse between 1993 and 2003.

Official policy has always tried to moderate the exacerbating effect of discrimination on the employment situation, but evidently no new factories have been settled in Roma-populated areas. The Roma population becomes more concentrated in the areas struggling with employment and labour market issues, and enhances the self-generating process. The process of population exchange also enhances the regional differences. As a result of the dramatic exclusion from the primary labour market, involvement in the informal economy became dominant in the living strategies of Roma people, which means the revival of traditional activities (like gathering) and the appearance of new, almost criminal forms of activities that accompany deep poverty (Czibere et al. 2004). Differences in the market of undeclared work are, however, related to the type of settlement, and the distance from nodes of development as well, because construction sites in dynamically developing regions offer great number of job opportunities to the men living in neighbouring settlements. The social embeddedness and acceptance of traditional patterns cannot be neglected either: whether it is about the “lomizás” common among the Roma people of the western counties, or the day labour typical in the villages of Northern Hungary. Roma people are discriminated against in the labour market; therefore, their population directly increases the number of the unemployed. The Roma population, on the other hand, indirectly indicates the grade of economic underdevelopment of the given region. The rate of the Roma population is generally higher in regions where the infrastructure is underdeveloped and the economy is in a bad state. This phenomenon reflects the results of decade-long migration trends. The significance of the parameter of Roma-ratio can largely be attributed to this external factor.

Migration trends as explanatory variables strengthening regional differences

The growth of domestic and international migration strengthened regional differences. Globalization and the EU accession obviously contributed to the increased temporary migration of skilled workforce. An east-to-west migration within the country was formerly detectable, but it intensified in the first decade of the 21st century. Probably those migrating did not belong to the poorest, neither to the long-term unemployed population. The migration of skilled workforce follows the movement of capital, and thereby promotes the weakening of human potential in the lagging regions. The targets of migration for employment purposes were the large companies, which filled workplaces with labour contracts for an indefinite time and in the case of a larger order, used temporary agency work. In this case, weekly commuting is not rare either, even between Békéscsaba

and Zalaegerszeg, almost the two endpoints of the country, 500 km away from each other (Kulcsár 2006). Because of the strong segmentation of the real estate market and real estate devaluation in the lagging segregated areas, only a small group – among the better situated people – of society could afford to move for employment purposes, thereby strengthening the contra-selection (Kulcsár 2006). The already lagging regions thereby gradually lost the group who were employable, or capable of self employment, which would have been the key to catching up. In a special way, Surprisingly, working abroad was not typical in the disadvantaged, lagging areas – and this is true nowadays as well – but in the most developed regions of the country. On the one hand, it is exactly the most underprivileged that have not been able to pay for the extra costs of working abroad. In addition, the developed migration networks operate in the western part of the country (Hárs 2004). Therefore, one can conclude that both in the case of work in Hungary and abroad an east-to-west movement can be observed, so wealthier people, employers and employees as well may move westward, while the most deprived are excluded from the primary labour market, and remain in their home location. Based on our research experience, poor people migrate as well, but in a direction opposite to the labour market migration. They move towards small villages and rural areas, to the sub-regions because of the lower cost of living, where employment problems are considerable, therefore they strengthen the group of the unemployed and increase regional differences. Families involved in social migration, however, typically do not have more opportunities to get a job in their new home as well.

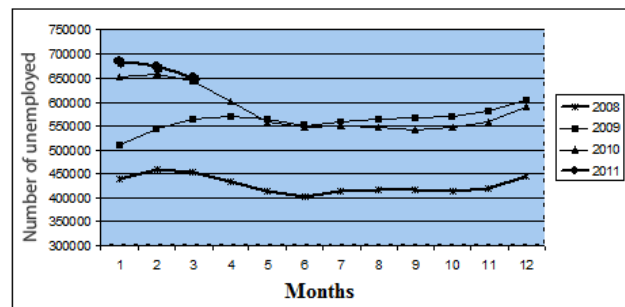
Effect of the financial crisis in the first decade of the 21st century on the dissolution or preservation of regional differences

Our country is a small, economically open country that is heavily dependent on the export market boom. The country heavily felt the consequences of this dependence at the time of the worldwide financial crisis. In our country, export-oriented companies operate mainly in the industrial sector, so after 2008, the rapid decline in foreign demand quickly and severely affected the country, and the domestic market could not buy up the stocks of goods accumulated due to the recession. One undeniable example for this was the consequence of the European car manufacturers' temporary shut-down, which the employees of domestic companies had already experienced, since the Hungarian subsidiaries responded with temporary shut-down within one or two weeks after the crisis emerged. The construction industry was soon hit by the crisis. In this sector, major projects are usually started by loans. Therefore, recession starting out from the money market reached the small and big companies

of the construction industry. Their close relationship with banks – most of the construction industrial investments were realized by loans – was one of the reasons why employees of this sector were exposed to greater risk than other employees. On the whole, the decline in the number of orders in all areas and the reduction in purchasing power forced companies to cut back costs, while some companies tried to get out of the crisis by restructuring their workforce or by mass layoffs.

The labour market usually reacts to economic changes with a delay, since this market is basically characterized by derived demand. The crisis of the 21st century, as a result of the accelerated economy and globalization, influenced the Hungarian labour market very rapidly, so there was no time to prepare.

The number of registered unemployed was about 442,000 people on average in 2008, and the rate of job seekers in the population aged 15-64 was 6%. These figures kept deteriorating – the autumn of 2010 may have been characterized by a bit of temporary improvement – until February 2011, when nearly 682,000 people were without jobs, which indicated an unemployment rate of more than 13%. Figure 2 shows the unemployment data for the period of the financial crisis by year. The increasing long-term unemployment can be seen clearly.

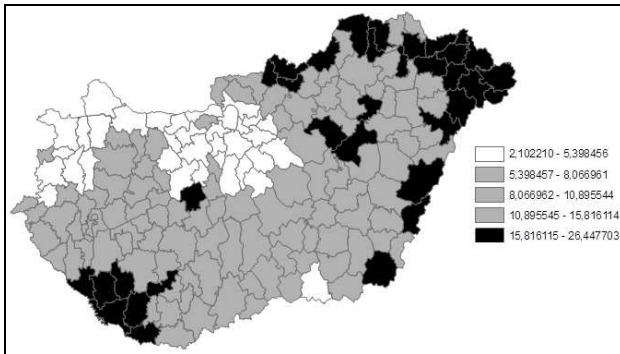


Source: Own compilation based on the database of NFSZ

Figure 3. Number of the registered unemployed in Hungary between 2008 and 2011

By examining the longer period since the regime change, this can be considered to be the second major wave of unemployment. The last time when the situation worsened so rapidly and extensively was in the beginning of the 1990s, lasting until February 1993, when the number of registered unemployed grew to more than 700,000 in three years.

I classify the Hungarian process of the economic crisis of the 21st century into four periods. The first stage was between August 2007 and August 2008 and is characterized by latency. Initially, the US dollar weakened, the euro and the currencies of the semi-periphery, however, strengthened, and the recession still had no effect on the productive sector and the labour market.



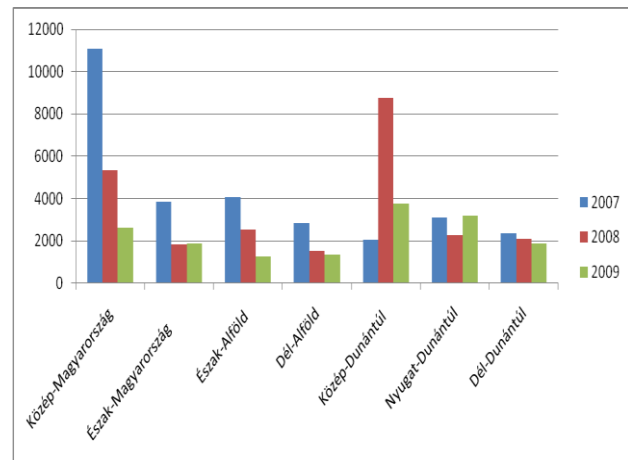
Source: Own compilation based on the repository of HAS, Institute of Economics

Figure 4. Territorial picture of unemployment in 2008, in the latent period of crisis (The 5-quintiles are called)

The so-called relative rate, measuring regional differences (rate of registered job seekers in the economically active population), still indicated significant regional differences in its yearly average. In 2008, the value of the rate was 10.0%. The lowest value belonged to Central Hungary (3.6%) and the highest one belonged to Northern Hungary (17.8%). The problem of unemployment was the most severe south of the so-called BB-line (an imaginary line between Balassagyarmat and Békéscsaba), and in the Southern Transdanubian areas. An especially disadvantaged position characterized the north-eastern sub-regions along the state border, the small, coherent border-regions of Somogy and Baranya County, and the inner peripheral settlements of the Middle-Tisza Region (Lőcsei 2010). The relative difference between regions is 14.2 percentage points, on a sub-regional level it is 24.36 percentage points (with the two extremes being Sopron-Fertőd, Abaúj-Hegyköz). The effect of economic recession is indicated by the 25% fall in reported, non-publicly supported jobs compared to the same period in the previous year. The number of open positions declined, particularly in the construction industry (43%) and in manufacturing (32%). This period is characterised by the fact that crisis was already talked about, but significant measures to protect labour market were taken neither by the Hungarian government, nor by the leading countries of Europe, because they still believed in a miracle.

In the second period of the crisis, from the third quarter of 2008 until May 2009, it became clear that the initial financial collapse would ripple further to the productive sector, and this would affect the derived labour market as well. The rate of registered job seekers in the economically active population was 12.8% in May 2009. Within one year, the value of this rate increased by 3.2 percentage points in the economically active population. The relative indicator on the basis of the economically active population continued to be the highest in Northern Hungary (21.1%), and the lowest in Central Hungary (5.4%), while the difference dropped to 8.3 percentage points. In the second period of the financial crisis, the number and rate of job-seekers

increased, especially in the Northern and North-western Transdanubian areas.. The figure highlights the fact that multinational companies reduced the number of their staff in the central area of the country.



Source: Own compilation based on the database of NFSZ

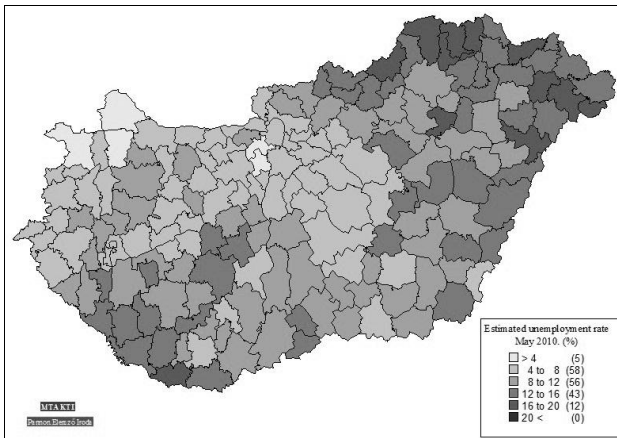
Figure 5. Number of registered mass lay-offs, 2007, 2008, 2009

This period of the crisis affected primarily the advanced sub-regions; in some Hungarian settlements, the number of job seekers doubled in a month. The employment decline, however, was smaller in the eastern part of the country, due to the desperate initial situation, i.e. the unemployed people could not lose their jobs. The majority of the job seekers in the eastern part of the country came to the job centres from agriculture, the manufacturing industry, trade and other community and personal services. The following map highlights that the number of job seekers did not increase in the sub-regions with traditionally high unemployment as much as in the areas with a better labour market situation.

The third period of the crisis started in April 2009, but in my opinion, it arrived in Hungary with a delay of two months and lasted until the middle of 2010. The new period was launched by the G20 meeting in London, when the most powerful economic countries and organizations agreed to halt the recession at any cost. This brought stabilization to the financial system, and the return of confidence. Governments made efforts, and not only in the financial sector. The rate of registered job seekers in the economically active population was 11.8% at the beginning of 2010. Within a year, this relative indicator in the economically active population had improved by 1 percentage point. The relative indicator remained the highest in Northern Hungary (16%), while it was the lowest in Central Hungary (8.9%), and the difference fell to 7.1%. In our country, the reform of public work programs brought about a substantial change. As the number of people receiving social aid began to decrease from January 2009, the number of public workers and recipients of availability aid began to increase. The number of recipients decreased to its one-seventh, while the number of public workers increased

almost twelvefold. From the 222,000 persons who regularly received social aid in 2008, 33,000 people were left to September 2009.

In the framework of the "Út a munkához" (The Road to Work) programme, from the second half of 2009 large number of unemployed were transferred to the secondary labour market, thus reducing the number of unemployed and decreasing the effects of the crisis on employment. The decline in the number of job seekers in the beginning of 2010 was partially a result of decreased number of registrations compared to previous periods; furthermore, the outflow from the register was significant, thanks primarily to the non-decreasing number of part-time jobs, in addition to positive seasonal effects.



Source: Fazekas 2011

Figure 6. Regional data of the unemployment rate, May 2010

The nation-wide decrease in employment brought along some spatial rearrangement as well. The halt of growth rates, then the recession was the most spectacular in Central and Western Transdanubia, and in the central region. The regional allocation of resources during the crisis was fundamentally similar to that experienced in the previous period, but the regional difference between rates became lower. The realisation of benefits derived from the development of transport infrastructure remained a potential opportunity. Its actual realization requires a simultaneous and favourable change in other factors as well on the eastwards from the Danube, which has not been realized yet. There is no sign of the launch of any meaningful regional equalisation; the regions felt the labour market effect of the crisis more or less compared to their previous position, but the difference between them remained.

I consider the fourth period of the crisis as beginning from the second half of 2010, when economic growth started in nearly all European states, even if only at a low level. A characteristic of this period is that companies were still very cautious. The latter is partly due to the crisis in Greece, which is a symptom of the fact that the European economic and monetary union is still very vulnerable. A process of improvement slowly started in the labour market; especially the large companies in the

western, more developed part of the country responded to the recovery starting in Germany. The rate of registered job seekers in the economically active population was only 10.8% in the last quarter of 2010, which is a small but still a one-percentage-point improvement. The relative indicator in the economically active population was still the highest in Northern Hungary (15.6%) and the lowest in Central Hungary (8.6%); the difference dropped to 7 percentage points. Central Hungarian companies begun to rehire and carefully preserved their human resources to facilitate the recovery. It is noticeable in the western part of the country that the same well-trained employees are required by the companies manufacturing for the booming export market who are willingly employed by the thriving enterprises of the developed countries, thereby implicating a vacuum-effect on the Hungarian labour market.

In the first part of my paper, I explained that the employees with higher education and abilities are the typical wanderers of the 21st century, which worsens the possibilities of their home region and improves the human potential of the recipients. It is interesting to examine the territorial arrangement of returnees in 2010, the most hectic year of the crisis. The European recession forced many wanderers into repatriation who could have been the hope of classic emitter Hungarian territories with their experience and savings. Repatriation, however, follows the patterns of territorial development; remigrants prefer the more developed regions (Hárs 2011).

One of the major lessons of the changes at the beginning of 2011 is that the restoration process started in the regional labour market disparities. Namely, temporarily decreasing differences are rising again, which is on one hand due to the dismantling actions of the repeatedly changing employment policies against the secondary labour market, and on the other, due to the fact that the starting up industrial production affects only the western part of the country, and avoids the traditionally disadvantaged areas.

I created a model, the so called 3V in 2008 for the principles of regional migration strategies. It is based on migration management, protection against the unwanted inflow, protection of the population against drain and attracting the human resource improving potential. This model is considered important in loosening the differences of the labour market in the disadvantaged and lagging areas.

Development policy should pay more attention to the indicators listed at the beginning of this paper, because the strengthening of labour market stress cannot be solved anymore only with the instruments of employment policy. Regional policies should focus in particular on the following purposes:

- Encouraging intellectuals to stay in or return to rural areas by developing education policy and innovation space, indicating circular migration, reverse of the direction of migration.

- Development of transport infrastructure, including housing programs or availability and the redesign of health care capacity
- Urbanization has to be handled as a central issue. Alleviation of Budapest-centeredness, even with artificial administrative reorganization.
- National, state investments with the development of their multiplier effect in the labour market.
- Integrated programs to increase the employability of the Roma population. These programs should consist of educational support for the children, and involvement of the parents to public work-programmes or adult-education.
- Attracting labour force to underdeveloped regions. Design of migration policy.

The weight of the regions in employment will be able to change very slightly between 2010 and 2020, judging by the findings reported above. The weight of Central Hungary may show a minimal increase when the crisis is over; in the eastern regions, however, the employment crisis will continue and remain stable. In the central region, the weight of large multinational organizations and their labour market-leading proportion will continue to rise considerably. There is no sign of any radical change in the former public resource-allocation practices, and in my opinion, the market processes do not promote the reduction of regional disparities. (Ladányi and Szelényi 2002; Spéder 2002).

SUMMARY

On the whole, regional differences have been strengthening since the regime change. Consequently, the labour market is characterized by duality. Because of the presented economic, employment and regional processes, in lagging regions, there is a clearly perceptible, sharp distinct group, outlined inside the Hungarian society, which has no chance to join the new employment system. The exclusion of this social class can be characterized not only by long-term unemployment and/or long-term inactivity and long-term poverty, but also by increased residential and school segregation. The development of different advantages, disadvantages and inequalities to form a system can be characterized by the polarization between development nodes and peripheries and by strong segregation (Janky and Kemény 2004; Virág 2006)

The strategy can be interpreted as an enforcement method of certain interests in a given environment. The interests provide the answer to the question of why a strategy is necessary; the environment specifies where to enforce and implement the strategy and the strategy itself is nothing more than something that tells what should be done and how to do (Korompai 1995). The crisis is not yet finished; it seems that the bad will become worse if the above-mentioned protection, defence and drain strategies do not prevail in the labour market.

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Direct and Indirect Effects of Accessibility: Infrastructure and Regional Access

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SUMMARY

Nowadays the topic of accessibility is becoming more and more popular as a national and international research field of study. Regarding its aim, the main question is about the connection between the adequate accessibility and development tendencies (Tóth 2007; Tagai 2007; Dusek and Szalkai 2007; Watanabe 1995).

Accessibility as well as the infrastructure is defined in different ways according to the different approaches in the economic literature. Generally it is declared that the location of a place is inadequate if it is not easily accessible. According to Nemes Nagy (2007) the opposite statement can also occur: e.g., from a military or defence point of view, tough accessibility can be a positive term; in the case of tourism it can be also an attraction, appreciating the "resort value" of a territory.

Tóth (2006) cites Keeble with the definition of accessibility (as the main product of transportation); regarding Keeble, the peripherality is synonymous with the relative accessibility (or lack) of the economic activity. Problems arise in the case of these territories, because the accessibility terms do not increase with the extension of infrastructure, namely the large investments take place where the demand arises, so the benefiting places are mostly the centre or core areas.

*Accessibility and its "tool", infrastructural extension, can be measured in several ways, as I discussed in my earlier research work (Györffy 2010). During the examination of accessibility, we consider roles and spatial movements, and the targets are usually the capital city, the regional centre, the county capitals and the motorway junctions (Bajmócy and Kiss 1999; Edelényi 2004; Kocziszy 2004; Nemes Nagy 2009). In this paper, I analyse the accessibility of all the Hungarian subregions, taking the time and distance connections in a 174*173 matrix. Further on I analysed the relationship between the development data and accessibility indicators particularly in terms of centre-periphery relations. I tried to find out that improvement of the road infrastructure through the better accessibility what kind of spillover accompanies, how it effects on the social-economical position of a region, or can we talk about direct effect at all?*

Journal of Economic Literature (JEL) code: R12, R49

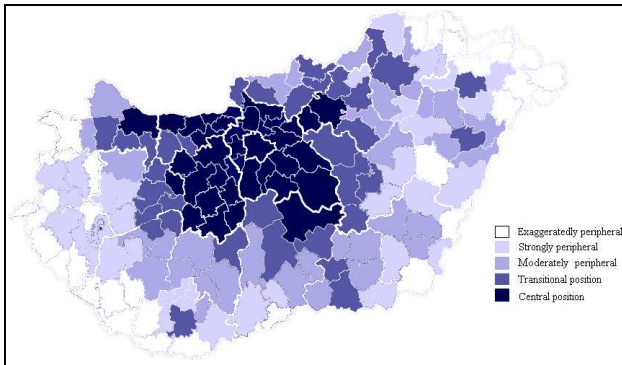
ACCESSIBILITY AREA OF THE SUBREGIONS

A modern economy is characterized by a versatile connection system that provides wide network extension. As a result of the road network development in the country the time-space continuously "shrinks". For the local population it is not only the improvement of the connections to the centre that means a key factor of progress; it is also a great opportunity, when an urban centre exists in the peripheral area that has urban functions. Although the density of the cities in the country is adequate, unfortunately many settlements with the rank of "city" cannot play a relevant role in the area due to their growth and organisational tasks. Because of the quality of the roads, the poor accessibility the territories become less attractive. Due to the level of local services and weak job opportunities the working population is forced to commute. If there are just a few

settlements that have urban functions in the area, the population has to emigrate. These problems have resulted low retention capacity in small villages.

In defining the accessibility potential I have used centrality indices, and have made a rank from these values to give the relative positions of the subregions. In order to make the centrality indices more comparable, the present subregional positions (from 2009) were used for the year of 2000 as well. The exact methods I used can be found in a previous paper (Györffy 2010).

Based on the results the central role position of Budapest and its agglomeration is highlighted, but some large cities also have relevant attractive position in their regions as well – e.g. subregions of Szeged and Pécs. Due to the substance of the model, conclusions can be drawn regarding the quality of the network among subregional centres and their neighbouring settlements as well (for example the subregion of Pécs belongs to the transitional group but the surrounding areas are in the exaggeratedly peripheral category).

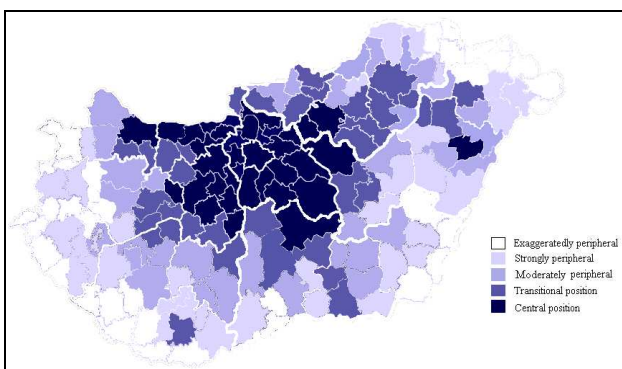


Source: own calculation

Figure 1. Centre and peripheries by population (2000)

The changes in accessibility indices were strongly influenced by the road infrastructure investments – especially the rapid expansion of the road network – through reducing the access time to major cities. In the positions from 2000, most of the subregions in the NorthHungarian region – mostly the eastern border areas – belong to either exaggeratedly or strongly peripheral categories. Although some large urban areas are significant, only the agglomeration of Budapest and the motorways' impact can be identified (Figure 2).

Concerning the case study from the year of 2009, I would assume that in the analysed time period the attraction would have grown in the case of the peripheral areas, but there is no significant change in total volume of the available mass, so the effects of the development occur just locally. In 2009, most peripheral subregions were located in the Northern Great Plain and in Southern Transdanubia, as well as in Szabolcs-Szatmár-Bereg, Vas and Somogy counties – however, taking the average access time into account, Somogy County has stepped one category forward, into the strongly peripheral group (Figure 2).



Source: own calculation

Figure 2. Centre and peripheries by population (2009)

The centrality indicators of the North Hungarian subregions positioned Heves County positively. Dividing the indicator into its parts, it is noticeable that only one county seat of the region has a significant role due to its own potential value. However, the available mass of

population in a certain time period is relatively low from Miskolc. Many subregions of the region, including the agglomeration of two county seats, belong to the second group – their own potential is low, while there is no major force in the neighboring area, as exists in the case of Hatvan.

CLUSTERS BASED ON ACCESSIBILITY IN 2000 AND 2009

The classification of the subregions was performed with another cluster method. Due to the outliers of the capital city and its agglomeration, a shift was observed towards peripheral groups, so during the calculation Budapest and Budaörs were eliminated (Table 1).

The first group created by the cluster analysis contains 53 subregions whose internal potential is the smallest and whose available population mass in a certain time period is low. Members of the second cluster have medium internal potential where their own potential is also low – such subregions with small population or low population density, located near catchment areas of major cities (e.g. the subregions of Kazincbarcika or Tiszaújváros). In the case of 12 subregions the internal potential is prominent, to which the second highest own potential (weight of population) values belong. The position of Tatabánya in the third cluster is due to its higher population density and the proximity of the Budapest agglomeration. In the fourth cluster 24 transitional subregions were listed with their own relatively high potential and with inner potential. In case of 7 subregions (cluster 5) their own potential is prominently high (these are, for example, the county seats with large population), but their internal potential is not significant, suggesting that the population weight of the surrounding subregions is low on a national level (Table 1).

The cluster analysis with the data from the year of 2000 and 2009 shows that several subregions changed their position due to their population (own) potential, either as the result of internal¹ potential or their own² potential. Compared to the values from 2000, many subregions changed clusters, as indicated in the Table 1. The subregions of Pécs, Nyíregyháza, Szeged, Miskolc and Debrecen had extremely high own potential also in 2009. This group was expanded by the subregion of Győr. Its own potential primarily to favourable demographic trends has become higher, but due to the infrastructural improvements in the country the availability relation has changed, which is why Győr moved from the central availability areas, as also occurred in the case of Veszprém. The situation of Székesfehérvár has improved considerably; both its internal and own potential has grown. Regarding Szolnok, its position in the 4th cluster also represents progress. Its change of position comes from the growth of its own gravity as well as the available population mass.

Overall, it can be stated that in the past 10 years, the potential of low gravity areas decreased further as a result of the infrastructural development, while the largest increase can be observed at the extreme gravity centre.

Table 1. Subregions of the county capitals and other Northern Hungarian subregions by clusters (2009)

1. Low gravity points in periphery	2. Low gravity points in transition areas	3. High gravity points in central areas	4. Medium gravity points in central areas	5. Prominent gravity points in semi-periphery
Békéscsabai ↓ Kaposvári Szombathelyi Zalaegerszegi	Egri Salgótarjáni Szekszárdi Veszprémi ↓	Székesfehérvári Tatabányai	Kecskeméti Szolnoki ↑	Debreceni Győri ↓↑ Miskolci Nyíregyházi Pécsi Szegedi
Northern Hungary				
Abaúj-Hegyközi Bodrogeközi Encsi Sárospataki Sátoraljaújhelyi	Balassagyarmati Bélapátfalvai Edelényi Egri Kazincbarcikai Mezőcsáti ↑ Ózdi Pétervásárai Salgótarjáni Szécsényi Szerencsi Szikszói Tiszaújvárosi Tokaji	Hatvani	Bátonyterenye Füzesabonyi ↑ Gyöngyösi Hevesi ↑ Mezőkövesdi ↑ Pásztói Rétsági	Miskolci

Source: own calculation

Legend: - changing position (compared to 2000)

↑ - positive tendency

↓ - negative tendency

The aggregate data indicate that the values of the subregions in Northern Hungary are lower than the national average. The heterogeneity of the group is also observed here: the Northern Hungarian subregional centres are present in every category from the periphery to the centre based on the available mass of population. Those areas proved to be centre where the proximity of a highway can be felt, such as Miskolc or Budapest.

Regarding the region, compared to the year of 2000, several areas changed categories in the region; among the subregions that were exchanged, the reclassification was always positive. Füzesabony, Heves and Mezőkövesd show significant improvement in terms of the factors, their inner and own potential also increased, while the position of Bátonyterenye has decreased due to both potential values – although this change did not result in relay among the categories. The connection of Mezőcsát into the economical processes was proved more intensive in 2009, as it moved into a transitional area from the periphery. The internal potential of Miskolc is relatively low. In 2000, the worst positions were held by Szerencs,

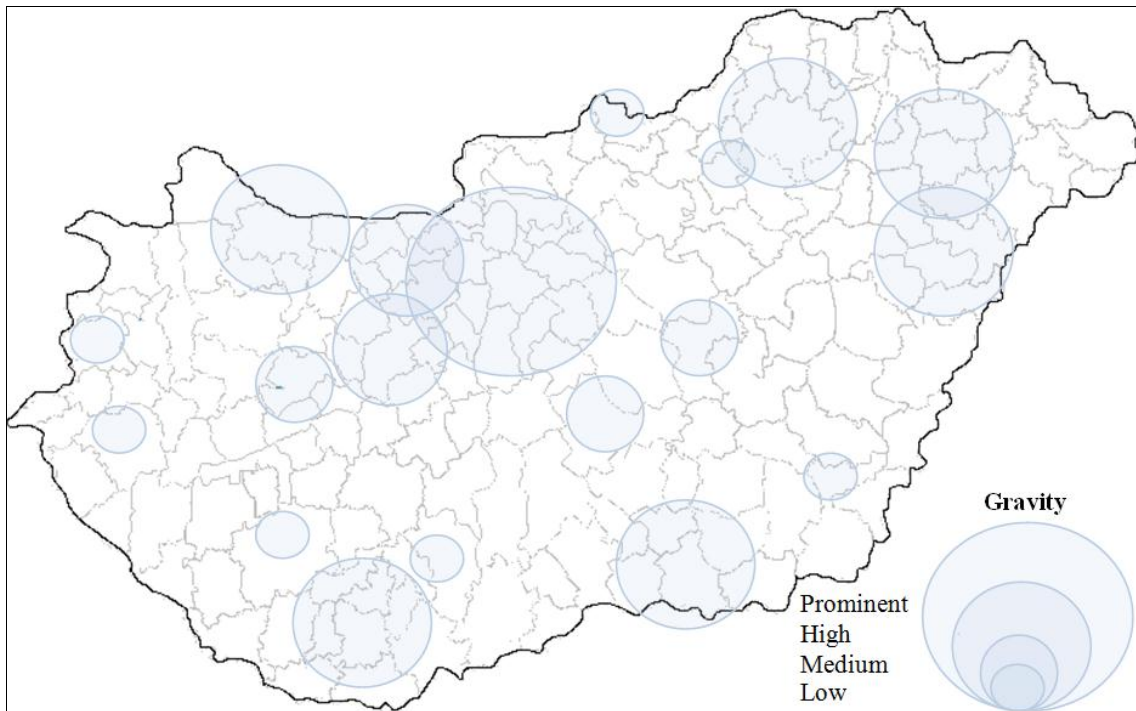
Sátoraljaújhely and Encsi; in their case the availability of the certain population mass is the most difficult issue. Members from the 4th cluster have medium internal potential mostly because of the nearness of Budapest.

Classifying the counties' own potential, the gravity centre of subregions can be outlined. In this case the changing position of the 19 county seats can be explained by the distribution of the population and the radial motorway network. High overlap can be pointed out between the formalized centre that comes as a result of the calculations and the centre as development poles designated by the National Spatial Development Concept (Figure 3).

It is also noticeable that the central and peripheral positions are always relative; we cannot talk about position without reference point (Nemes Nagy 2009). Concerning the development of other territories, a prosperous or inadequate situation is always changing. With the development of the accessibility terms, less and more adequate availability conditions still remain.

¹ Internal potential of a subregion is represented by the accessible (on the shortest way) population mass of the other 173 subregions in Hungary in a certain time period starting from that subregion.

² Own potential of a subregion is represented by the accessible (on the shortest way) population mass in a certain time period inside that subregion. The calculations are published in my former articles. (Györffy 2010)



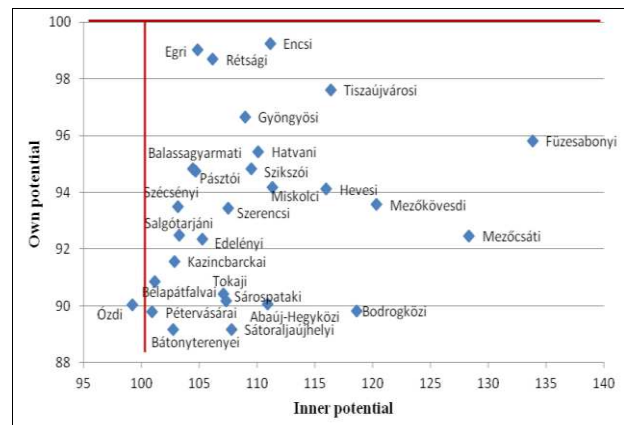
Source: own calculation

Figure 3. Gravity of county capitals based on cluster analysis (2009)

CHANGING SUBREGIONAL POSITIONS

Compared to the data from 2000, the own potential, so the own gravity field of the North-Hungarian subregions does not indicate growth in any case. The smallest decline belongs to the indices of Eger and Encs, the largest decline affects the area of Bátorlyterenye, Sátoraljaújhely, Pétervására and Bodrogköz. However, the centrality indices show an average increase in 2009, that was a result of the growth of the internal potential values. Also at regional and national level the subregion of Füzesabony has shown the greatest improvement; its internal potential has grown with more than 30 percent due to the highway investments³ (Figure 4).

Outside the region, the subregion of Veresegyháza is eminent with its own potential. Mezőkovácsháza is noticeable as a negative example, where its own potential value in 2009 was slightly above 85% of its value in 2000. Due to the negative demographic trends, as was expected, the national average of the own potential values decreased slightly (1%). The higher value of the centrality indices for the year of 2009 comes from the 7% growth of the internal potentials, so the available mass of population from a subregion in a certain time period became higher.



Source: own calculation

Figure 4. Centrality indices of Northern Hungary (2009) compared to 2000 (population weight, %)

The gravity of Northern Hungary's subregions, represented by their population potential and their attracting power (come from the inner and own potential) grew more significantly than the national average between 2000 and 2009; however, the infrastructure effect and the potential growth are lower than expected due to the unfavourable demographical tendencies.

³ Between 2000 and 2009 the M3 and M30 enlarged with more than 130 km.

TESTING THE DIRECT AND INDIRECT EFFECTS OF ACCESSIBILITY POTENTIAL

During my research I proceeded from the basic question: are those areas which can be considered as central or peripheral from a geographical point of view also in the same category from an economic point of view? The economic classification corresponding to the foregoing points was explained by income before tax per capita, as a built-in dependent variable. The variables in the model were chosen based on national references. During the analysis I aspired to reveal the connection between accessibility potential of the subregions, the development and income level, respectively.

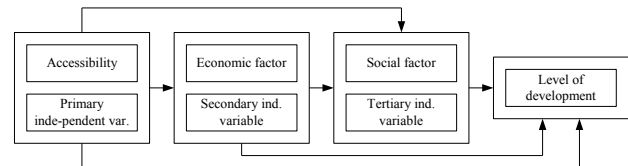
Path analysis is a series of linear multi variable regressive estimations. In the first step we see how the primary variables affect together the indicators belong to the secondary group. In the second step we analyse the common effect of the primary and the secondary variables on the tertiary variables, and finally all the variables are applied together (Németh 2009; Székelyi and Barna 2002; Tóth 2008). In the regression analysis I use the following indicators as independent variables that explain the dependent variable (income before tax).

1. Accessibility, relative geographical position
Centrality indices of the subregions (ELER)
2. Economic factors
Ratio of dwelling construction (LAKASEP; per 1000 dwellings)
Ratio of dwellings connected to the public sewerage network (KOZCSAT; %)
Enterprises per 1000 inhabitants (VALL_SU)
Ratio of joint venture (TARSAS_AR; %)
Ratio of registered corporations in the sector of industry, constructions and service (VALLALK_R; %)
Number of passenger cars per 1000 inhabitants (SZGK)
3. Social factors
Population density (NEPSUR; inhab./km²)
Change of total population (NEPES_VALT; 2000-2008, %)
Natural increase or decrease per 1000 inhabitants (TERMSZ; ‰)
Net migration balance per 1000 inhabitants (VAND_KUL; ‰)
Ratio of registered jobseekers (NYT_KER; %)
4. Relative level of development
Income before tax per capita (JOV; thousand HUF)

Regarding the groups of variables, the following hypotheses can be defined:

- accessibility: the higher the availability and population potential of the subregion is, the more favourable value is expected concerning the development indicators (i.e. the income before tax per capita is higher).
- economic factor: the better the economic force (represented by the analysed indicators) of a subregion is, the higher the expected level of income.
- human potential: the more favourable the demographic situation of a subregion is, the more advanced it is.

In the sense of path analysis we assume that the primary independent coefficients (in my case the accessibility and relative geographical position determined by centrality indexes) influence the secondary coefficient, namely the deviations of the economical situations, which have effects on the tertiary coefficients (social factor). We also assume that primary and secondary coefficients have not only an indirect effect on the development, through the tertiary coefficients, but also a direct effect. The arrows in Figures 5 and 6 illustrate this causal connection. In this way the effects are staggered, amplifying or attenuating each other (Tóth 2010; Csité and Németh 2007; Németh 2005; Dabasi Halász 2009; Kecskeméty 2005).

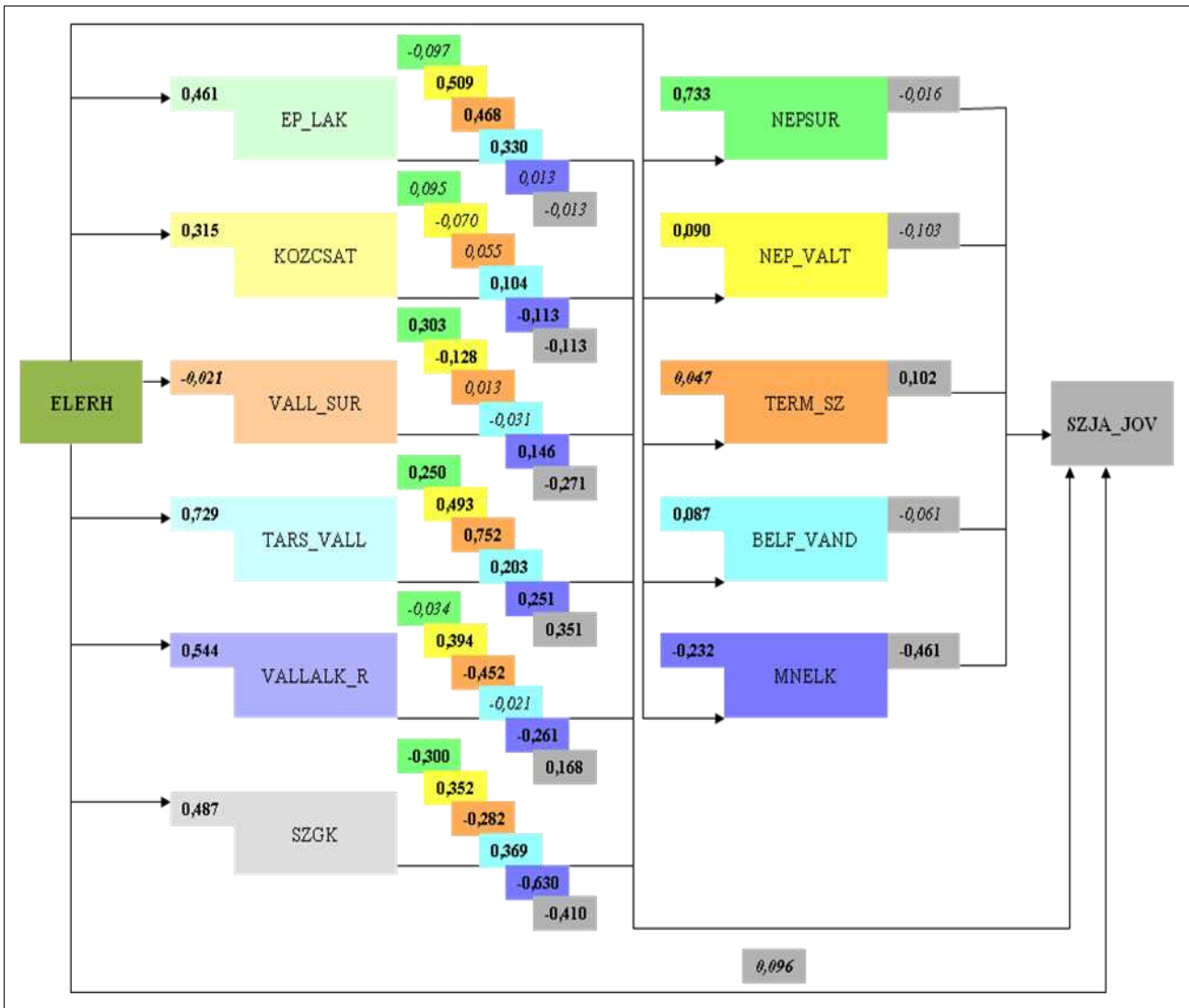


Source: own calculation, HCSO

Figure 5. Causal relations among the group of variables

According to the references that deal with regional models, path analysis reveals the effect of those indicators which does not have an exclusive effect on development relations but through other independent coefficients do have some effect. At the same time that is not even a problem if the coefficients have strong relations with each other (Németh 2009; Székelyi and Barna 2002).

In the regional model presented I attempt to explain the specific incomes with the role of accessibility, namely with the population potential, and its direct and indirect effects through other variables.



Source: own calculation, HCSO

Figure 6. Causal relations of the group of variables in the path model

As the first step of the path analysis I examined the regional distribution of the income per capita that makes the base income before tax, with multi-variable linear regression. The variables contained by the examination together explain the income per person with the value of 81.7% R². Among the variables the registered job-seekers (with negative slope) and the proportion of the joint companies have the most significant role in the explanation.

The direct effect of accessibility is non-significant, with the value of 0.096. In addition, the indirect path can be calculated as following: all paths are added together from the primary variables to the dependent variable, and the appropriate path will be multiplied as well as in case of the primary and secondary variables, then the primary and tertiary variables (Table 2).

The effect of the accessibility indicators on the regional development (i.e. in the present study on the income level) indirectly prevails through the economic

and social indicators, as the results in Table 2 show. The expansion of the network, the reduction of the accessibility time – depending on favourable demographic trends – so the higher population potential have effects through the economical and social indicators that refer to a better standard of living.

Table 2. Direct and indirect path of the income explanation

Independent variable groups of the model	Accessibility (standardized β)
1-2-3-4.	0.093
1-2-4.	0.362
1-3-4.	0.085
indirect	0.540
direct	0.096
Total	0.636
R ²	0.401

Source: own calculation, KSH

The path-model suggests that the relative geographical situation defined with population potential and accessibility exerts only an indirect impact on the income level of subregions, as indicated by the economic and social indicators involved, and the indirect effect seemed insignificant.

FURTHER RESEARCH PROSPECTS

The literature states that infrastructural development is a key element of the competitiveness of a region, as it increases economic efficiency and promotes integration into the global and international economy. Taking international experiences into consideration, the observation is relevant that inadequate macro regional infrastructural conditions can become a fundamental obstacle to regional development and convergence. This problem is relevant also in Hungary, where despite the progress in accessibility of certain spatial centres, most of the analysed areas are lagging behind. This backwardness unfavourably affects many cities and the centre of the region (Nagy 2007).

In my research I tried to point out the problem that in the case of infrastructural development shortened access time is highlighted in practice as the most important result. However, this is not equivalent with the accessible population mass that characterizes the change of accessibility more accurately. The effect is not the same when an area with lower population comes 10 minutes closer than when this occurs with a high population mass. The population potential – represented by the accessible population mass in a certain time period (namely the centrality index) – has indicated how the gravity of the subregions changed as a result of the shortening access time and demographic tendencies.

Examining the effects of population and infrastructure (based on the data of 2000 and 2009) the population potential would have been bigger in each subregion in Northern Hungary if the number of inhabitants in 2000 had not declined by 2009. In this context the infrastructural development did not have the positive influence in the region that would have been expected.

In the period 2000 to 2009 the spatial differentiation of the population and the income potential declined on national level as a result of the infrastructural investments, but there were certain areas where the results showed areas lagging behind because of their weaker demographic indicators. Mostly the exaggeratedly and strongly peripheral areas are characterized by no or only slow convergence.

During the accessibility examination the differences between the categories indicated that in the exaggeratedly and strongly peripheral areas the results of the indicators are much worse, while towards the central areas they are more favourable. However, based on the results of the path model the direct impact of infrastructural development is not relevant. Although the improvement of the infrastructure is an essential factor in the convergence of peripheral areas, its impact is in itself not able to generate spatial development; with the extension of the infrastructure the growth indicators do not change significantly where the base factors are missing. The results of the path-model pointed out that there is no significant direct effect. Only indirect impacts (through economic-social data) can be expected by the accessibility indices that are affected by the shortening access time and demographic trends.

Many development trends aim to transform the radial form structure into a network scope that exploits economic connections in order to begin a new development path; however, it is unlikely that development processes in the region will be started only as a result of infrastructural improvement. Due to the indirect effects the main issue is to examine which path is capable of creating attractive conditions for investment and private capital. In addition, it needs to be ensured that the impacts of the policies can be measured; the results have to be monitored regularly. For monitoring an indicator calculation should be used that is similar to the potential method in national development plans and could give evidence of a certain development process represented by the higher available mass of population or income.

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Theoretical Dilemmas of the Natural Monopolistic Position of Network Based Public Utilities

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SUMMARY

The change in the market of public utilities – the liberalisation of markets – is a much debated and highly significant tendency in today's economy. Many competing, contradicting views have been published on this issue. The demand for the liberalisation of the market of public utilities has become stronger in certain professional circles, emphasising the benefits of the competition evolving as a consequence of the opening of the market. The idea of privatisation was closely linked to liberalisation. According to other schools of thought, market mechanisms are not capable of efficient operation in all cases; public utilities are the state's responsibility and marketing them has unchangeable negative consequences.

Key words: public utilities; natural monopoly; regulation; liberalisation; privatisation

Journal of Economic Literature (JEL) code: D4, H4, L5, L9, Q4

INTRODUCTION

The change in the market of public utilities, that is, the liberalisation of markets, is a much debated and highly significant tendency in today's economy. Many competing and contradicting views on this issue have been made public. The demand for the liberalisation of the market of public utilities has become stronger and stronger in certain professional circles, emphasising the benefits of the competition evolving as a consequence of the opening of the market. The idea of privatisation is closely linked to liberalisation; privatisation and liberalisation are considered to be the prerequisites of competition. According to other schools of thought, market mechanisms are not capable of efficient operation in all cases. One of the reasons for market failures is natural monopolies. Natural monopoly limits competition, or even makes it impossible to establish competition. This is the reason why there is a need for strict regulations and strong control by the authorities. The followers of this school of thought still believe that public utilities are the state's responsibility and marketing them will have inevitable negative consequences, which endanger the sustainability of public utilities. So, when analysing the dilemmas of natural monopolies, the fields of natural monopolies, regulatory economics, modern market theories, liberalisation – demonopolisation – deregulation and privatisation need to be overviewed. Besides these, interesting contexts can be shown in the

fields of information asymmetries and the agent theory, applied to the relationship of regulators and regulated.

STATE INTERVENTION VERSUS PRIVATE SECTOR – ARGUMENTS AND COUNTERARGUMENTS ABOUT THE NECESSITY OF INTERVENTION

The standard neoclassical economics used several assumptions by which market mechanisms lead to Pareto efficiency, eliminating the need for state intervention. However, these assumptions – perfect competition, the existence of entire markets, the absence of market failures and perfect information – are only partially met in reality. This way, market mechanisms are incapable of fulfilling their tasks in all circumstances and competitive markets do not create optimal situations in the national economies. The literature mentions six circumstances in which markets cannot function perfectly (meaning not in a Pareto efficient way) for some reasons. These are natural monopolies, pure public goods, externalities (external economic effects) and non-entire markets (where the supply of commodities is lower than necessary), information asymmetries and periods of higher unemployment. These circumstances are defined as market failures (Stiglitz 2000). Market failures can be a reason for state intervention in certain fields, but this

does not necessarily mean the centralisation of production. Instead of the direct control of production the government may apply regulatory solutions, taxation, subsidies in order to give incentives for the private enterprises to follow the interest of the public. The economics literature usually mentions four possible ways of state intervention (see Stiglitz 2000, Cullis and Jones 2003, Barr 2009, amongst others). “Regulations, applying financing tools, and the public production of certain commodities influences the operation of market mechanisms in an indirect way; while income transfers have an indirect influence” (Barr 2009, p. 134). In any case, it needs to be investigated which forms of state interventions can be accepted.

There is no uniform view in the literature about the necessity of strong government intervention. Some points of view not only reject the idea of public production, but criticise the other ways of state intervention as well. According to these views, regulation cannot be proven in any cases either. Theories denying the necessity of regulation can be clustered around two theories. The first of these is the “theory of contestable markets” (Baumol et al. 1982). According to this theory the threat of competition is present even in case of natural monopolies so the monopoly has to decrease its prices. The other significant theory is the “theory of public choice” (Buchanan and Tollison 1972) stating that the public utility of regulation is lower than its public cost. According to this theory, regulation is harmful from the society’s point of view. The reasons for this are explained by the theory of “regulatory capture” of Stigler. According to Stigler (1989) companies of a branch of industry want regulation in their branch because by “capturing the agencies” (with convincing, bribes or threats) they can influence the agencies making the regulations and can be able to distort competition for their own interest. In this view the fundamental objective of regulation, to improve market imperfections, cannot work. The lobbying activities of the companies in a given branch of the industry are focused on making the regulatory environment favourable for themselves. Another explanation can be the influence of politics, according to which policy controls the regulatory processes.

An additional argument of those who oppose state intervention is that besides market failures, government failures exist, too. Barr (2009) summarises government failures as follows: the government that cannot fulfil its obligations in an efficient way of the regulation will be captured by those who were originally to be regulated, or if it is maintained, it is in the interest of the bureaucrats operating the system, and politicians are incapable of fully controlling the operation of the administration. The large size of the public sector is often criticised, stating that it fulfils the needs of special interest groups (Barr 2009, p. 159).

Due to the criticism summarised above, there is in any case a need to analyse whether the chosen form of

governmental intervention is capable of correcting the harmful effects of the imperfect market, and of improving the efficiency, and whether its social benefits are greater than the social cost, so for example, whether the intervention is cost-efficient. Both the market and the government can operate in an efficient or an inefficient way. It is not easy to draw the line between the market and the government. None of the solutions can be considered to be the unquestionably preferred method of the allocation of social commodities. All institutions have their strengths and weaknesses. The decision on the borderline between the market and state needs a sense for judgement, so different attitudes and interpretations can be possible. (Barr 2009, p. 165)

Vigvári (2009) gives an informative summary of the debates on the welfare state in Hungary.

“The mainstream economists of the transition economies are less open to the schools of thought emphasising the market failures and market imperfections due to the past’s planned economy. The basic note of the professional discussions is influenced by a kind of bias for the markets (...) since the 1960’s in Hungary. These concepts put less emphasis on the importance of the standard assumptions about market efficiency, so they propose the use of market mechanisms, considered to be objective, for the solution of several public policy problems without criticism (...). The „invisible hand” is also capable of hiding distinct interest groups in the backgrounds of distinct public policy decisions, representing their own goals as public interests.” (Vigvári as cited in the appendix of the Hungarian edition of Barr 2009, p. 610)

As has been shown, the experts are divided on the the necessity for and scale of state intervention. The extent of state intervention varies in different countries and there is no standard recipe for the optimal scale of state intervention. In mixed economies the welfare system is based on the cooperation of the public and private sector. But we could also ask what can be considered as state intervention? Hills (2004) and Barr (2009) set this question in a different context, by discussing state intervention in three dimensions, which are the financing, the supply and the decision making.

JUDGING THE LIBERALISATION OF NETWORK BASED PUBLIC UTILITIES

Public opinion is divided generally in terms of privatisation but also concerning the public utilities.

Distinct professional circles have demanded the liberalisation of public utilities more and more strongly, and related to this, the demand for privatisation has come into focus too, emphasizing the benefits of the competition evolving as a consequence of these. Different giant companies and international financial institutions,

including the World Bank, the OECD and the IMF, have an interest in the privatisation of public utilities, and increase the pressure on national governments to market their public utilities (see the Bolkestein directive, GATS agreement, and the EU directives concerning this question).

The defenders of privatisation consider the possibility to earn monopoly profit due to the monopolistic position, and the too convenient position to be unacceptable. Their major argument is that competition forces companies to increase their efficiency in public utilities, and this leads to the decrease of cost and the decrease of price levels. Further arguments of theirs are that the quality of services will increase too, and by letting the private enterprises provide these services public resources will become available for other purposes, the revenue from privatisation can be used to finance the provision of other public goods, the involvement of working capital will serve as a source of financing development, the organizations can be modernized and a new, more flexible organization will take the place of the old, bureaucratic structures.

On the other hand, several experts warn us to be careful with privatisation, although agreeing with the necessity of competition. According to this point of view, the provision of public goods stays the responsibility of the state, and marketing them is a process which cannot be turned backwards, endangering the sustainability of the provision of public goods. (Schering and Boda and some further experts founded an association in Hungary which argues against the liberalisation of public services. Their book was published in 2008.)

Several authors use the argument against privatisation that changing ownerships is not a precondition for creating competition. Competition will not be created only through privatisation. They also show that when involving private capital, profit interest also enters, and this leads to an increase in the price of the commodity. Osborne and Gaebler (1994) use very good examples to support their argumentation, according to which it is not true that private enterprises are always more efficient than the state. The important difference lays not between private and public ownership, but between monopoly and competition (Osborne and Gaebler 1994, p. 92). In competition, public institutions often operate just as good as private enterprises (Osborne and Gaebler 1994, p. 103). Osborne and Hutchinson (2006) call for maintaining a public administration which is capable of providing public goods with optimal efficiency. Goal-oriented government stands in the focus of their work. They mention the benefits of competition, but also warn that the change in ownership is not a prerequisite of competition.

According to one of the reports of the United Nations the privatisation of state owned monopolies is not an ideal solution, as the gains from the increased efficiency cannot be transferred to the consumers, but it stays in the hands of the producers as monopoly profit. (The United

Nations Conference on Trade and Development, cited in Baar 1999, p. 274). Illés also argues against the careless privatisation of public services. Regarding this she says, "Changing the ownership in itself will improve neither the quality nor change the natural monopoly, only turn state or local government monopolies to private monopolies." (Illés 2000, p. 43).

Of course, in certain cases, privatisation can be a good choice, so we cannot consider refusing privatisation either. It is only suggested to be very careful when making the decision about privatisation.

The idea of privatisation is often connected to liberalisation. Privatisation is considered to be the prerequisite of liberalisation and competition. So it is not a coincidence that the increased attention to liberalisation was accompanied by the strengthening of the demand for privatisation. Gál et al. (2005) analyzed trends in privatisation in Europe. In their study they emphasize that waves of privatisation were always connected to periods of liberalisation. Liberalisation of the productive sectors happened first, so privatisation appeared in these sectors first as well. Nowadays the liberalisation of services and public services is occurring, and due to this privatisation has become a general trend in these sectors too, which were earlier considered to be of strategic importance (for example energy supply, telecommunications, post and railways). The circle of strategic sectors keeps on narrowing. In the previous years the demand for liberalisation became stronger in the field of network-based systems, which are natural monopolies.

In modern market economies, the solution to the problem of natural monopolies is seen in separating the network and the activities related to it. The separated activities can become competitive and only the network itself keeps the natural monopolistic position. This process is called demonopolisation. The definition of liberalisation is closely related to this. Mozsár (2002) defines the core idea of liberalisation in a very compact way. It means the opening of certain sectors for competition. This definition includes both making the contestable activities free for competition and suggests the necessity of regulating those "core activities" which remain in the position of natural monopolies. In order to let economic competition evolve, the company operating the network (a natural monopoly) needs to ensure access to the network to its competitors. Considering that the company operating the network is not interested in doing this, the proper regulatory background must be introduced. In the case of separating the activities, the first level of liberalisation was to secure access to the network. The separation of branches of business in accounting is the next condition, more favourable for the evolution of competition, but still not sufficient in itself. New regulations often oblige the full organisational separation of networks, so the full legal separation, but only the separation of ownership could bring the expected solution. We will have to wait for a long time for this though, due to relationships between owners.

Opinions about the effects of liberalisation are various. Dickhaus and Dietz (2004), in their study “Public Services under Privatisation Pressure: Impacts of Privatisation and Liberalisation of Public Services in Europe,” evaluated the experiences of the liberalisation of the British energy sector. The opening of the market had its positive effects: the price of energy definitely decreased, while the security and the quality of the service improved. The environmental goals were met, emission of pollutants decreased. However, the authors criticise the lack of considering other effects of liberalisation. The questions of efficiency and social fairness are not in the focus of attention. They show some negative aspects of liberalisation (which cannot be neglected or considered to be insignificant) in their analysis: instead of national monopolies, international oligopolies control the market, with the dominance of transnational companies that pursue their activities in several branches of services. This way, we cannot truly talk about the accomplishment of competition. In terms of employment, large lay-offs took place, employees were exploited, they had to work more overtime and their wages decreased. The decrease in prices was accomplished through measures like these in several cases. Employment decreased and defencelessness increased.

Other authors mention the negative effects of the liberalisation of public utilities, too. The security of the service can decrease (this can even lead to tragedies, for example in case of the liberalisation of the water market). The access to public utilities of lower income groups is not secure in many cases. Private suppliers often deny their services to lower income groups in order to maximise their profit and to decrease their costs, and geographical polarisation happens too, when no companies compete for weak customers or the regions with low population density. The competitive private capitalists tend to target only the layers of society with higher purchasing power. The “drain” of the layers of society with higher purchasing power leads to a distorted competition, as the supplier (and its customers) which is obliged to supply is in a less favourable position compared to the private company which is not obliged to do so. These issues must be considered when making a decision about privatisation and liberalisation, and regulation must be formed in a way to secure the sustainability of public services. The experiences of previous liberalisation processes show that several problems can arise from the harmonisation of various suppliers’ activities and in some cases organisational problems are mentioned as well (for example, train accidents which happen due to the failure to harmonise railway schedules). Stiglitz (2005) considers extreme liberalisation to be harmful. He shows that liberalisation leads to monopolistic practices and unfair benefits for managers instead of competition, by the analysis of American liberalisation processes. Liberalisation proved to be stronger in the recent past and many sectors,

including the energy sector markets, have been opened up. The idea of demonopolisation in case of network-based local public utilities can be considered only on a theoretical level, as the preconditions for this are not present. (Several authors deal with the analysis of its possibility.)

THE ECONOMICS OF REGULATIONS, AS THE THEORY APPLIED TO THE REGULATION OF THE MARKET FOR PUBLIC UTILITIES

The economics of regulation deals with the regulation of markets. Its aim is to overcome market failures, and to improve these situations. It deals with those rules and regulations which are meant to improve the economically efficient operation of markets in times when the unregulated market operates, or would operate not in a perfect way – so not in optimal manner from the society’s point of view (Kiss in Valentiny and Kiss (ed.) 2008, p. 15). So, it is focused on the basic cases of market failures. To be more precise, one of its major subjects is the regulation of natural monopolies, which has been changed to a certain extent with the appearance of competition, but is still a major question of the economics of regulations. The regulators are mainly state (governmental) agencies.

The history of the economics of regulation can be divided into three major phases. In the beginning it dealt mainly with the regulation of natural monopolies, later, with the formation of competition, and then with the spread of liberalisation, regulations needed to be adjusted: some rules were no longer needed, while other, new ones had to come into force.

The major characteristics of these phases will be introduced based on the study of Kiss (2008), supplementing it with the use of other literature in the field. (The following sources give a thorough introduction to the methods of regulation: Train (1997), Jha (2004), Carlton and Perloff (2006), Kiss (2008).

PHASE ONE – THE PERIOD OF REGULATION OF NATURAL MONOPOLIES

In the first phase (from the 1930s to the 1980-1990s), the regulation of natural monopolies was the major focus of the economics of regulation. I will focus on the rate of return regulation as a major method of this period, and on the Averch-Johnson effect, which is closely related to this. The regulation of the rate of return was introduced in the 1960s. Its basic aim was to limit the opportunities of earning monopolist profit and to secure the level of profitability regarded as normal or average in the given

country, in the given financial circumstances. Several critiques were formulated regarding this theory. Both the numerator and denominator of this rate can be manipulated. A smaller result can be achieved by either decreasing the numerator – the profit – or by increasing the denominator – the capital (assets). The numerator was usually distorted by accounting for unnecessary costs (i.e., by hiding the profit behind extra expenses), so showing lower profit in the end. The possibilities of distorting the denominator are known as Averch-Johnson effect in the literature. They were the first ones to describe (in 1962) the effect of regulation of the rate of return working as an incentive for suppliers to overcapitalise, as this allows them to earn higher profit compared to the higher level of capital used. The possibilities of overcapitalising are (1) increasing the volume of capital used (rate base padding), (2) improving the quality of capital used, so purchasing better quality and more expensive capital goods which are not really necessary (gold plating), and (3) shifting towards the more capital-intensive technologies (technology bias).

The other possibility to regulate the prices is the application of so called price index formulas. There are several technical solutions to this; the simpler forms use only one price index for this, while the more complicated ones apply weighted price indices, which reflect the types of expenses too. For further details on this, see the works of Barr (1999) and Illés (2000).

PHASE TWO – THE INTRODUCTION OF COMPETITION TO THE MARKETS OF PUBLIC UTILITIES

The second phase started with the introduction of competition to the markets of public utilities. Besides the regulation of the natural monopoly, the necessity to regulate the markets with imperfect competition appeared as well in this period. The basic requirement the regulation had to meet was to be able to resolve the problems arising from the evolving competition. Therefore, regulation had to cover the barriers to accessing and leaving the markets, as well as creating the preconditions of competition. Amongst other, price cap regulation became widespread in this period. This means that “the stakeholders (the regulator authority and the enterprise) (...) agree on a base fee based on the necessary cost and capital, and limit the opportunity to raise this base fee with a price cap, which is determined by the inflation, the expectations for the improvement of productivity and the effect of changes in the volume” (Illés 2000, p. 148). One of the major advantages of this method is that in the period for which the formula is determined, since the prices can only be increased according to the criteria involved in the formula, the monopoly has incentives to decrease its cost, as it can

keep the profit earned by any savings on costs (Illés 2000).

In addition, in order to limit the possibility of companies supplying both competitive and monopolistic markets to cross finance their activities (to favour their competitive products), the need arose for a new type of regulation to separate these activities both in organisation and in accounting. (It was mentioned previously that these levels of separation were not sufficient to create a competition which is free of distortions. The requirement of the separation of ownership could solve this issue, but due to the complex ownership relations we will have to wait for this for a long time.)

This phase was a transition period between the regulations of natural monopolies and creating the regulatory environment for imperfect markets, which gained significance after competition, was introduced to these fields. This transition period led to the evolution of the new economics of regulation.

PHASE THREE – THE EVOLUTION OF INDUSTRIAL ORGANISATION

The third (and so far last) phase of the economics of regulation can be considered as the new economics of regulations. In this period the regulation changed to a significant extent. The traditional methods of the economics of regulation, which were based on the neoclassical approach, were not successful in explaining the new tendencies (the wave of liberalisation) taking place at the end of the 20th century. It was discovered that the assumptions of the theory are not fulfilled in reality, so events can hardly be explained, or not at all. There was a need for a change in the paradigm, which led to the application of game theory instead of the neoclassical theory. The theory of industrial organization evolved, which is the economics of imperfect competition. Industrial organisation is the “branch of economic theory which studies imperfect competition” (Pepall et al. 2008, p. 28). This is one of the most dynamic, fastest developing fields of modern economics, which analyses the market situations differently from perfect competition and pure monopolies, and includes the analytical methods and way of thinking which try to deal with the phenomena of real business life, linking theoretical microeconomics and modern business administration studies. According to Pepall et al. (2008, p. 17.), it can be considered as the application of microeconomics models to business studies.

The opposite models of the operation of perfect competition and monopolies are well known in microeconomics. In reality, though, market mechanisms are somewhere in between these two extremes. There is no perfect competition in many fields, but there is not one single company possessing the entire market, either. Generally, companies compete with a limited number of competitors. Industrial organisation creates the common

theoretical framework for answering the major questions concerning the market structures described above. When analysing imperfect markets, tools are needed which are capable of identifying and measuring monopolistic power and it can be determined how far the given market is from perfect competition. The so-called concentration curve is perfectly capable of showing the characteristics of market structures in one measure. Concentration rate (CR) and Herfindahl-Hirschmann index (HHI) are measures to show the concentration of a given branch of industry. Besides these market structure measures, the so-called Lerner index can also be determined, which measures the market strength by showing the difference between the outcome of the market compared to perfect competition (the larger the value is, the further away the branch of industry is from perfect competition). For further details about these measures see Pepall et al. (2008), p. 85-101. For a summary of measures showing the structure of industry and performance see Carlton and Perloff (2006).

Vigvári (2005) underlines the importance of the role of technological progress in the dramatic change of the structure of branches of industry, market structures and market regulations. Natural monopolies' situation can be solved by technological progress. For example, nowadays the same network-based infrastructure can be used by multiple companies at the same time. In relation to this, the objective and methods of regulations were changed to a large extent; creating competition requires different forms of regulations. It became a significant question to regulate the "use of crucial tools" (following Kiss 2008). For the sake of creating competition the owners of networks were obliged to give their competitors access to their network, and in return competitors are obliged to pay a fee to owners for using the system. It was a difficult challenge to formulate the conditions of using the system and determining the access price. In this period the traditional interventionist regulation was changed to incentive-based regulation, the efficiency of which is limited by the barriers arising from the imperfect information of actors and information asymmetries. Agent theory, related to game theory, also appeared as a tool of economic analysis.

THE DISTORTING EFFECTS OF INFORMATION ASYMMETRIES ON THE MARKET

A new era of thought was launched by the discovery and modelling of information asymmetries in economic theory, as several phenomena which could not be explained by the assumptions of the neoclassical economic theory on perfect information of actors became understandable through this new theory (economics of information, or economics of information asymmetries). In reality economic actors can never be perfectly informed. Asymmetric information can lead to market

failures. The disadvantages of information asymmetries can arise in several fields. So for example, we can often see it in the relationships of buyers and sellers or owners and managers or agencies and regulated bodies.

We talk about an information asymmetry if one of the actors possesses more information than the other (with opposite interests). One of the basic examples of information asymmetries is the problem of agents. The less informed party is called the principal, while the well informed party is the agent. The agent basically acts in the interest of the principal, but the issue of asymmetric information arises between them. In 2001 Akerlof, Stiglitz and Spence received the economics Nobel Prize for the development of the analysis of markets with information asymmetries. The importance of their work lays in showing that market mechanisms do not lead to Pareto optimal outcomes in markets with economic actors with information asymmetries (Bekker 2005). The most problematic forms of information asymmetries prove the necessity of state regulations. To judge these, criteria can be found in the work of Barr (2009). The efficiency is also weakened by principal-agent problem arising in the relationship of regulator and regulated as well.

In this aspect, regulators can be considered as principals while the regulated companies are agents. Kiss (2008) defines the role of agency theory in the economics of regulation as follows: "...the regulator has a limited knowledge of the market and of the regulated companies, as the companies themselves. In a competitive environment it is especially important because the most important economic data that the monopolies were required to publish previously became business secrets due to competition. Some of these can only be known to the regulator, while others are known not even to them. The results of theoretical research on asymmetric information and its consequences became very important, as regulators had to find principles, methods and tools of regulation which can contribute to efficient regulation even in case of relatively imperfect information" (Kiss 2008, p. 64). Vigvári (2002) mentions the function of control as one possibility for resolving the problems arising from insecurities evolving due to information asymmetries. Even though control can decrease the distortions arising because of information asymmetries, it cannot mitigate them fully.

CONCLUSION

The present study deals with the dilemmas of marketing public utilities by introducing different theories. Questions about the necessity and extent of state intervention were discussed, followed by a detailed study of the arguments and counterarguments concerning the liberalisation and privatisation of network based public utilities. The permanent change of the methods of economics of regulations were introduced, as measures to mitigate the effects of monopolistic situations and

creating competition, and the major phases of its development were also shown.

It is not an easy task to choose a standpoint in the intersection of arguments and counterarguments. Based on the different theories introduced in the study I summarise my opinion as follows. Concerning the provision of public utilities I consider state intervention necessary, via the public production of certain public utilities and via careful regulation of natural monopolies. In my opinion, careless privatisation/marketing of public utilities can be disadvantageous both for the society and

for the economy. We may have doubts about the benefits of competition, but I cannot agree with the idea of changing ownership as a primary method of creating competition. Public companies exposed to competition can also be capable of increasing their efficiency, which has benefits for the consumers. Regarding regulation, I consider the decrease of information asymmetry between the regulators and regulated a basic precondition, via proper control, and by minimising the influence of industry lobbying and politics via objectivity.

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Research and Development Activity Matrix – New Conception in the Performance Evaluation of Research and Development

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SUMMARY

In the first part of the paper, we examine the different measurement methods of research and development activity within a corporation with particular attention to the composite indicators widespread in practice and to the multivariate statistical methods applied to create complex indices. In the second part, the research and development activity matrix is introduced in detail. The newly developed analysing method is a portfolio technique that describes the input and output activity of the research and development units in respect of quantity (performance) and quality (efficiency) and enables the categorisation of the observation units into four groups: stars, those lagging behind, quantity-oriented units and quality-oriented units.

Keywords: Research and development; performance measurement

Journal of Economic Literature (JEL) code: O32

INTRODUCTION

Increasing interest is being shown from both political decision-makers and public opinion regarding the complex indices that compare the performance of countries. The indices that allow us to compare nations in an easy way are suitable for demonstrating very complex and elusive fields, such as technological development, innovation, and research and development. It is easier to inform the public opinion with these indicators than finding a common trend from a number of single indices and they have proved to be useful in benchmarking international performance. At the same time, complex indices can send a misleading political message if they were created in a wrong way or misunderstood. The image shown by the indices often forces the users – especially the political decision-makers – to make simplistic analytical or political conclusions, instead of utilising the composite indicators as keynotes and for arousing interest in the publicity. Their suitability can only be evaluated by the fields affected (Nardo et al. 2005).

The main goal of our research activity is to create a new measurement method in the performance evaluation of research and development that will make possible to measure corporate R&D activity on the basis of a sophisticated methodology. We made an attempt to set up the measurement sub-models of the R&D activity in two aspects:

- The first module of the measurement model of the R&D activity contains only objective and quantitative data which are expressed as allowances in kind (million HUF, person and piece). This is the so-called Quantitative Measurement Model (QN-MM).
- In the second module qualitative features dominate. The base of the structure of this module – the so-called Qualitative Measurement Model (QL-MM) – is relative numbers.

The largest difference between the measurement models is the variables used. We distinguish quantitative data and qualitative features. The most important similarity between these models is the source of information, because both modules contain variables that can only come from business surveys.

The objective requires us to use a methodology that fits the norms of international and domestic economics. Thus we put constant emphasis on choosing the relevant research methods, qualitative and quantitative techniques and mathematical and statistical analyses.

- We did not rely on only the theoretical and secondary results to set up the integrated research and development model. We carried out in-depth interviews in order not to leave out any relevant factor or internal relation from our own created theoretical conception. Five of the experts were from the central governmental sector and the other five were from the large business sector.

- Finally we finished our work with the business survey. It was introduced by the trial testing of the questionnaire among those research and development experts who had helped us in the model set-up phase. During the quantitative primary research 67 large (more than 250 employees) businesses located in Hungary were surveyed with the help of the final questionnaires and telephone interviews as well. The accuracy level of the total sample is ± 8.8 percentage point on a 95 per cent confidence level. The data analysis was carried out by Excel and SPSS software packages.

In the following sections we present the research results: first the research and development composite indicators and measurement methods used in international comparisons as well, then we summarize the theoretical and practical information of the R&D Performance Index and R&D Efficiency Index that we created. Finally we introduce the R&D Activity Matrix, which uses the recently developed complex indicators as axes.

THE COMPOSITE INDICATORS OF RESEARCH AND DEVELOPMENT

Organizations such as the International Institute for Management and Development (IMD), the National Scientific Board, RAND, and the United Nations Development Programme (UNDP) have tried to measure the research and development and innovation performance of countries with composite indicators. However, each of these attempts was only for one year and did not go on (IMD 2009; Wagner et al. 2001a, 2001b; NSB 2008; UNDP 2008). We would like to mention the attempts which were made to measure especially the R&D activity of the industrial and service sectors (Hollanders and Kanerva 2009), the creativity which serves as a basis for research and development activity (Hollanders and van Cruysen 2008a; Hui et al. 2005) and economic globalization (OECD 2005).

Beside the composite indicators used in international comparisons it is worth mentioning those mathematical and statistical methods that have been used in the performance evaluation of research and development in recent years. Borsi and Telcs (2004) tried to get an answer as to whether a composite indicator can be constructed for the understandable groups of R&D statistics that adequately explains a large part from the standard deviation of the indices. They answered the question with Principal Component Analysis (PCA) (Niwa and Tomizawa 1995). According to their findings, the set up composite ranks that consider several indices can be interpreted well with the help of this method.

Borsi and Telcs (2004) tried to find whether an not arbitrary weighting between research and development indices can be created with which a statistically consistent

rank can be determined. They gained an answer with one of the popular heuristic optimum searching solutions, Genetic Algorithm (GA), and they stated that a concrete position can be defined onto the countries analysed with the help of the method.

The Fuzzy Set Theory (FST) that is often applied in the fields of management sciences (Tran et al. 2002; Tsaur et al. 2002; Moon and Kang 1999; Sohn et al. 2001) was first used by Moon and Lee (2005) to make composite science and technology indices. The science and technological indices analysed were assigned according to secondary and primary research, and then they asked experts of different fields (academic sector, civil sector, industry, natural sciences and social sciences) to give their opinion on the relative significance of the indicators with the help of attributes. From the indicators – weighting the experts' answers with the particular value with the help of the Fuzzy Set Theory – they created three composite indicators: “R&D input” (R&D personnel, R&D expenditure, and R&D stock), “R&D output” (patents, papers, technology trade) and “economic output” which were applied for cross section and longitudinal analysis.

Borsi (Borsi 2005; Török 2005) used the Data Envelopment Analysis (DEA) in the Hungarian professional literature (Bunkóczi and Pitlik 1999; Fülöp and Temesi 2001; Koty 1997; Tibenszkyné 2007; Tóth 1999) for the first time for analysing R&D efficiency based on Färe et al. (1994). However in the international professional literature (e.g., Nardo et al. 2005) this field of application is not new. In the data envelopment analysis they use R&D expenditures and the number of R&D workers as inputs and the numbers of publications and patents as an output. The data envelopment analysis calculates those points in the multidimensional space that represent the countries performing the best. The points determine the curve of the efficiency potentials. The countries below the curve are not effective; at the same time, from the efficiency indices of those countries that can be found near them the position of the ineffective countries can be assigned.

In summary, the quantitative and qualitative measuring methods of the separate indices can be observed as facts. With their help the relative position of the countries can be determined in a specific area and the spatial or temporal direction of change can be assigned. Furthermore the indicators are useful in order to determine trends, to arouse attention in connection with a topic, to set up political priorities, and for the benchmarking or monitoring of performance. We talk about composite indicators when separate indices create a single index on the basis of a mathematic or calculation model. The composite indicator is able to measure multidimensional concepts that separate indices cannot catch (Nardo et al. 2005).

Table 1. contains the indicators used in international comparisons of research and development.

Table 1. Composite indicators of the research and development activity on an international, macroeconomic and regional level

	Developer of the index	Factors	Methodology	Source
Summary Innovation Index (SII)	European Commission	Thirty EIS indicators	Unweighted mean of transformed values of thirty EIS indicators	Hollanders and van Cruysen (2008b) EC (2009)
Global Innovation Scoreboard Index (GIS Index)	European Commission	GIS indicators	Dimension Composite Innovation Index (DCII) is the simple mean of indicators that create it, Weighted mean of three Dimension Composite Innovation Indices	Archibugi et al. (2009)
Revealed Regional Summary Innovation Index (RRSII)	European Commission	RIS indicators	Weighted mean of transformed values of Regional National Summary Innovation Index (RNSII) and Regional European Summary Innovation Index (REUSII)	Hollanders (2007)
Technological-Advance Index (Tech-Adv)	United Nations Industrial Development Organisation (UNIDO)	Medium- and high-tech added value of industry on the total added value, the total of manufacturing exports	Mean of the indicators	UNIDO (2005)
Technological Activity Index (TAI)	United Nations Conference on Trade and Development (UNCTAD)	Labour force employed in R&D related activities, the amount of patents and scientific publications	-	UNCTAD (2005)
ArCo Technology Index (ArCoTI)	Archibugi and Coco	Numbers of patents and the scientific articles, old and new technologies (Internet penetration, telephone penetration, electricity consumption) development of human skills	Mean of three indicators, which are also means of variables that create them	Archibugi and Coco (2004)
Twelfth pillar of the Global Competitiveness Index (GCI)	World Economic Forum (WEF)	Capacity of innovation, quality of scientific research institutions, company spending on R&D, university-industry research collaboration, government procurement of advanced technology products, availability of scientists and engineers, utility patents	-	WEF (2009)
Third pillar of the Knowledge Economy Index (KEI) and the Knowledge Index (KI)	World Bank (WB)	Royalty and license fee payments and receipts, patent applications granted by the USPTO, scientific and technical journal articles	-	WB (2009)

Source: Compiled by the author

THE R&D PERFORMANCE INDEX AND THE R&D EFFICIENCY INDEX

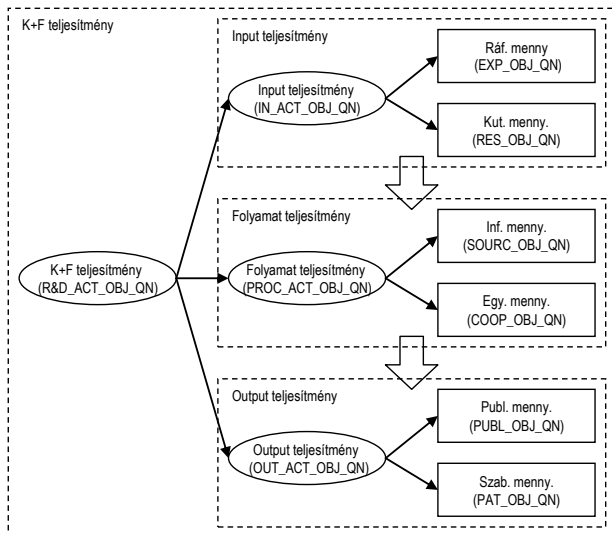
In the next section we introduce and verify the quantitative and qualitative measurement sub-models.

Quantitative measurement sub-model

The structure of the quantitative measurement model is built up of four principal component analyses: “R&D performance”, “input performance”, “process performance” and “output performance”.

The first hidden variable in the principal component analysis of R&D performance is “input performance,” which includes the usage intensity of financial and human resources based on objective and quantitative data that

appear on the input side of research and development activity. The second latent variable in the principal component analysis is “process performance,” meaning activity based on objective and quantitative data coming to the surface during the research and development process carried out by entrepreneurial R&D units. Their typical appearances are the usage of information sources and co-operation with other R&D units. The third hidden variable of the analysis is “output performance,” which contains the quantitative data of down-to-earth results like publications and patents that emerge on the output side of R&D activity done by companies. Figure 1 contains the quantitative measurement sub-model that allows measurement based on quantitative and objective data of R&D performance. It links with the principal component analysis already mentioned above.



Source: Compiled by the author

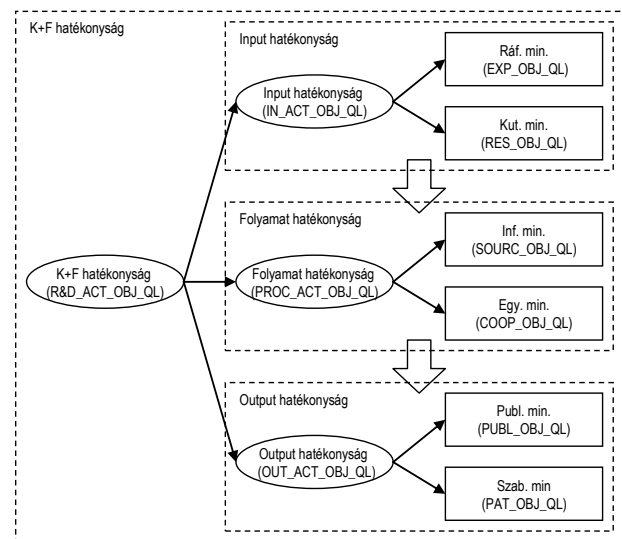
Figure 1. Quantitative measurement sub-model

The adequacy¹ of the principal component analysis of R&D performance is mediocre (KMO=0.695), the significance value of the Bartlett test² is 0.000. It follows from the values that principal component analysis is a suitable method on the latent components and the variables are not correlated pairwise. The eigenvalue of the first component is 2.097, therefore two-thirds (69.9%) of the information quantity carried by the original variables could be aggregated into the component. On the basis of the variance proportion explained one component can be created. The factor weight of the “input performance” is 0.802, that of the “process performance” is 0.849, while “output performance” has 0.856. The high factor weights clearly show a significant, positive, strong relationship between the composite indicators of R&D performance and the original variables. The variance proportion explained by latent components is 64.4% in the case of “input performance”, 72.1% for “process performance” and 73.3% for “output performance”; therefore, the composite indicator created by principal component analysis contains the majority of the whole information quantity. We can state that, according to the results of principal component analyses concerning the quantitative measurement sub-model, the verification of the sub-model yielded the results required: it was successful in giving parameters to the measurement method explaining R&D performance. We can call this composite indicator the R&D Performance Index (R&D-PERFIND). Its calculation process is contained in Appendix 1.

Qualitative measurement sub-model

The structure of the qualitative measurement model – like the quantitative measurement sub-model – is built up of four principal component analyses: “R&D efficiency”, “input efficiency”, “process efficiency” and “output efficiency”.

The first hidden variable in the principal component analysis of R&D efficiency is “input efficiency” that includes the usage intensity of financial and human resources based on objective and qualitative data that appear on the input side of research and development activity. The second latent variable in the principal component analysis is “process efficiency” that means activity based on objective and qualitative data coming onto the surface during the research and development process carried out by the entrepreneurial R&D units. Their typical appearances are the usage of information sources and co-operation with other R&D units. The third hidden variable of the analysis is “output efficiency” that contains the qualitative data of down-to-earth results like publications and patents that emerge on the output side of R&D activity done by companies. Figure 2 contains the qualitative measurement sub-model that allows the measurement based on qualitative and objective data of R&D efficiency. It links the principal component analysis already demonstrated above.



Source: Compiled by the author

Figure 2. Qualitative measurement sub-model

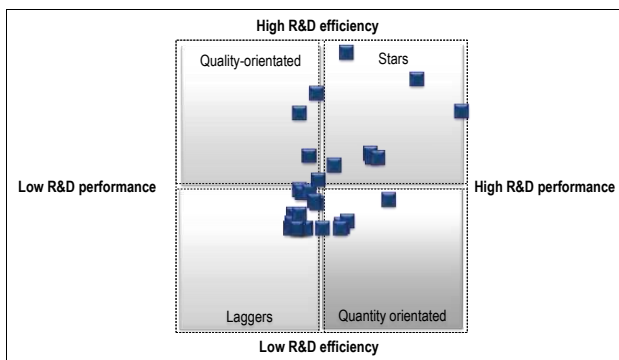
¹ “It is an indicator measuring the adequacy of the factor analysis. Its high values (0.5-1.0) show that the factor analysis is appropriate. The factor analysis cannot be applied if its values are less than 0.5” (Malhotra 2002, p. 674).

² “Test statistics with the help of which we examine the hypothesis that says the variables do not correlate pairwise in the population. In other words the correlation matrix in the population is an identity matrix where each variable perfectly correlates with itself (r=1) but does not correlate pairwise with the other variables (r=0)” (Malhotra 2002, p. 674)

Principal component analysis is quite poor according to the Kaiser-Meyer-Olkin measure of sampling adequacy ($KMO=0.585$), but the Bartlett test ($Sig.=0.001$) met the expectations. The eigenvalue of the first component is 1.818, meaning that 60.6% of the information quantity of the original variable could be reduced into one variable. As the eigenvalues of the other two components were less than 1.000, it is clear that we have to keep only the first one. The factor weight of “input efficiency” is 0.62, therefore this variable has less weight in creating the principal component. The factor weight of “process efficiency” is 0.83 and the factor weight of “output efficiency” is 0.87. These variables are dominant in the composite indicator of the R&D efficiency. If we examine the extraction communalities of the original variables, it can be stated that the common factor – namely, the composite indicator of the R&D efficiency – explains the determining majority of variance of the “process efficiency” (0.69) and “output efficiency” (0.75), apart from the “input efficiency” (0.38). According to the results of the principal component analysis concerning the qualitative measurement sub-model, we can declare that it was successful in giving parameters to the measurement method explaining R&D efficiency of the companies: the verification of the sub-model brought the results required. We can call this composite indicator the R&D Efficiency Index (R&D-EFFIND). Its calculation process is contained in Appendix 2.

THE R&D ACTIVITY MATRIX

We examine the quantitative and qualitative aspects of R&D activity, because if we contrast the aggregated dimensions of the performance and efficiency then we can arrive at a portfolio technique that helps with the demonstration and easy visualisation of both R&D performance and R&D efficiency of research and development institutes (academic, higher educational and entrepreneurial) at the same time. We can call this portfolio technique the R&D Activity Matrix. Figure 3 shows the research and development activity of the Hungarian large businesses that are included in the sample.



Source: Compiled by the author

Figure 3. R&D Activity matrix

Hungarian large businesses can be categorized into four groups according to their performance and efficiency of research and development activity.

- “Stars”: Companies having performance and efficiency above the mean. Firms in this category recognise that research and development has a key role in their success. They have decisions considering this. Their rate in the sample is 21.2%.
- “Quantity orientated”: The companies in this group have a performance above the mean but operate with efficiency below the mean. Their activity can be described with high quantitative data but low qualitative features. Their rate in the sample is 7.5%.
- “Laggers”: More than half of the companies (51.5%) fall into this category. They are significant neither in the area of R&D performance or in R&D efficiency, at least in the comparison with the other Hungarian large enterprises sampled.
- “Quality orientated”: This is the smallest group (12.1%). It is created by quality-orientated business organisations that lag behind the average in performance but carry out research and development activity above the mean in terms of efficiency in comparison with the other Hungarian companies with over 250 employees.

CONCLUSION

The significance of performance evaluation is becoming larger in every economic branch, and especially in the research and development sector, as a possible way out of the economic crisis. Therefore the aim of our research was to develop a new measurement method with the help of which we can achieve sophisticated monitoring and controlling in the area of corporate R&D activity. In order to establish the new conception we carried out in-depth interviews with ten Hungarian experts and tested the sub-models developed theoretically in the form of a business-to-business survey with a small sample. The following research results were obtained:

- The quantitative measurement sub-model (QN-MM) created to measure the R&D activity makes a composite indicator on the basis of the relationship among quantitative data. This composite indicator is called the R&D performance index (R&D-PERFIND). The qualitative measurement sub-model (QL-MM) developed to measure the R&D activity creates a composite indicator on the basis of the relationship among qualitative features, and is called the R&D efficiency index (R&D-EFFIND). The R&D performance index and the R&D efficiency index each have three parts. These parts give information about the research

and development activity input, process and output performance and efficiency, but they also carry important information themselves. The newly developed complex indices make it possible to monitor and control R&D activity on a micro level. If the indices are aggregated they can also serve as a basis for macroeconomic and international competitiveness analyses. These activities serve as a fundamental part of the job of decision makers and managers. In this area the strict monitoring techniques based on a complex method can be very useful.

- The R&D Activity Matrix is a simple but also complex analysis technique in the area of research and development activity whose axes

are created by the above-mentioned R&D performance index and R&D efficiency index. The method is appropriate for carrying out both cross-sectional and longitudinal comparisons. The names representing the plain quadrants were chosen in a way to refer clearly to the quantitative and qualitative features of the research and development activity of the companies in the given category. With the help of the R&D Activity Matrix we can not only evaluate corporate or project activity but also can highlight the growth-orientated development directions of the activity after deeper analysis and explanation.

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APPENDICES

Appendix 1: Calculation process of the R&D-PERFIND

The first step of calculation of the R&D-PERFIND is standardisation of the quantitative indicators before using them, e.g.:

$$\overline{\text{EXP_OBJ_QN}}_i = \frac{\text{EXP_OBJ_QN}_i - \frac{\sum_{i=1}^n \text{EXP_OBJ_QN}_i}{n}}{\sqrt{\frac{\sum_{i=1}^n \left(\text{EXP_OBJ_QN}_i - \frac{\sum_{i=1}^n \text{EXP_OBJ_QN}_i}{n} \right)^2}{n-1}}}$$

In the second step we define the input, process and output performance indicators, which are the sum of standardized quantitative indicators, weighted by factor score coefficients.

$$\begin{aligned} \text{IN_ACT_OBJ_QN}_i &= W_{\text{EXP_OBJ_QN}} \cdot \overline{\text{EXP_OBJ_QN}}_i + W_{\text{RES_OBJ_QN}} \cdot \overline{\text{RES_OBJ_QN}}_i \\ \text{PROC_ACT_OBJ_QN}_i &= W_{\text{SOURC_OBJ_QN}} \cdot \overline{\text{SOURC_OBJ_QN}}_i + W_{\text{COOP_OBJ_QN}} \cdot \overline{\text{COOP_OBJ_QN}}_i \\ \text{OUT_ACT_OBJ_QN}_i &= W_{\text{PUBL_OBJ_QN}} \cdot \overline{\text{PUBL_OBJ_QN}}_i + W_{\text{PAT_OBJ_QN}} \cdot \overline{\text{PAT_OBJ_QN}}_i \end{aligned}$$

In case of Hungarian large businesses the standardized quantitative indicators should be weighted by the following factor score coefficients.

$$\begin{aligned} W_{\text{EXP_OBJ_QN}} &= 0.54; W_{\text{RES_OBJ_QN}} = 0.54 \\ W_{\text{SOURC_OBJ_QN}} &= 0.60; W_{\text{COOP_OBJ_QN}} = 0.60 \\ W_{\text{PUBL_OBJ_QN}} &= 0.70; W_{\text{PAT_OBJ_QN}} = 0.70 \end{aligned}$$

R&D-PERFIND is the sum of input, process and output performance indicators weighted by factor score coefficients.

$$\text{R \& D - PERFIND}_i = W_{\text{IN_ACT_OBJ_QN}} \cdot \text{IN_ACT_OBJ_QN}_i + W_{\text{PROC_ACT_OBJ_QN}} \cdot \text{PROC_ACT_OBJ_QN}_i + W_{\text{OUT_ACT_OBJ_QN}} \cdot \text{OUT_ACT_OBJ_QN}_i$$

According to the business survey the following weights should be used in case of input, process and output performance indicators.

$$W_{\text{IN_ACT_OBJ_QN}} = 0.38; W_{\text{PROC_ACT_OBJ_QN}} = 0.41; W_{\text{OUT_ACT_OBJ_QN}} = 0.41$$

Appendix 2: Calculation process of the R&D-EFFIND

The first step of calculation of the R&D-EFFIND is standardisation of the qualitative indicators before using them, e.g.:

$$\overline{\text{EXP_OBJ_QL}}_i = \frac{\text{EXP_OBJ_QL}_i - \frac{\sum_{i=1}^n \text{EXP_OBJ_QL}_i}{n}}{\sqrt{\frac{\sum_{i=1}^n \left(\text{EXP_OBJ_QL}_i - \frac{\sum_{i=1}^n \text{EXP_OBJ_QL}_i}{n} \right)^2}{n-1}}}$$

In the second step we define the input, process and output efficiency indicators, which are the sum of standardized qualitative indicators weighted by factor score coefficients.

$$\begin{aligned} \text{IN_ACT_OBJ_QL}_i &= W_{\text{EXP_OBJ_QL}} \cdot \overline{\text{EXP_OBJ_QL}_i} + W_{\text{RES_OBJ_QL}} \cdot \overline{\text{RES_OBJ_QL}_i} \\ \text{PROC_ACT_OBJ_QL}_i &= W_{\text{SOURC_OBJ_QL}} \cdot \overline{\text{SOURC_OBJ_QL}_i} + W_{\text{COOP_OBJ_QL}} \cdot \overline{\text{COOP_OBJ_QL}_i} \\ \text{OUT_ACT_OBJ_QL}_i &= W_{\text{PUBL_OBJ_QL}} \cdot \overline{\text{PUBL_OBJ_QL}_i} + W_{\text{PAT_OBJ_QL}} \cdot \overline{\text{PAT_OBJ_QL}_i} \end{aligned}$$

In case of Hungarian large businesses the standardized qualitative indicators should be weighted by the following factor score coefficients.

$$\begin{aligned} W_{\text{EXP_OBJ_QL}} &= 0.59; W_{\text{RES_OBJ_QL}} = 0.59 \\ W_{\text{SOURC_OBJ_QL}} &= 0.58; W_{\text{COOP_OBJ_QL}} = 0.58 \\ W_{\text{PUBL_OBJ_QL}} &= 0.60; W_{\text{PAT_OBJ_QL}} = 0.60 \end{aligned}$$

R&D-EFFIND is the sum of input, process and output efficiency indicators weighted by factor score coefficients.

$$\text{R\&D-EFFIND}_i = W_{\text{IN_ACT_OBJ_QL}} \cdot \text{IN_ACT_OBJ_QL}_i + W_{\text{PROC_ACT_OBJ_QL}} \cdot \text{PROC_ACT_OBJ_QL}_i + W_{\text{OUT_ACT_OBJ_QL}} \cdot \text{OUT_ACT_OBJ_QL}_i$$

According to the business survey the following weights should be used in case of input, process and output efficiency indicators.

$$W_{\text{IN_ACT_OBJ_QL}} = 0.34; W_{\text{PROC_ACT_OBJ_QL}} = 0.46; W_{\text{OUT_ACT_OBJ_QL}} = 0.48$$

Changing World, Unchanging Accounting? Cost Systems for Hungarian Agricultural Companies

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SUMMARY

The literature of agricultural cost accounting has defined the definition of cost centres and cost bearers, the contents of the accounts, the procedures and methods for cost accounting and unit cost calculation without any significant changes for decades now. Do the agricultural companies set up and operate their own cost allocation and unit cost calculation systems on procedures made for state owned farms and cooperatives, or do they align their cost system with the challenges of our times? This study investigated the answer by questionnaires completed by corporations, limited liability companies and cooperatives.
Journal of Economic Literature (JEL) code: Q12

METHOD OF RESEARCH

There are no national or international procedures for setting up an accounting information system satisfactory for management. The Accounting Act leaves it to management discretion to choose what information they need besides the statutory data stipulated by this act, as well as the operation and utilisation of accounting to provide the accounting information needed for decision-making support and preparation.

With the Accounting Act coming into effect, it was enabled to simplify and change the decade-long practice of cost accounting. Besides the obligatory grouping cost by cost types, cost accounts 6 and 7 can be used for providing management information, if the farmer decides to do so. The free usage of cost accounts enables companies to allocate items to divisions, as well as setting up their own cost management and unit cost calculation systems.

Despite the changes in social, economic and legal environments, agricultural cost accounting literature still is based on the procedures and methods set up for state owned companies and cooperatives in the era of legislative level regulation. Would the response of agricultural accounting to the challenges of the new era be leaving everything unchanged?

I prepared a questionnaire to answer this question, which was aimed at elaborating the costing and prime costing calculating practices of agricultural companies. The first group of questions deal with the allocation of agricultural activities' costs; getting details of the cost

groupings, the setting up of cost centres and cost-bearing, also about the ratios of allocating and re-allocating costs.

The second group of questions related to the unit cost calculations for biological assets and agricultural products, including the scheme and details of cost calculation, defining the value of elemental damage and secondary products, the unit cost calculation of the living weight, and the analytic recording of costs.

In the third part of the questionnaire focusing on the cost accounting and unit cost calculation I was looking for the answers for the following questions:

- how important the agricultural companies consider the factors affecting the operation of their costing and prime costing systems to be,
- how they evaluate their current costing and prime costing systems,
- in which areas of their current costing and prime costing systems they plan changes.

The fourth group of questions related to the organisational and technical background of cost accounting and unit cost calculation.

Lastly I examined the common features of the economics and accounting of the businesses.

The completion of the questionnaire took place in February and March 2008. I posted the questionnaire to 150 Hungarian companies and got it back filled in from 74 companies. The returned forms I considered to be useful – and complying with the current regulations – if the company is an incorporated, limited company or a cooperative pursuing its activity under the Accounting Act. In all, 28 corporations, 22 cooperatives and 16 limited companies provided useful data. About half of the

companies were mixed activity farms, 19 were crop growing farms, 14 were animal breeders, and one could not be categorised due to missing information.

SETTING UP AND OPERATING COST ACCOUNTING AND UNIT COST CALCULATION SYSTEMS

In the first part of the questionnaire the questions related to the accounting of the agricultural activity costs, in the second part to the unit cost calculation of the agricultural products.

Table 1. Grouping costs according to the number and ratio of 'yes' answers

Cost group	Frequency	%
Cost type	66	100
Cost centre/cost bearer	64	97
Direct/indirect cost	64	97
Fix/variable cost	14	21
Other	0	0

Source: Author's calculations

Agricultural companies follow the accounting regulations when grouping their costs. Besides grouping costs by type, at most of the undertakings they use the allocation methods by place of occurring of cost and cost bearer. The differentiation by cost centres and cost bearers entails the differentiation of costs by composition as well. Cost allocation based only on cost type is a rare exception. Cost allocation only based on quantity was mentioned by 21% of the undertakings as a method, irrelevant from financial accounting's point of view.

Table 2. Setting up the cost centres and the cost bearers according to the number and ratio of 'yes' answers

Cost centres, cost units	Frequency	%
Maintenance unit	60	91
Supplementary unit	62	94
Overhead cost of main activity	63	96
Overhead costs of other activities	36	55
Overhead costs of central management	62	94
Sales costs	48	73
Deferred, other overhead costs	32	49
Cultivation, horticulture	64	97
Animal husbandry	53	80
Silviculture	24	36
Agricultural secondary activity	52	79
Agricultural service	45	68
Other cost centres, cost bearers	0	0

Source: Author's calculations

The main cost centres and cost bearers with their special nature of agricultural activities appear in the chart of accounts of the majority of undertakings. There are maintenance units at 91% of the companies, mainly machine units. Main representatives of supplementary

units are the tractor units (N=60), combine units (N=57), heavy machinery (N=55), drying units (N=57), and lorry units (N=44). Irrigation units were mentioned by 35%, while draught animals were mentioned by 6% as a separate cost centre.

Contrary to the suggestions of professional literature, heavy machinery can be regarded as a single cost centre in itself. Heavy machinery separation is not the same as the tractor-plant machinery separation. Tractors include heavy machinery and trailers for 2/3 of the companies, and also include caravans for 5%.

Companies handling plant costs separately use the following performance indicators:

- tractor unit: normal ha 60%, operation hours, machine performance 33%,
- lorry unit: operation hours 57%, tons km 27%,
- combine unit: normal ha 42%, harvester ha 33%, operation hours, machine performance 19%,
- irrigation unit: used water 96%,
- draught stock unit: horse using days 75%,
- drying unit: dried water weight 35%, dried plant weight 33%, operation hours 27%,
- heavy machinery unit: natural indicator 44%, normal ha 29%, operation hours, machine performance 22%.

The defining groups of overhead costs are those of the main activity and those of the central management. Categorising the overhead costs of the main activity is mainly completed by sector/sector group/main sector group (N=53), detailing by the cost functions was common to only 4/10 of the companies (N=26). (Cost grouping according to main sectors might be as follows: field plants growing, horticulture, fruit farming. The overhead costs of cultivation sectors can be divided by cost functions as follows: material handling and storage related to plant growing and horticulture, the operational costs of the buildings and machinery for the above mentioned, and the salary and additional costs for technical and administrative staff.)

Of the companies, 86% collect data separately for the overhead costs of cultivation, and 74% of them collect data separately for overhead costs of animal husbandry. For both main sectors it is typical to use cost based, specifically the direct cost based allocation. Of the companies showing overhead costs of cultivation, 40% separately chose direct costs as base of cost allocation, 14% chose material free direct costs, and 33% chose area as the base for cost allocation. In the case of animal breeding as the main activity sector the usual bases are the direct cost (45%), the material free cost (18%) and the number of the animals (14%).

An increase in company size and complexity justifies the more detailed collection of costs. It is true that companies divide their costs not only by main sectors and central management costs, but other overhead costs as well are usually high; however, the size and the number of main cost centres do not correspond.

In the case of cost bearers there are two main principles. First, the main products are the main cost bearers, while the secondary products are not usually cost bearers. For accounting questing of cultivation coming up due to the difference of growing cycles and the calendar year, the companies respond not by using a different business year definition, but by differentiating between the current and next year's growing cycles' costs.

On the other hand, the character of the agricultural activity and the structure of sales (production) – except for agricultural services – obviously influence the structure of the cost bearers. If the company had revenues from selling agricultural produces in the relevant period, then that produce group was presented among the cost bearers.

The differentiation of cost bearers does not mean that the certain product has been made by the company, or if it was, it does not mean that the company is selling it. For example, 7.7% of the companies showing animal husbandry as a cost bearer did not have revenues from it. This ratio is 73.9% in the case of silviculture, and for agricultural secondary activity it is 56.9%. For animal breeding, the secondary activity and forest management the resource usage and the cost accounting can be for different time periods from the sale and the revenue. This time difference partially explains the existence of the gap emerging between cost groups and the missing revenue. In my opinion it cannot be excluded that the companies list cost bearers for which they cannot add economic activities.

Table 3. Frequency of unit cost calculation regulation according to the conditions of the Accounting Act

Definition		Prepares unit cost calculation regulations?		Total
		yes	no	
Corrected revenue over 1.000 million HUF?	yes	8	0	8
	no	52	5	57
Total		60	5	65
Cost according to cost types over 500 million HUF?	yes	31	0	31
	no	24	4	28
Total		55	4	59

Source: Author's calculations

Over 90% of the agricultural companies prepare unit cost calculation regulations, despite the fact that only half of the businesses are obliged to do so by law. The main methods of defining the inventory value of their own produced stock is reversed calculation.

The agricultural businesses use the certain costs and cost groupings in the percentages shown below when preparing the calculation scheme:

- costs by cost types 91%,
- costs by cost centres 86%,
- value of own produced stock used 88%,
- value of secondary product 68%,
- amount of damage to plants 46%.

According to the questionnaire results, the general construction of the calculation scheme is in line with the suggestions of professional literature, except for the secondary product and the amount of damage to plants.

Table 4. Methods of defining the value of secondary product according to the number and rate of 'yes' answers

Methods	Frequency	%
Settlement price	51	77
Direct cost	8	12
Market price	7	11
In ratio of the internal index	3	5
In ratio of the market price	1	2

Source: Author's calculations

Despite several theories for valuation of secondary products, the agricultural companies treat this in a simple, single handed way. The theory and practice of calculation of secondary product values are influenced by the atmosphere of regulations of the Finance Ministry related to unit cost calculations, even in the era of legislative accounting. For the secondary product evaluation the main technique is using the settlement price (set price), which is used mainly for the evaluation of straw, manure and refuse grain. About 10% of the companies evaluate the secondary product by a separate calculation or by the market price.

The slim theoretical background does not provide much background for defining the value of damage of non-harvested plants. What we know from it is that the amount due to damage has to be treated as a direct cost decrease, but we are given no answer as to how.

The lack of a methodical guide can be seen in the structure of the calculation model, as well as in the defining of the value of loss. In the case of stock loss, 70% of the companies define the loss of plant producing based on the costs emerging in the area of loss, and up to the time of event. Further, 75% of the companies define their loss in case of revenue loss by multiplying the produce loss and the costs for 1 unit of produce (the amount of the actual produce and the loss defined in the minutes about loss) emerging up till the time of damage.

The calculation of living weight unit cost also mirrors the theory for agricultural companies. If the approach of the professional literature for defining living weight is unanimous, that entails that the practices of the companies will be too. The data show that 96% of the companies using living weight cost unit calculation derive their opening balance from the closing balance of the previous year, which is by equalling the closing and opening balance; 98% of the companies define the values of living stock by their actual inventory cost, their ageing by the cost unit of the age group, and the value of stock and weight increasing by taking the direct costs into consideration. As the cost unit of living stock weight, 98% of the companies define it as the ratio of the value of living weight and its quantity.

In the case when agricultural accounting theory offers no solution in evaluating a situation, or offers contradictory alternatives, the everyday practices bring several solutions to the surface. It is not surprising that for the evaluation of animals for breeding – stating that the value of the animals is their net value – the ratio of the 'yes' answers is not the usual 96-98%, but only 64%.

THE DEVELOPMENT OPPORTUNITIES OF COST ACCOUNTING AND UNIT COST CALCULATION SYSTEMS

Kaplan and Cooper (2001) distinguish four levels of costing systems. According to their opinion, most companies have second-level systems, which revolve around financial reports. The system is in line with the financial reporting criteria, can be used for stock evaluation, profit calculation and report preparation. It involves collecting costs by responsibility units, production, assembly, maintenance or other, production activity supporting cost centres. However, only the production costs are divided for the product, usually based on the direct labour, material or machine hours. Second-level systems attribute costs to cost centres, not to activities or processes, thus these systems:

- show distorted product costs,
- do not take into account the special features and consequences of the series production or product variations,
- show incorrect resource values used by activities, products and customers,
- are inappropriate for tracking profitability of activities, products and customers.

Besides this, the system is said to be inappropriate due to the lack of actuality of reports and feedback, as well as the overwhelm of financial indicators. Second-level systems publish feedback in line with financial reporting periods in over- summarised forms, focusing too much on financial indicators. Reports are made during mid-year and year, and close off tasks might be delayed for days, weeks and months, increasing the probability that the measure for the problems brought to daylight by the report would be too late. For this reason, data provided by second-level systems are not appropriate, not up to date, and they can only be used for management information in a limited way.

Regarding the results of the questionnaire presented in the previous chapter, based on Kaplan and Cooper's definition we can state that the cost accounting and unit cost calculation practices of Hungarian agricultural companies are identical to the features of second.level cost systems in many details. The collection of costs is done by cost centres, the allocation of the costs is usually by direct labour (eg: maintenance - operation hours) or machinery performance (eg: tractor – normal ha, operation hours;

harvester - normal ha, operation hours). Despite the fact that 61% of the companies define the costs of activities, work phases and processes by grouping and allocating costs, there is no direct contact between costs and activities.

The majority of the responding companies (92%) define the most important task of unit cost calculation as the evaluation of their own produced products. Based on the ratio of the 'yes' answers, the second most important task of unit cost calculation is setting up the calculation price (88%).

Table 5. Usage of unit cost data according to the number and ratio of 'yes' answers

Definition	Frequency	%
Pricing decisions	35	53
Transfer price preparing	58	88
Evaluation of own produced products	61	92
Planning and examining unit cost	53	80
Measuring internal performance	34	52
Control of productivity	54	82
Decision-making	50	76
Other	1	2

Source: Author's calculations

Unit cost calculation mainly provides data for financial accounting, and through this for reporting. The other important area of using these data is preparing for decision making, the data usage for management purposes. According to the responses around 80% of the companies use the unit cost data for planning, examining and decision-making. Price setting and measuring of internal performance cannot be defined as important areas, compared to the others.

Kaplan and Cooper mention inappropriate and not relevant data provision as typical of second-level cost systems. In the third part of the questionnaire I mapped the assessment of cost allocating and unit cost calculation. The first question of the third part was aimed at how important the companies evaluate the different factors to be during the operation of their cost accounting and unit cost calculation systems. The answers were marked on a five-level scale (1: not important at all, 5: very important).

Table 6. The importance of certain factors when operating a cost accounting, unit cost calculation system

Factor	Number of answers	Average	Standard deviation	Coefficient of variation
Reliable data providing	65	4.78	0.45	9%
Unambiguous data providing	63	4.60	0.66	14%
Data useful for decision making	62	4.55	0.65	14%
Simple operation	61	3.93	1.00	25%
Timely data providing	64	3.86	0.92	24%
Cheap operation	61	3.85	1.08	28%
Quick data providing	65	3.83	0.98	26%

Source: Author's calculations

The factors can be divided into two groups. Companies consider reliable, unambiguous, and useful data providing. Simple and cheap data providing were also ranked important, as well as timely and quick data providing. For this category, though, a much higher standard deviation is associated; companies do not rate them as highly as the elements of the very important category.

Examining the strength and direction of the connection of the factors, the conclusions are:

- the connection between quick and timely data providing is very strong and positive,
- the connection between the simple and cheap operation of the system is stronger than average and positive,
- there are also positive and average strength connections between quick data providing and simple operation, quick data providing and cheap operation, and timely data providing and simple operation.

In the second point of the third part of the questionnaire I asked the companies to mark their own current cost system on a 1-5 scale (1: not satisfied at all, 5: very satisfied).

Table 7. Assessment of cost accounting, unit cost calculation systems

Factor	Number of answers	Average	Standard deviation	Coefficient of variation
Reliable data providing	64	4.39	0.61	14%
Data useful for decision making	62	4.34	0.77	18%
Unambiguous data providing	61	4.25	0.77	18%
Simple operation	61	3.62	1.00	28%
Cheap operation	59	3.59	1.02	28%
Timely data providing	61	3.23	1.07	33%
Quick data providing	62	3.21	1.18	37%

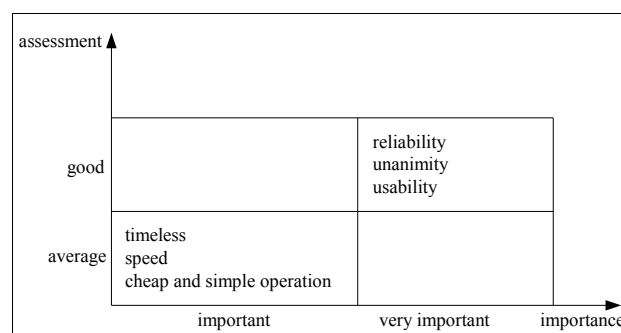
Source: Author's calculations

Here for assessing the system we used the same categories as for the importance of factors. We can put the reliability, unambiguous data and usability into the good category, and simplicity, cheapness, timeliness and speed into the average category. According to the self assessment of the responders this cost system is accurate and useful, but not fast or timely; however, these last two features are not as important as the first two.

Correlation calculations shows a relationship between speed, timeliness, cheap and simple operation, as well as stronger than average connections between reliability and usability and between unambiguous and useful data providing.

Examining together the importance and the system self assessment, two clearly distinctable segments are displayed. Companies considering reliability, unambiguous and useful data very important marked these factors for their own companies as good ones. The rest of the factors were considered important and average. By defining the

correlation between the importance of a certain factor and its assessment we get usually a positive direction, average strong connection. The strongest connection is between the assessment of timeliness and speed.



Source: Author's calculations

Figure 1. The matrix of cost systems' importance and assessment

In the last point of the third part of the questionnaire I examined what modifications the companies are planning regarding their own current cost accounting and unit cost calculation systems.

Table 8. Modifications of the current cost accounting and unit cost calculation systems according to the number and ratio of 'yes' answers

Definition	Frequency	%
Setting up cost accounts	5	8
Contents of the cost accounts	7	11
Allocation of costs, bases/ratios	8	12
Evaluating secondary products	7	11
Reliability of data provided	24	36
Speed of data providing	27	41
Simplification of data providing	29	44
Usability of data provided	30	46
Defining coverage amount(s)	11	17
Introducing new cost calculation procedure	4	6
Other	0	0

Source: Author's calculations

The agricultural companies are basically satisfied with their own current cost systems, and what they would modify include the simplification and speeding up of data providing, and increasing its usability and reliability. These changes they want to carry out in their current systems. The structure and the contents of cost accounts and also the allocation of costs previously showed are not to be touched; they are 'sacred cows'. Companies rigidly insist on keeping their current cost calculation techniques, and do not plan to introduce new procedures. The contradiction of avoiding introducing activity based costing might be based on the lack of theoretical knowledge of methods, knowing that they are already using its basis when 61% of them define the cost of their main activities.

Although statistically there is no significant connection between the intention to modify and the assessment of the

cost system, still there is a stronger than usual connection in variance in the below cases:

- contents of cost accounts – unanimity,
- contents of cost accounts – usability,
- allocation of costs, base/ratio – reliability,
- allocation of costs, base/ratio – unanimity,
- allocation of costs, base/ratio – usability,
- reliability of data provided – usability,
- implementation new cost calculation procedure – reliability,
- implementation new cost calculation procedure – unanimity,
- implementation new cost calculation procedure – usability.

The ‘sacred cows’ are untouchable; however, if the unanimity, reliability and usability of the data provided can be increased, then the farmers will think about changing the ‘sacred cows’ as well, that is they would introduce a new cost calculation procedure, changing the contents of the cost accounts, using new bases and ratios for allocation.

The third-level systems of Kaplan & Cooper (2001) are capable of defining the accurate costs of activities, processes, products and customers, as well as providing data, including financial and non-financial information, that helps operative and research supporting development. Third/level systems can be set up without a new IT background, since the financial system and other information systems of the company already include those data that are needed (for an activity based costing system and operative feedback system).

Table 9. Data content of detailed records according to the number and ratio of ‘yes’ answers

Can detailed records can show...	Frequency	%
... the cost of the certain plots?	49	74
... the quantity of the activities completed on certain plots?	56	85
... the time requirement of the activities completed on certain plots?	27	41
... the return of certain plots?	56	85
... the cost of certain heavy machinery?	36	55
... the performance of certain heavy machinery?	42	64

Source: Author's calculations

It was proved by the responses of the agricultural companies to the questionnaire that the revenues and the quantity of the work phases completed on the plot can be defined from their detailed databases. If the costs of the plot can be established from the company's database, then

the revenues and the quantity of the work phases completed on the plot can be established as well. The majority of companies have detailed databases on the costs and performance of heavy machinery. Companies recording the performance of their heavy machinery will more than likely have a detailed database about the costs of machinery, the work phases completed and the revenues from the plot as well. Recording the time demand of work phases is not significant among the companies.

Agricultural companies can set up third/level cost systems by using their current records, with insignificant extra effort, and they can elaborate techniques that are able to define the process focused unit cost of agricultural products while keeping in line with the stock value stipulations of the Accounting Act.

CONCLUSION

Hungarian agricultural companies consider the evaluation of their own produced stock as the most important task of unit cost calculation. For this result they collect cost data per cost type, cost centre and cost bearer. A cost centre can be the maintenance unit, the supporting unit (usually the tractor unit, combine unit, heavy machinery unit, drying unit and the lorry unit), and the overhead costs of main sectors. The detailing of the overhead costs of main sectors mainly happens according to sector/sector group/main sector group. Allocation of the maintenance and supporting operation is according to performance. The unit cost of the main product is done by post calculation, while for secondary product evaluation the main factor is the dictated price. They consider reliable, unambiguous and useful data very important, and according to their own self assessment their current cost systems satisfactorily fulfill these criteria. Timely and quick data providing, also cheap and simple operation are of secondary importance. They reject amending the structure and contents of the cost accounts, or changing the allocation bases/ratios. They are satisfied overall with their current cost accounting and unit cost calculation systems, and only half of the companies intend to simplify and speed up data providing, while one-third plan to increase the usefulness and reliability of the provided data. They are least negative when the change helps to improve usefulness, reliability and unambiguousness. In a statistically not significant ratio they show willingness for implementing new cost systems and changing the contents of the cost accounts and the allocation bases.

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A Comparison of Experts' and Entrepreneurs' Opinions on International Business Activity

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SUMMARY

Small and medium-sized enterprises often need external help in the process of internationalisation. This is usually an explicit pressure arising from their size and not a shortcoming. The objective of the present study is to learn the opinion of experts working in the fields of regional development and enterprise development who provide support for small and medium-sized enterprises in this field. Besides gaining insight into the opinions of professionals having first-hand information on the circumstances – barriers and motivations – of small and medium-sized enterprises (SMEs) to enter international markets, we will also discuss the views of managers on the issue based on a survey conducted in 2007. Based on the results of this survey, the majority of managers in international markets are satisfied with their own competencies, and tend to see the reasons for less successful international activities in external circumstances (strong competition, the lack of supportive system, etc.). The main objective of the second survey, conducted among experts is to provide objective insight into the circumstances of internationalisation and the prospects of small and medium sized enterprises.¹

Key words: small and medium sized enterprises (SMEs), internationalization

Journal of Economic Literature (JEL) code: M10, M1

THEORETICAL ASPECTS OF INTERNATIONALISATION

As appearance on international markets meets with increasingly fewer objective barriers, we can witness a cumulative process of opening to global markets. Even though these are mainly large-sized enterprises, the number of small and medium-sized firms operating on the international level is increasing as well (OECD 2004; Sakai 2002).

Corresponding to this, we can see more and more studies in the literature analysing the international appearance of small and medium-sized enterprises. A large part of these papers are searching for the answer as to what methods and ways these enterprises can use to go international. According to the Uppsala model (Johanson and Vahlne 1990), taking part in international activities evolves gradually; it is a cumulative and coherent, path dependent process (Eriksson et al. 1997). In the first period, when the enterprise has not got enough knowledge of the market and its partners, it typically chooses the simple forms of appearing on the market (for example, exporting). Later, thanks to its increasing experience, it

can choose more complicated ways (such as funding a subsidiary). According to the model, acquiring the necessary experience takes time, while the ability to react fast becomes more and more important. Stalk (1988) refers to time as a strategic weapon.

In contrast to the gradualism of the Uppsala model, in the 1990s global-born enterprises opening instantly to international markets came to the focus of attention. These are mainly global enterprises in knowledge-intensive branches (Rasmussen and Madsen 2002; Criado et al. 2002). According to domestic research Hungarian enterprises usually choose the gradual way of opening to international markets (Antalóczy and Éltető 2002; Szerb and Márkus 2008).

Another group of research deals with the possible ways, reasons and barriers of entering foreign markets, besides shedding light on the role of knowledge and learning in the process of internationalization (Hitt et al. 1997). We can emphasize the results of the Observatory of European SMEs (2002, 2003). Contrary to isolated surveys with significant territorial and sector limitation, this provides the possibility of international comparison. This latest survey was carried out between 2006 and 2007.

¹ Supported by OTKA K 76870/2009 project.

Small and medium-sized enterprises are typically unwilling to practice international business activity; however, according to literature, international activity is more and more a potential possibility in their case, too (KSH 2002). SMEs choose mostly more simple types of presence because of their size; the enterprises responding to the questionnaire which work internationally most often practice export and import activity. In the case of indirect exports, the SME is part of a larger enterprise that appears in the international market, or a member of a supplier network connected to a multinational company. They also participate in exports, although indirectly, but quantifying this is not a simple task. (The Observatory of European SMEs made an attempt at this; see their 2002 No 2 report.)

The network approach becomes conspicuous when analysing small and medium-sized enterprises' internationalisation as well. The general opinion about internationalisation is that the entrepreneurs' practical knowledge and experience play a crucial role in the decision-making process. Economic and social nets organized around the enterprise can be equally important in terms of the SMEs international presence and its success too. According to some surveys the number of decision-makers can play a determining role in the success of international activity as well (Clercq and Bosma 2004). The authors explain this by the fact that more people can have access to more connection networks, and they possess more experience and knowledge. Thus the national cooperative partner enhances the chances of an international presence, and in the same way the cooperative connection with the foreign enterprise is profitable because it can lessen the uncertainty caused by the unknown terrain. Informality, which marks horizontal connections (connections which are not recorded in a contract), bears further possibility of the cutback of expenses.

The internationalisation of small and medium-sized enterprises depends on several factors. The most evident is the role of their size and scope of activities on their international presence. Survey results led to the conclusion that the possibility of an international presence is enhanced with the increase of the scale of the company. Furthermore, enterprises choose other (more compound) forms of presence (e.g., licence, subsidiary, or strategic union) with the growth of the scale of the company (Observatory of European SMEs 2003 No 4 report). Finally, observations concerning the international relationships among companies highlight the connection between the size of companies and the geographical concentration of their relationships (Gubik 2010). The smaller the size of a company is, the more likely it is to be connected to the local environment, to the local market, because of its limited resources and the characteristics of its customers.

Institutional support of internationalisation

Lacking own resources, small- and medium sized enterprises often need external help to acquire the necessary information and resources. The services of supporting organisations reach only a small share of companies, so the majority of entrepreneurs turn to their family and friends for advice and help. Though making use of these is limited in international fields.

Formal solutions, for example the institutional system of economic development can significantly contribute to the success of this sector's performance. The efficiency of the institutional support depends largely on the characteristics of the institutional system, on the distribution of tasks among certain institutions and the variety of services offered. It seems that the Hungarian institutional system has room for improvement on this field (BVKI 2010; Szerb and Szilveszter 2010). The professional and networking competence of the experts dealing with enterprise development and the ability of the entrepreneurs to decide whether they need help, and if yes, what type of assistance they require are also important factors.

According to our assumptions, the efficient use of the services offered by the institutions of enterprise development is limited by the fact that entrepreneurs do not recognise the resources and competences necessary for entering international markets properly. They are satisfied with their own performance and the need for external assistance materialises on a limited way, only concerning the necessary resources.

In order to get to know the present situation, the experts were asked about the obstacles small- and medium sized enterprises face when entering international markets and their services offered for this field.

RESEARCH BACKGROUND AND METHODOLOGY OF EXPERTS' QUESTIONNAIRE

In 2007 a questionnaire was used to survey the operational environment of small and medium-sized enterprises, their trans-border economic functions and the nature of their association. The database constructed on the results of the survey contains representative data illustrating the number of employees and fields of activities of 217 small and medium-sized enterprises (10-249 employees) in Borsod-Abaúj-Zemplén County in north-eastern Hungary. Furthermore, answers from 16 micro enterprises (1-9 employees) were also used, but only in case of the questions concerning the subjective opinions of entrepreneurs about tendencies.

The questionnaire contained a group of questions regarding the international activities of enterprises (target countries, forms of presence, experienced barriers and motivations, etc.). We have come to the conclusion that SMEs need substantial external support during their operation. They require financial support as well as support in their competencies or in information flow. Further special needs arise if the companies target the international market as well.

The results of empirical research were double checked by comparison with an expert questionnaire, to which managers and competent employees of institutions that have a direct or indirect impact on SMEs responded.

Professionals of enterprise development were surveyed with an expert questionnaire about the small- and medium-sized enterprises' preparedness, awareness, relationships to institutions and support given by these, focusing on the questions of cooperation and international market entry.

The small and medium-sized enterprise sector is rather heterogeneous and encompasses quite a wide range of businesses, from self-employed individuals through medium-sized enterprises with 249 employees, and from shoemakers to surgical instrument manufacturers. Consequently it is impossible to draw general conclusions about the situation of the sector. Accordingly, the previous entrepreneurs' questionnaire targeted only enterprises employing more than 9 people. The current expert's questionnaire asked experts about enterprises that were capable of cooperating with other businesses and operating in international markets.

The electronic experts questionnaire consisted of 8 pages and covered the following questions: Institutional relationships, International presence, Partnerships, and Institution data.

The questions were mainly related to the subjective opinion of entrepreneurs and were measured by a five-point Likert Scale.²

For the analyses of the data the SPSS 19.0 software package was used. As many as 38 responses were received out of 80 questionnaires electronically sent. Respondents with a higher education degree (two of them had a PhD degree) amounted to 92 per cent. Their average work experience ("How long have you been working in this field?") exceeded 12 years. The ratio of men and women in the sample is 50-50. As for the sphere of institutional activities, 11 per cent of respondents worked for national and 50 per cent for regional organisations, 13 per cent of respondents' institutions work only at the county level and 26 per cent at a micro-region level.

Our research targeted mainly Borsod-Abaúj-Zemplén County. Three-fourths of the responses came from competent employees working for institutions operating in this county. With only two exceptions, the filled-in questionnaires were sent from the Northern Hungarian region.

The unfavourable economic and social environment in Borsod-Abaúj-Zemplén County, which has had an adverse impact on the prospects of enterprises operating in this region, has to be considered when the findings are evaluated. This county is one of the most poorly performing areas of Hungary. Since various statistical publications provide detailed analyses of the current situation and its reasons, there is no need to deal with this issue. Table 1 illustrates unfavourable deviations from the national average on the basis of the most often mentioned economic and social indicators.

Table 1. The situation of Borsod-Abaúj-Zemplén County compared to the national average

	BAZ County	National average
GDP per capita (2008)	1 680 000 Ft	2 665 000 Ft
Investment per capita (2010)	204 400 Ft	304 700 Ft
Number of enterprises/1000 inhabitants (2010)	108	165
Unemployment rate (%) (2010)	17.5	10.8

Source: KSH (2010, 2011)

Empirical results

This section of the paper introduces and compares the main findings of questionnaires for enterprises and experts.

International activity from the enterprises' point of view

According to the research of the Observatory of European SMEs (2007) in 2006-2007, the ratio of exporting small and medium-sized enterprises was only 8 per cent in the EU (in Hungary it was 9 per cent). As our sample included only small and medium-sized enterprises employing over 9 people (10-249), we found a more favourable ratio. About 35 per cent of the companies reported that they were active in the international market.

We found significant relation between the fact of an international presence and the scale of the company ($p=0.000$), meaning that the possibility of international presence is enhanced with the increase in the scale of the company. This fact fits in with previous research findings.

² The questionnaire analysing Borsod-Abaúj-Zemplén County's small and medium-sized enterprises consisted also of 8 pages and touched on the following questions: quality control (m1-m2), investments (b1-b9), the company's environment (k1-k8), international presence (n1-n9), company cooperation (v1-v9), supply (s1-s4), firm data (d1-d8).

According to the survey, the performance of small and medium-sized enterprises emerging in the international market exceeds the performance of those who are working only in the national market.³ In addition these enterprises invest in their employees' training at a higher rate ($p=0.074$, Cramer's $V=0.118$), chiefly in the form of internal and external training programmes, courses, and language teaching. Consequently, only companies which have above-average and stable performance and are growth oriented (considerable investment activity, efforts to develop employees' competences) have a good chance to enhance their international activity.

There is a great deviation in international activity according to function as well. Industrial enterprises are the most active, while trading and supplying enterprises are more local. Foreign ownership significantly increased the opportunity for an international presence (Cramer's $V=0.359$, $p=0.000$).

The scale of the company affects the chance of international operation; furthermore, it influences the types of presence. Most responding enterprises committed themselves to simpler forms of international presence (indirect or direct export, import). More complex forms can be seen only in the case of medium-sized enterprises (foreign distributor, foreign subsidiary, strategic association, etc). Only 4 per cent of companies were involved in direct investment. There was no significant relation between the enterprise's age and methods of the international presence. This result queries the principle of gradualism in international activity.

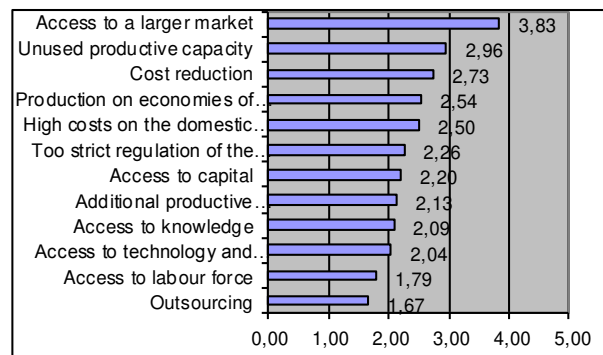
In addition, enterprises which are active in the international market as well are less embedded in their local environment and regard possible advantages provided by their own premises as less important.

Despite the county's frontier position we found that trading partners of enterprises reporting international activity came mostly from EU countries; only about 25 per cent of their partners are found in the neighbouring countries. An empirical survey was accomplished according to the connection of the enterprise's premises and the international activity (Dimitratos 2002). The results show that enterprises close to the frontier report more significant international activity, while their international activity is not confined to the neighbouring countries. The nearness of the frontier can be considered a competitive advantage that can be exploited by the assurance of good resources and procreation of an international business environment.

The social networks' significant role is demonstrated by the weak, but significant connection between international presence and cooperation during our analysis ($p=0.000$, Cramer's $V=0.2906$). This shows that enterprises that are more active in the international markets report enterprise cooperation at a significantly higher rate.

In the course of the research, serious emphasis was put on getting to know the motivations for and obstacles to international presence among small and medium-sized enterprises. We measured distinct motivation on a Likert scale ranging from 1 to 5, and then we ranked the results we obtained.

The highest importance was related to access to market (3.83), while all other motivations were considered of below-average importance. Figure 1 shows the most important motives. Importance of the motivations differs according to the scale of the firm. Independent of their size, companies judged access to larger markets to be crucial. Smaller firms aim to obtain lacking competences and physical resources, such as technology, know-how and knowledge; companies employing more people aim to gain access to financial resources and to increase their efficiency.



Reference: own elaboration

Figure 1. Motivation for international presence (1: not at all motivating, 5: highly motivating)

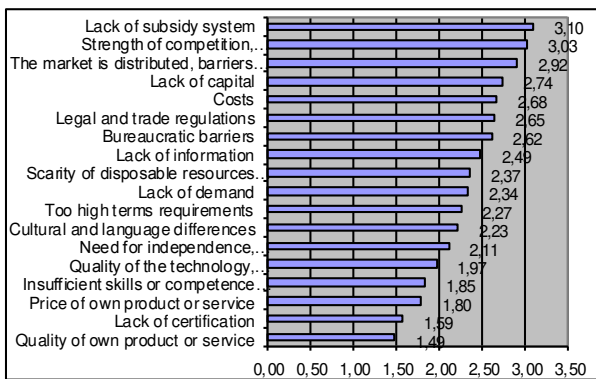
The questionnaire asked companies about the possible obstacles to internationalisation as well. Part of the barriers faced by SMEs are external, such as technological standards, bureaucracy, risk, high communication, transportation and other expenses, or legal regulations. Other barriers are internal ones, which result from the characteristics of the entrepreneur and the employees. Such barriers can be the poor quality of its own products or services, or unqualified staff. Objective and subjective types of internal barriers can be defined. Objective barriers evolve from such skills and nature of the company as the existence or lack of needed resources, while subjective internal barriers evolve because of the different abilities and efforts of entrepreneurs and employees.

We applied the Likert scale for measuring the barriers to internationalisation, then set up a ranking based on the point values we achieved. The rank of responses from the sample's companies can be seen in Figure 2.

Companies named the lack of a subsidy system as the largest barrier (3.1). They think the market is "distributed" and they find it very difficult to obtain a

³ Performance was surveyed on the per capita profit, as well as on the amount appropriated for expansion and investment.

good market position. Besides this, a similarly high point value was appointed to the cost of international activity and to the lack of capital. Companies consider their own products' quality and price, as well as the competences of employees, to be appropriate; likewise, technological standards or the lack of any licences are not of great importance. According to the scale of the company we found differences in barriers to going international. Smaller enterprises pointed out the lack of capital and increased costs, while medium-sized companies emphasized the strength of competition as critical element of international activity. No significant differences were found according to field of activity.



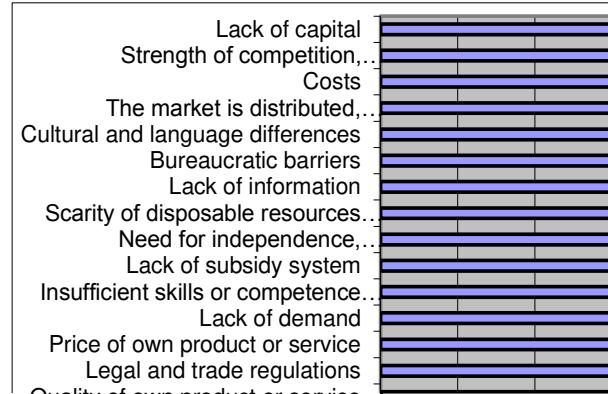
Reference: own elaboration

Figure 2. Barriers to international presence according to entrepreneurs (1: not at all discouraging, 5: highly discouraging)

Barriers to internationalisation according to the experts

Experts were asked about international activities of small and medium-sized enterprises. They were requested to express their opinions about the barriers to international presence and about the support activity of their institutions in this field.

Figure 3 shows the responses of experts regarding obstacles faced by SMEs. The most serious barrier to international activity is the lack of capital (4.35), the strength of competition (3.95) and the high cost of an international presence (3.92). All barriers were considered to be of high importance. The respondents considered external barriers to be crucial. These barriers exceed the competences of entrepreneurs and the employees. Thus, the internationalisation of SMEs has several objective obstacles originating partly from the features of enterprises (field of activity, size of the company, etc.) and partly from the economic, social and cultural environment that enterprises operate in. Apart from the above-mentioned facts, high point values were given to barriers where companies could successfully develop by taking advantage of consultancy and training services.

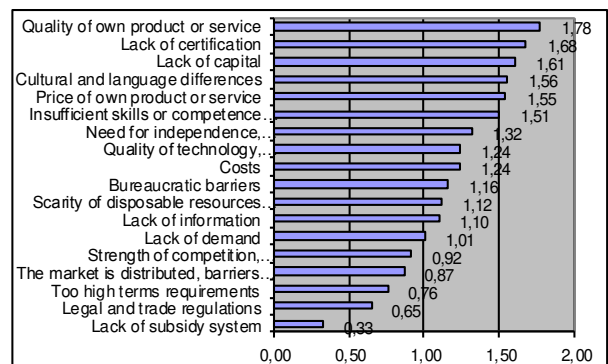


Reference: own elaboration

Figure 3. Barriers of international presence according to the experts (1: not at all motivating, 5: highly motivating)

Comparing the opinions of enterprises and experts

After analysing the experts' opinions about the international activity of small and medium-sized enterprises, we compared the obtained results with the responses given by enterprises. We came to the conclusion that, unlike the enterprises which are active in an international market, experts consider all the barriers to be rather important. Figure 4 ranks barriers according to the differences between experts' and enterprises' opinions. The difference in the distinct barriers evaluation stands out clearly. Unlike the experts, who thought internal and external reasons were equally important, the enterprises questioned in this survey overestimated the external barriers and underestimated the lack of their abilities and competencies. The companies were generally satisfied with their own performance (efficiency, quality, range of products, etc.) and perceived the reasons for less successful operation in the market in terms of external factors.



Point value given by experts minus point value given by enterprises

Figure 4. The difference between the experts' and enterprises' opinions with regard to international activities

According to the results of the Observatory of SMEs survey from 2007, the main obstacle to SMEs in connection with internationalisation was the lack of knowledge of foreign markets. Of exporting SMEs, 13% mentioned this as their prime obstacle (there was only one answer allowed). It was followed by destination countries' trade policy and the lack of capital (both 9%). On the contrary, about 20 per cent of the questioned small and medium-sized enterprises in Hungary believed that the most important obstacle is the lack of capital. With this result, lack of capital as a barrier played the largest role in Hungary of the 27 nations.

We analysed the experts' answers according to the main characteristics of the experts (gender, age, qualification, work experience). Amazingly, no significant difference was identified according to most of the above-mentioned criteria. There is no significant relationship among the point values given according to the work experience of experts expressed in ages, apart from in four elements. These are the lack of information (Pearson Correlation=0.349 and 0.313 $p=0.03$, $p=0.05$), the lack of demand (Pearson Correlation=0.327; $p=0.05$), too high terms requirements (Pearson Correlation= 0.422; $p=0.01$) and the market is "distributed" barriers to entry statement (Pearson Correlation= 0.415; $p=0.01$). We found that the longer work experience the expert had, the more crucial the role of these barriers was thought to be.

We found no significant correlation between the number of directly or indirectly served companies and the point values given.

Differences according to gender were identified. The women characteristically emphasized the role of external barriers. In contrast, male experts think the role of internal factors is more determining.

Institutional support of international activities

As many as 17 of the asked experts reported that their institutes directly helped small and medium-sized enterprises with their international activities. Surprisingly, there was no connection between the judgement of barriers and the direct involvement of expert's institute in supporting international activity.

The respondents' organisations offered a wide range of services for SMEs that wanted to break into the international market, as well as successfully helping them keep and strengthen their market positions. This activity involved providing direct support in finding potential export markets, searching for business partners and organizing business meetings. Providing a complex foreign market consultancy, designing and distributing brochures about companies, ensuring participation in exhibitions and fairs also contributed to the successful international activity of enterprises. Organisations indirectly helped SMEs in international activity, in developing high quality goods and services and in obtaining necessary financial resources through promoting their infrastructural development, as well as in

acquiring certification and supporting tenders activity of enterprises.

The results of the support activity can be experienced over time and are difficult to measure, but the positive feedback of enterprises, success stories and several measurable outputs (the number of common projects, number of additional contracts, etc.) prove the reason for the existence of such support activities, according to the experts. The experts emphasised that their support was beneficial only if the companies had proper knowledge, competences and capacity to process the obtained information. The proper utilization of resources and support and the final decision about internationalisation are the responsibility of enterprises. Several companies were totally unaware of their international potential and they lacked a well-elaborated international strategy. They needed further assistance in this. The experts also highlighted the fact that the low absorption capacity of small and medium-sized enterprises was a critical obstacle factor.

SUMMARY

Enhancement of the international presence of small and medium-sized enterprises is an often mentioned requirement, even though it can only be promoted within some barriers because of the sectoral structure and size of the enterprises. Enterprises whose mobility lagged behind the rest mostly operated in the service sector.

Among the leading motivations of internationally active SMEs were the access to a larger market and the utilization of unused productive capacity. Enterprises wanted to decrease their costs by improving their efficiency. During their international activity they were faced with several obstacles. The key issue was whether the barriers could be eliminated and if they could, in what way and at what expense. In order to answer this question, the barriers were grouped. Three groups were created: external, objective and subjective internal barriers.

External barriers were, for example, technological standards, bureaucracy, risk, high communication, transportation and other expenses, and legal regulations. Internal barriers resulted from the characteristics of entrepreneurs and employees. Objective internal barriers evolved from such skills and nature of the company as the existence or lack of required resources, while subjective internal barriers evolved from different abilities and efforts of entrepreneurs and employees, for example a lack of information about international markets or a lack of foreign language knowledge. In the latter field it is easier to intervene, by offering consultancy and financial support and in this way international activities can be enhanced. Objective barriers originating partly from the characteristic features of the SMEs (size of the company, area of its activity) and partly from their environment can be influenced only with difficulty.

The comparison of experts' and entrepreneurs' opinion highlighted the subjective nature of the perception of barriers. The companies are usually satisfied with their own competences and see the reason for less successful operation in the market as being due to external factors. Even though experts also acknowledged the importance of external barriers, they think companies have to do a lot in the field of their products' competitiveness and quality as well as in the field of their own and their employees' competence.

The support provided by business development institutions can achieve its objectives only if companies are able to size up correctly their abilities and opportunities and if they feel a need for development. Currently our results fail to confirm this statement. On the other hand, proper absorption capacity towards utilization of information and support is of primary importance. Without this, even the most successful expert support will fail to achieve its objectives.

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The Development of Institutions for Serbia Organic Food Market Considering the Accession to EU

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SUMMARY

Within the food and beverages products category, organic food products are one of the most competitive markets in the EU today. Therefore, this paper discusses current features of the organic food scene in EU and in Serbia. Following that, alternative scenarios for entrance with organic food "Made in Serbia" into the EU market are elaborated. The first of them is inclusion on the Third Countries List as a long-term project. The second approach, joint co-certification, is easier to apply, with the first steps already done. The third scenario is based on acquiring certificates by contractual relationship with EU accredited certification organizations.

Key words: organic food, EU organic food market, organic food marketing

Journal of Economic Literature (JEL) code: M00, M39, Q00

INTRODUCTION

Food issues, or to be more precise, shortages in food were one of the major reasons for the unification of European countries after World War II and still has great importance for its stability and development. The fact that a great part of the EU budget is devoted to subsidies in agricultural sector shows this clearly. However, since establishing this union in 1957, there has been an obvious shift from solving the problems of food availability at that time (a quantitative problem) to the problems of food safety standards and protection of consumer rights in the field that is present now (a qualitative problem). This reality has to be accepted by every country within the EU or that has aspirations to become a member state of the EU. Therefore, it is in the best interest of every country to find the way to be part of the solution (instead of the problem). One of the solutions certainly is organic production practices and supply of these kinds of products. Serbia as a country on its way to the EU membership has a substantial potential in regard to this. Therefore, the intention of the paper is to point out major issues related to possibilities to enter the EU market with organic food as a direct response to EU consumers' needs. Alternative scenarios to be elaborated are developed primarily based on a Serbian case study, but bearing in mind similarities of organic sectors in neighboring countries (that are on the waiting list as well), they may have applicative value in those countries as well.

ORGANIC FOOD MARKET FOOD SCENE IN THE EU

Although the roots of organic agriculture in today's EU countries can be traced back to the 1920s of the last century, it could be said that this form of agricultural production started to get wider acceptance, and become market oriented, by the late 1980s (Vasiljev and Sudarević, 2004; Dimitri and Oberholtzer, 2005). In that period organic agriculture had made a significant transformation from a so-to-say "sectarian" approach to agriculture by a marginally small number of farmers to a scientifically supported model of environmentally-friendly agricultural practices and a way of life for a constantly increasing number of consumers. It is known in the EU and worldwide under a three different names: ecological, organic and biological agriculture, but in its essence it implies production of raw materials and finally packed food products based exclusively on the use of organic substances without any use of synthetically (artificially) produced materials. Or to be more precise, under the definition of IFOAM (the International Federation of Organic Agricultural Movements):

"Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines

tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.” (www.ifoam.org)

The demand for organic food in EU countries is in constant rise due to several factors. Since the late 1990s there has been a significant increase in the use of market support policies including investment aids, consumer promotion and public procurement, although these are less common in the new member states (Stolze and Lampkin, 2006). Beside this, one of the most important drivers for this, in majority of member countries, is growing presence of organic food in large supermarket chains, which has resulted in greater availability of organic products. The increasing demand is also a consequence of the fact that consumers are becoming more health conscious day by day. New information is available through the mass media about the harmfulness of certain materials contained in conventionally produced food. Facts publicly available on the site of the World Health Organization (www.who.int/health-topics/en/) are really terrifying: in average each of us has an intake through food of 4.5 liters of pesticides and herbicides and about 5 kilograms of additives yearly. More than 30 million cases of poisoning with pesticides is reporting yearly worldwide, of which about 100,000 have fatal consequences. On top of this, if we know that about 90% of the harmful substances affecting our health enter our organism as an integral part of food, it is logically that most of the modern illness like cancer, all kind of allergies, cardiovascular and nervous system diseases can be to a large proportion directly contributed to the overchemicalisation practices of conventional agricultural production. Major crises in animal husbandry production (BSE, foot and mouth disease and the dioxin crisis, to name just a few) also contributed towards a shift in consumers’ purchasing habits, driving them to look for more semi-processed and finally packed goods with organic labels on them. According to results of a study conducted in the UK, the main drivers of constant increase for organic food products, measured as a percentage of respondents that stated reasons for purchasing them, were:

- health consciousness (36%),
- better taste of organic products (31%),
- they are more natural (25%),
- they are GMO free (12%) and
- environmental protection (5%).

(<http://dx.doi.org/10.1787/9789264101517-6-en>)

The supply side in the equation of EU organic food market is trying to respond to the steady increase in demand for such kind of products, but cannot achieve an overall level of self-sufficiency. For example, according to the study of Hamm at al. (2002), EU countries had a deficit in the supply of organic meat, organic fish, fruits and to some extent vegetables, and even milk and cereals. The fact that organic food production in EU countries is unevenly developed (Richter, 2006), with great differences between

individual countries, presents a substantial obstacle in achieving the goal of self-sufficiency (see Table 1).

Table 1. Organic Agricultural Land (In-Conversion and Fully Converted) in EU 15 (2009)

Country	Organic hectares (in 1,000)	Percent of agricultural area
Austria	518,757	18.50
Belgium	41,459	3.02
Denmark	156,433	5.88
Finland	166,171	7.25
France	677,513	2.47
Germany	947,115	5.59
Greece	326,252	3.94
Ireland	47,864	1.16
Italy	1,106,684	8.68
Luxembourg	3,614	2.76
Netherlands	51,911	2.69
Portugal	151,460	4.36
Spain	1,330,774	5.35
Sweden	391,524	12.56
U.K.	721,726	4.47

Source: www.organic-world.net/statistics-data-tables-excel.html

The organic consumer market in the EU is the most important one in the world. With turnover at the level of 26 billion USD in 2008, it represents the biggest slice in the organic world pie chart (www.ifoam.org). However, uneven distribution in the shares of individual countries is present, just as when the production areas are in question. Namely, a very high percentage of 72% of total organic sales in EU is covered by only four countries: Germany, France, the UK and Italy.

Consumers of organic products in the EU can roughly be divided in two groups (www.fas.usda.gov). The first group, the so-called “regular buyers”, is a rather small group that has been buying organic products for decades. This group includes environmentalists, nature lovers, and socially conscious people. Although this group is small, they are responsible for almost half of European organic sales. Regular buyers tend to buy at organic specialty shops or farmers’ markets. For them price is not an important purchasing decision factor.

The second and much bigger group is quite different. Double-Income-No-kids households, older consumers (aged 50-75) and New-Trends seekers will fall in this group. They buy organic products for various reasons, including a healthy lifestyle, food safety concerns, animal welfare, sustainability, quality and taste of food, price, and innovative packaging. This group, the so-called “light buyers”, buys organic products mainly at hyper/supermarkets. This is the group that the organic industry should focus on to generate further growth in the near future.

ORGANIC FOOD SCENE IN SERBIA

The first organized forms in the promotion of ideas about organic agricultural practice and consumption of organic food took its place in the territory of the former Yugoslavia in 1991 with establishing the NGO "Terra's" in Subotica (Sudarević et al., 2007). Its first activity was related to organic vegetable production on virgin land in the Horgos Desert. The quality of the products grown at that experimental field was outstanding, clearly indicating advantages of organic production methods over conventional agricultural practice. Parallel with these field trials, members of Terra's organization started a series of consumer education activities on benefits in using organic foodstuffs in everyday menus (www.terras.org.rs). This was of great importance for the creation of initial consumer groups that led to the organic market continuously developing up to these days. How vital this market is could be seen from the fact that even in the harsh economic conditions in the period 1991–2000, when Serbia was exposed to international community sanctions, the second largest hyperinflation in the world ever, and large macro-economic and political instability due to local wars in the region, it prevailed and kept momentum, never being reduced to its initial position.

The second period of organic market development in Serbia coincided with democratic reforms in 2001 and lasted up to 2010. With reintegration of Serbia to the international community, organic food sector is recognized as important contributor to the economic recovery of the country. This was the view of not only the national authorities but of the international community as well. It is the main reason why Serbia was one of the countries where the stability pact project named "Introduction and development of organic agriculture in South East European countries", was conducted in the period 2001-2006. The importance of this project is enormous because for the first time a set of different activities related to development of the organic sector (according to the concept "from farm to fork") could be done simultaneously. It comprised the organised education of agricultural producers (so-called "bio-schools"), consumer education through the mass media, education of inspection and certification staff, extension service staff education, publishing of educational materials (newsletters, brochures, video and CD editions), the establishing of NGOs for spreading the organic agriculture concept in different regions, the establishing of experimental field trials and a whole set of promotional activities with degustation of organic food as very convincing from the standpoint of the consumers. One of the most visible results of activities in that period is a sharp increase in number of specialized food shops for the sale of organic products (so-called „bio-shops“) as a response to the increase in demand for this category of products.

The third period in the development of the organic sector in Serbia is characterized by creating an institutional framework for the further advancement that started in year 2010. Adoption of the Law on Organic Agriculture in 2010, which is harmonized with EU regulations in this field, meant that Serbia got a sound base for a meaningful and effective development of this sector. Beside that, only a year earlier, a national association for development of organic production named Serbia Organica was formed as an umbrella organization that brings together all actors on the organic scene in Serbia (<http://serbiaorganica.org>).

Another important institutional development is the establishment in 2010 of four state-funded centers for organic agriculture development. Namely, by the decision of the Ministry for Agriculture, Water Management and Forestry, in accordance with natural potentials for the production of different kinds of organic products, centers were opened in: Selenca (Vojvodina, Northern Serbia) for annual crops (mostly cereals and vegetables), Valjevo (Western Serbia) for perennials (fruits), Svilajnac (Eastern Serbia) for animal husbandry and in Leskovac (Southern Serbia) for wild fruits and medical herb collections. Subsidies for organic food producers in 2010 reached a value of 10 million RSD (approximately 100,000 euro), which is far from enough but still represents a clear signal that government is ready to support this sector for development. It is important that all groups of organic products have been supported under the subsidy program; namely producers of annuals have received 250 euro per hectare, animal husbandry producers from 150 euro down to 50 euro per animal, 5 euro per bird in poultry farming and 20 euro per hive for beekeeping producers (www.mojafarma.rs/index).

The most accurate data on organic food production in Serbia can be found in a brochure named "Organic Agriculture in Serbia" that was published in January 2011. It is the result of a research project conducted under the leadership of experts from GTZ (a German organization for technical support and cooperation) and FIBL (a Swiss organic research institute).

Table 2. Organic Agricultural Land in Serbia by crop (2009)

Category	Crop	Area fully converted (ha)	Area in conversion (ha)	Total (ha)
Perennials	Apples	650	550	1200
	Raspberries	360	20	380
	Strawberries	80	10	90
	Plums	420	170	590
	Cherries	100	50	150
	Others			2560
Subtotal				4970
Annuals	Maize	20	210	230
	Wheat	40	130	170
	Soybean	10	400	410
	Vegetables and others			427
Subtotal				1240
Grassland		50	2240	2290

Source: Marz U. et al., 2011

General features of the supply of organic products in Serbia are the relatively modest number of hectares in relation to total agricultural land (only 8,500 hectares) and a very narrow assortment of cultivated species. The picture becomes a bit brighter if we add to this the fact that about 230,000 hectares of forest are also considered as organic areas, hence they supply the organic market with collected wild fruits and medical herbs. Even then, if the total organic area (including forests) is related to the total agricultural area in Serbia, it represents only 0.04%, which puts it in the group of countries with the lowest share of organic area in total agricultural area on a global scale. Thus, it could be said that increase of organic production in Serbia is possible due to unexploited natural potential (fallow land and nature protected regions at first place).

The main producing zones are the southern and western parts of Serbia and almost all of the territory of Vojvodina (northern Serbia) (see Figure 1). The dominance of perennials in the structure of organic land usage is absolute, with 60% of the total area, while 25% is used as grassland and only 15% devoted to annuals production. A general characteristic of agricultural production in Serbia is that individual holdings are in average very small (about 3.5 hectares per household) and division into 5-6 lots is present in organic production as well. According to expert opinions, in 2009 there were about 3,000 small producers engaged in organic agriculture with a total farm gate value of production at the level of 20- 25 million euro.



Figure 1. Organic agriculture production regions in Serbia

One of main features of agricultural products in general – that they have to be to a large extent processed in order to satisfy the needs of the consumers adequately – is present in the case of organic products as well (Sudarević, 2007). The food processing industry in the domain of organic agricultural products in Serbia is a vital sector consisting of about 30 small and medium-sized enterprises. Their

main feature, beside their commitment to preserve the quality of raw materials, i.e. the valuable substances in them, is that they have in their product portfolio conventionally processed products as well. In other words, the program of organic food products is an additional one with the main purpose to improve the profitability and image of the enterprise. Although the number of processing facilities is very modest, their product portfolio for national and foreign markets is comprehensive. Right now, through different marketing channels (in first place “bio-shops” in Serbia), consumers can satisfy their needs for products based on integral cereals and oilseeds, medical herbs, non-GMO soybean products, dried, frozen and pasteurized vegetables, apple pulp and concentrate, jams, blackberry juices and vine, frozen berry fruits, dry fruits and bio-cookies. As we may notice, almost everything that we consume as conventionally produced and processed products can be found in an organic version as well.

It is very difficult to make a precise follow-up of organic product flow from the farm to final consumption due to the lack of adequate data. Generally it could be said that fresh vegetables and fruits are marketed on a domestic level almost exclusively (mostly in green markets and marginally within box scheme programs), while processed foodstuffs are partly exported and partly sold on the domestic market with the engagement of different members of distribution channels (mostly in “bio-shops” and in recent years in supermarkets to a modest degree as well). The main feature of exported organic food from Serbia is that it is at the low level of processing (mainly frozen fruits and vegetables in bulk packages, dried fruits, medical herbs and apple concentrate) which means that the country of origin remains unknown to the foreign consumer, who cannot find that information on the label of finally packed products of domestic processors.

ALTERNATIVE SCENARIOS FOR ENTRANCE TO EU ORGANIC FOOD MARKET

As was said in the introduction, the main focus on the food market in the EU today is on issues of food quality. Institutionally this care for consumer health in the EU is in responsibility of DG “Health and Consumer Policy”. As a result of its initiative, a so-called “White Paper” was adopted in the year 2000 with which a European Food Safety Authority was formed. It is an independent expert body, free of political or other vested interests, with its main aim being to act with openness and transparency, publishing immediately its findings concerning risks to European consumers. The White Paper also proposed an action plan with a wide range of measures to improve and bring coherence to the Community's legislation covering all aspects of food products from “farm to table”. It sets

out over 80 separate actions that are envisaged over the period ahead with the intention to close identified loopholes in existing legislation.

Beside this, another mechanism of EU consumer food protection is Codex Alimentarius regulations. Since 1963, when the Codex Alimentarius Commission was formed by the FAO and WHO with the aim to develop food standards, new (more rigorous) regulations in field of production, processing and fair trade practices have been continually arising. It is important to stress that in this Commission, all EU country members are represented, as is Serbia.

Having in mind these entry requirements to the EU food market, and in particular to the organic food market, alternative scenarios for organic food produced in Serbia in entering to the EU market could be as following. The key conditions for achieving any of them are the governmental incentive for the spreading of organic farming practice, through the scheme of subsidies, and better organization of the organic farmers (establishment of cooperatives).

ALTERNATIVE SCENARIO I

The most favorable mode of entering the EU organic market for any country outside the EU is to be on the list of the Third Countries. The latest version of this list comprises eight countries: Argentina, Australia, Costa Rica, India, Israel, Switzerland, New Zealand and Japan (www.organic-europe.net). For these countries the export of organic food products to EU countries is possible without additional certification from an EU organic food authorized body. That means that national certification bodies in these countries (for example in Switzerland it is Bio Suisse) are accepted to issue certificates of the organic origin of food that are of equal value to the one from any EU accredited certification body.

Advantages of such status are obvious. Exporters from the above-mentioned eight countries have a price advantage at the entry point to the EU market. The cost of additional EU certification immediately decreases price competitiveness of the organic food products that come from the countries that are not included on the list. Beside that, the additional paper work that has to be done is time consuming and makes the flow of goods and payments between partners in the EU and in the country of export more difficult.

The key question for Serbia (and other countries as well) is how to become a member of the “club”. According to available information, the procedure is long and complicated. The main precondition is to have at the national level complete legislation in field of organic food sector that is compatible with EU legislation. After formal submission of a request it is necessary to prove, over a sufficiently long period, that the legally established rules are consequently applied. Just then does a country

have the possibility to be included in the Third Country List, which (in general) requires long work and patience.

ALTERNATIVE SCENARIO II

For those countries not included in Third Country List for all organically produced foodstuffs, when entering the EU market, certification by one of the officially accredited bodies is obligatory. A less “painful” way to fulfill this requirement will be elaborated in scope of this scenario. The main point in the strategy to be implied under this scenario is to establish joint venture enterprises for the certification of organic food in Serbia. This means that national accredited certification body in Serbia together with national accredited bodies from EU member countries (some of them are presented with their logos in Figure 2) form an independent certification body whose label will be accepted when entering the EU. In other words, the logo of an EU accredited certification body will be a guarantee for fulfillment of EU organic production and processing standards. The main precondition for the realization of such a scenario is compatibility in the inspection system that is behind certification in all country partners included. If that is the case, it will enable the inspection work to be done in Serbia by a national accredited inspection body, thus saving unnecessary costs of foreign inspectors’ visits. This is the strategy already applied by one of the strongest certification organizations in Serbia – Organic Control System (OCS) (www.organica.rs). Namely, in cooperation with BCS – the German accredited organization for inspection and certification of organic agricultural products – they are in a position to make all of necessary inspections and to deliver certificates to the producers/processors that will be co-certified by their German partner, thus enabling entrance into the EU market. The role of the BCS is to educate inspectors employed in the OCS and to supervise their work, for which they charge certain fees, but far less compared to carrying out all of the inspection and certification activities personally.



Source: www.ifoam.org

Figure 2. Logos for organic products in Europe

ALTERNATIVE SCENARIO III

The final scenario is the most “painful” for exporters of organic food products to EU market. This implies the active role of EU accredited inspection and certification bodies in the territory of Serbia in order to get their certification. This is by far the most expensive way how to enter the EU market. Keeping in mind the fact that

organic agriculture (and processing of organic raw materials) is at a low-scale level, in many cases it is the main reason for absence of high quality organic foodstuffs made in this country on the EU market. The costs of foreign inspection and certification are simply too high for farmers with relatively small acreage under organic production. In the absence of other possibilities to reach EU organic food market, this is least favorable but only choice.

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An Analysis of the Capital Structure of the Hungarian Corporate Sector

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SUMMARY

It is well-known that in the 90's enormous changes occurred in the structure of the Hungarian economy, which influenced the tradition of corporate financing. In line with political changes, foreign-owned companies appeared that adopted the financing strategies of their mother companies. In addition to the ownership structure, there were significant changes in the sectorial structure of the economy. The share of the agricultural sector has decreased; the share in employment and in GDP has shifted in favour of machinery and services (especially telecommunication and financial services). This paper examines the whole corporate branch divided into sectors, showing how company capital structure changed in Hungary between 1992 and 2003, and contains a short analysis about the period 2004-2010. One of the most important findings is that the corporate capital structure has only secondary importance; companies make primarily production, market and investment decisions, and the financing decisions are the effects of these primary decisions. This secondary manner is typical in Hungary and in the other transition economies, where the financial culture is still at a low level (although it has developed by large steps in recent years), the financial markets are underdeveloped, and companies traditionally prefer to use internal sources rather than loans with interest and principal payment obligations. This study investigates theories of capital structure against the behaviour of the Hungarian corporate sector.

Journal of Economic Literature (JEL) code: G32

INTRODUCTION

The topic of corporate leverage has been in the focus of heavy scientific interest since the 1960's. The debate started with the famous paper of Modigliani-Miller (1958), investigating whether the value of a company is solely determined by the cash flow generated by the corporate assets, or whether the capital structure – the leverage between debt and equity – has any influence on it. The main question is whether there is any optimal capital structure that would help the company to maximise its market value. The related huge professional literature is primarily from Anglo-Saxon authors, and empirical research has examined mainly the corporate capital structure in developed countries. Relatively little attention has been devoted to less developed countries, especially to Hungary.

The aim here is to examine the factors that influence the corporate capital structure. The influencing factors are split into two distinct groups. The macroeconomic factors are those which determine the operational environment of companies, which are externally imposed and which the companies cannot manipulate directly. The corporate factors are those which derive from the corporation's circumstances, from the strategic goals of company, and which the company is able to influence.

I consider it my primary task to examine which corporate factors play a significant role in determining the capital structure in Hungary. This aim is supported by a corporate database that contains data on balance sheets and income statements of companies from period of 1992-2003, and from period of 2004-2010. This database can be used to examine the relationship between capital structure and corporate factors.

However, the examination of macro-factors is unavoidable, since we are talking about a transition economy, and the macroeconomic factors and their big changes may have a significant role in forming the capital structure. Within macro-factors I emphasise the development of the bank sector, the development of financial intermediaries, and the establishment of legal regulation as the major factors influencing the capital structure. In the '90s enormous changes took place in the structure of Hungarian economy, which influenced the tradition of corporate financing. In line with political changes, foreign-owned companies appeared that employed the financing strategies of their mother companies.

In addition to the ownership structure there were significant changes in the sectorial structure of the economy. During the period investigated, the share of the agricultural sector decreased and the share in employment and in GDP shifted in favour of machinery and services

(especially telecommunications and financial services). This study examines the whole corporate sector by industrial sector. A long enough time has now passed to draw appropriate conclusions from the available data on the tendency of corporate capital structure of a transition economy – i.e., of Hungary.

THEORETICAL BACKGROUND

After the traditional theory (Durand 1952), the first milestone of comprehensive corporate capital structure theory was laid down by Modigliani and Miller in their famous paper published in 1958. The two authors proved that the total value of a corporate body is independent from its capital structure in a perfect market. This paper encouraged researchers to examine this relationship, if they cancel the assumptions of perfect capital market.

The further research can be split into two basic groups. The first group contains papers examining the problem of taxation (Modigliani and Miller 1963; Miller 1977; Myers 1984). The trade-off theory, which belongs to this group, searches for the optimal leverage to maximise the value of equity. It compares the advantages and disadvantages arising from increasing the indebtedness. The advantage of raising a loan is the tax shield of interest, while the disadvantage is that the chance of occurrence of financial distress increases and incremental payments must be made by the company. The optimal capital structure is where the marginal income from the interest tax shield is equal to the expected marginal cost coming from the increase in the probability of bankruptcy.

Since taxes alone did not always provide an appropriate explanation to the two basic questions – why and how much loan the company should raise – thus the economists put other market imperfections in the centre of examination. The information theory appeared in the '70's. This assumes that the market actors are not equally well-informed and their access to information is also not equal (investors and managers). Two streams of this school have had a significant effect on the issue of capital structure.

The agency theory explains the capital structure in the case of companies where the ownership and management are not the same (Williamson 1988). The root of problem is that the interests of the principal (owner) and the agent (management) differ. The management is generally interested in increasing the value of the organisation and his/her income, whereas the shareholders are interested in share price increases. The change in capital structure helps to solve the occurring clashes, since the increasing indebtedness presses the management to achieve better performance.

According to the capital market theories based on asymmetric information, one actor of the market has more information than the others. The other actors observe the signals of this particular actor and deduce the

information from these signals. That is the reason why these models are often referred as signalling theories. In the case of capital structure the management has more information. The investors observe its signals. The introduced models examine how the management send "signals" by changing the capital structure (Myers 1984; Myers and Majluf, 1984; Harris and Raviv 1991).

The pecking order theory (e.g. Donaldson 1961; Brealy and Myers 1992) says that companies use their resources in a strict order, starting from internal resources (profit and appreciation) until they are used up, and only then calling on external resources. The first external resource to be used is commercial credit, at no cost to the company, the next resource used is bank loans, and the most expensive resource, releasing shares, is the last one resorted to.

Macroeconomic factors

Among the macroeconomic factors influencing the capital structure I have examined those which I judged relevant, primarily the development of the bank sector and financial intermediary sector and the institutions and operation of the capital market. I have examined the typical Hungarian financing and capital structure tendencies from the beginning of the 1990s, comparing them with macroeconomic changes. I have divided the past period into three stages, based on the observed typical changes in corporate financing and corporate capital structure.

The first stage of period is the era between 1987 and 1995, which is characterised by economic transformation, mass privatisation and the dominance of corporate equity. The importance of this stage is given by the establishment of economic, regulational and political systems, which made privatisation and the development of a modern economy possible. The establishment of a two-tier bank system was one of the most important steps influencing the long-term financing structure of companies, since instead of the allocation of loans supporting the fulfilment of economic plans, the credit scoring system examining debt service capacity became the basis for judging credit applications. The refinement and improvement of the credit scoring system in the commercial banks took years. The other important station was mass privatisation in point of capital structure, which made it possible for the company to access fresh capital.

The second half of the 90's gives the second stage of period, whose main characteristic is the quick increase in corporate leverage. From 1996 the Hungarian economy entered a long-lasting growth phase and the equilibrium also improved. The solvency of the corporate sector was strengthened by the better-than-ever market prospects, while the attitude of banks to providing loans increased as the credit risk of banks decreased. Companies utilised the opportunity to raise loans from abroad. The increase in investment appetite encouraged an increase in leverage.

The first years of the new century form the third stage of period, which is described by the emergence to the European average level of leverage. The capital leverage of the Hungarian corporate sector became very similar to the average of the European Union. The indebtedness of the Hungarian corporate sector cannot be considered high compared with international standards, but the share of loans increased further. However, the dynamics of loan increase are significantly lower than in the second stage. In this stage the formerly explicitly low capital leverage reached the average level of developed countries. In Hungary the stabilisation of the macroeconomic system in line with the moderation of risk resulted in the increase of leverage in the examined period.

Overviewing the financing opportunities and capital structure of the Hungarian companies, it can be stated that a significant transformation has occurred in that respect in the past two decades. The capital leverage (liabilities/equity) of Hungarian companies reached the EU average after 2000. The term structure of loans changed favourably, and long-term loans dominated over the short-term loans that had formerly ruled. Foreign currency loans and the credit provided by foreign ownership play a significant role. The stock exchange has only moderate importance in financing companies.

Corporate factors

In the first part I examine the validity of the factors in Hungary influencing corporate leverage based on mainstream theories. According to my examination, these factors influence the capital leverage in Hungary, but their effect on decision making is not always the same as in the developed countries. The second part concentrates on factors which have not been placed in the focus of earlier studies, but which affect capital structure, especially in countries in transition to the market economy.

The majority of studies (see Prasad et al. 2001 for a review article) have found the following relationships in the case of developed countries:

The capital leverage increases if

1. the tangible assets increase.
2. the non-loan-like, tax-saving opportunities increase.
3. the growing opportunity of company increases.
4. the size of the company grows.

The capital leverage decreases if

1. the volatility of cash flow increases.
2. the cost of marketing increases.
3. the probability of bankruptcy increases.
4. the profitability increases.
5. the speciality of product increases (Harris and Raviv 1991).

These factors in particular countries – together with the macroeconomic factors – affect the capital structure policy in different ways. Let us now examine the situation in Hungary.

INVESTIGATION OF CORPORATE FACTORS IN HUNGARY

The database used in this study contains corporate balance sheets and income statements of 4,740 Hungarian companies from the period 1992-2003, and was made by Ecostat, a Hungarian statistical institute. I examined the relationships between the explanatory factors and the dependent variables in the case of Hungarian enterprises.

The factors of leverage – [total liabilities/liabilities and equity] and [long-term liabilities/liabilities and equity] – were used as dependent corporate leverage indicators. As can be seen in Figure 1, in Hungary between 1992 and 2003 the leverage increased in all sectors, with the building industry consistently at the highest level, and the agricultural sector and non-material services at the lowest, though still growing.

Composition of assets – Test of trade-off theory and agency theory

In my assumption there is a negative relationship between the ratio of tangible assets and the corporate leverage till the middle of 90s. This relationship gradually becomes a positive one, similarly to the developed countries, in line with the end of the transition to the market economy.

In a market economy the larger the share of tangible assets in total assets, the larger the share of liabilities in the corporate capital structure, since tangible assets mean good collateral for the lending banks.

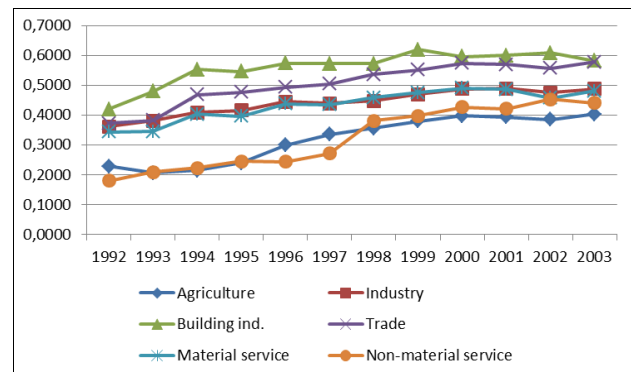


Figure 1. [Total liabilities/liabilities and equity] ratio by sector in Hungary, 1992-2003

The trade-off theory holds that the firms raise loans up to the point where the marginal tax savings from borrowing is equal to the present value of expected expenses of financial distresses. If the share of tangible assets – which can be sold without significant losses – in a company is high then the expenses of financial distress and bankruptcy can be held at a low level, thus the larger the share of tangible assets; the larger should be the share of loans among the financing sources.

The agency theory states that the owners of strongly indebted companies tend to make investments lower than

optimum (denying investments with positive net present value), but if the company owns tangible assets, which can be used as collateral, then this anomaly can be cancelled (the borrower tends to give loans to companies with a high share of tangible assets).

For countries making a transition to a market economy, as in the case of Hungary, it is important to consider the fact that there was a credit crunch till the middle of the '90s, so the banks did not offer new loans of significant size due to their former loss-making lending activities. It is also important to note that the obsolete asset portfolio of large state-owned enterprises could not act as good collateral for bank loans.

Another important fact in this respect is the lack of a secondary market for tangible assets. Banks were unable to sell the tangible assets confiscated as collateral, or could only do so with great difficulty. In my assumption, these problems became gradually more moderate from the second half of the '90s, in line with the strength of the market economy, and then later came to an end.

Method of examination: the quantification of correlation between the share of tangible assets and capital structure.

Result of examination: the negative correlation of share of tangible assets and capital leverage is valid for the whole period examined. Neither the trade-off theory nor the agency theory prevailed in this period in Hungary, but it is important to consider that the low level of liability ratio was affected by factors out of company control in the first and in the second stages of the period, and not by the lack of tangible assets. Examining the 2003 results, I can state that the firms generally have enough tangible assets to increase their loan stock.

Size of company – Test of trade-off and agency theory

In my assumption there is a positive relationship between the size of company and the corporate capital leverage, also in the case of Hungarian enterprises.

According to the trade-off theory, the size of a company affects its capital leverage for the following reason: the larger companies are generally more diversified and the probability of occurrence of financial distress is lower than in the case of smaller companies. The liquidation value is also smaller in the small companies than in the larger ones. Thus the agency cost of debt is relatively lower in larger firms. The above hypothesis is strengthened by the fact that the larger firms provide ever more reliable information for markets, thus the cost of informal asymmetries is smaller. Furthermore, an economy of scale appears in banks, since the interest income is much larger compared to the cost of granting a loan in the case of a large company. Due to the above, I expected that a larger company would have higher capital leverage than a smaller one.

Method of examination: Leverage versus size. The size was measured by two variables – number of staff and net sales. I examined the description statistics of companies grouped into deciles by the number of staff and net sales.

Result of examination: The positive relationship between size and capital leverage cannot be proved. If we consider the number of staff as representing the size of a company and the capital leverage indicator is the total liabilities/total assets, and then even the opposite is true for the Hungarian companies: namely, the larger the company; the lower the capital leverage. If the examined indicator is the long-term liabilities/total assets, then there is no significant difference in point of capital leverage among the companies of different sizes. If the net sales of the company are considered as the measure of size, no significant correlation is found with any of capital leverage indicators. Based on this result, neither the trade-off theory nor the agency theory is supported by the Hungarian corporate database.

Profitability – Test of pecking order and trade-off theory

In my assumptions there is a negative relationship between profitability and capital leverage, thus if there are enough internal sources of finance – a significant part of which is the profit of company – the company satisfies its financing needs from internal sources and not from raising loans.

I assume the validity of the pecking order theory, which is supported by the fact that the majority of empirical researchers have discovered a negative relationship between these two factors. The internal sources of finance are generally available for profit-making companies, so the capital leverage is lower here, since there is less need to apply for external sources.

The trade-off theory states that the higher the profit of the company, the more advantageous high leverage is, due to the greater extent of the interest tax shield.

Method of examination: measuring the correlation between the capital leverage indicators and the return on assets (ROA).

Result of examination: To examine the relationship between profitability and capital leverage in the Hungarian corporate sample, it can be stated that the negative correlation prevails in tendency. The connection between the two factors is weak in the examined period. Based on this result, it appears that the companies tended to make their decisions about capital leverage as the pecking order predicts. The trade-off theory – which assumes a positive connection between the two factors, saying that the profit making firms strive to utilize the interest tax shield via raising loans – can be rejected here.

Relationship between capital leverage and liquidity – Test of pecking order and agency theory

In my assumption, the better the liquidity of company; the lower its capital leverage.

There are several approaches related to liquidity in theories about capital structure. The pecking order theory – which has been successfully tested in several studies (see Prasad et al. 2001 for a review article) states that the firms with a high liquid asset ratio finance their investments by mobilizing these liquid assets, and do not turn to banks for loans (nor to investors for further equity). Other researchers argue that companies whose liquidity ratios are high have a good chance to obtain loans, since they are able to perform the required debt service towards the bank.

The question of liquid assets also appears in agency theory, namely, that the loan forces the company to perform cash outflow (ordinary interest and instalments), since the free cash flow available for the agent becomes lower. Based on this logic the target is the low liquid asset ratio in line with high capital leverage.

I have chosen my hypothesis based on the pecking order theory, because this view is closer to the Hungarian historical tradition and to the Hungarian mentality of accommodating your pleasure to your purse. Companies tend to turn to bank loans only if they cannot achieve their targets from internal sources.

Method of examination: Measuring the correlation between the current ratio and the capital leverage

Result of examination: The pecking order prevails in the connection between liquidity and capital leverage: if the company has liquid, usable assets, it does not take out loans for financing. The agency theory cannot be supported based on the Hungarian sample. According to this theory the high level of liquid assets would encourage the owners to keep a high amount of loans, to force the executives to manage the company better.

Business risk – Test of trade-off theory

In my assumption there is a negative relationship between the business risk and capital leverage of company. The business risk of a company is measured by the volatility of operating profit. Highly volatile operating profit does not permit the payment of high fixed-debt servicing, thus the firms should abstain from large loans. Raising a large loan would increase the probability of bankruptcy, the trade-off theory states.

Method of examination: measuring the correlation between the standard deviation of return on assets (ROA) and capital leverage indicators.

Result of examination: I did not find the connection proposed by the theory between the volatility of profit and the level of capital leverage; the volatility of

operating profit appears to have no significant influence on the liabilities/equity ratio in the examined period.

Tax shield of interest – Test of Proposition II of Modigliani and Miller and the trade-off theory

In my assumption there is a positive relationship between the tax shield of interest and the capital leverage. The current tax system influences the capital structure. The management of a company strives to maximise the investors' realized income. The change in corporate tax rates leads to a change in capital structure. Proposition II of Modigliani and Miller (1963) overemphasises the importance of the tax shield with its derived deduction. The trade-off theory draws attention to the fact that the tax shield is available only for profit-making companies.

The corporate tax rate in Hungary was changed from 40% to 36% in 1994, and then was lowered to half of its former rate – to 18% – in 1995. I have examined the effect of this drastic decrease on corporate capital leverage.

Since the interest on a loan can be accounted as an expense, the favourable effect of raising a loan for a company is to decrease the corporate tax base. The higher the tax rate, the more favourable the base reduction effect is. I supposed that the companies transformed their capital structure after the tax rate reduction. Since the advantage of using debt decreased, they were assumed to have lowered the proportion of funding from loans in the capital structure.

Method of examination: I examined how sensitive the capital structure was to the tax advantage reductions in 1994 and in 1995. However, the general examination of capital leverage indicator showed that the capital leverage – due to other factors – was continuously increasing during the examined period. Thus I segmented the sample. I supposed that those companies that widely used loans to finance their activity would lower their capital leverage. So I divided the sample into two parts by the median of capital leverage – which was 0.5. I have separately examined the average tax burden and the level of capital leverage above and below the median of 0.5.

Result of examination: The enterprises indebted below the median did not react to the corporate tax rate changes in their capital structure. They did not decrease their balance of loans because of the tax shield of interest, since this advantage was not particularly significant for them compared to the growing profit opportunities from investments. However, the enterprises indebted above the median reacted to the changes came from the corporate tax rate decrease and they decreased their balance of loan, but only to a small extent. This fact is worth considering, since in opposition to the trend of dynamic increases in loan ratio, the enterprises indebted above average decreased their balance of loan. Based on this result I accepted the stated hypothesis, that enterprises strive to utilise the tax shield, and the tax system thus has a role in influencing the capital structure.

Industry sector – Test of peer pressure

The industry sector influences the capital structure of company. Enterprises observe their competitors and tend to develop a similar capital structure to the average for that sector. The theoretical explanation for this phenomenon is that every industry sector has special risk characteristics, to which the capital structure of companies belonging to the given sector should be adjusted (Jaksity 2004).

Method of examination: I examined the importance of sector in the corporate capital structure with the help of variance analysis, treating sector as a qualitative variable. I applied the first two digits of the industry code TEÁOR to indicate the general sector in which a company operates.

Result of examination: Peer pressure prevailed moderately in the examined period. The larger the company was, the closer the company's capital leverage was to the industrial average.

SPECIAL CORPORATE FACTORS

The factors identified in developed countries do not perfectly explain the changes in the capital structure in the countries transferring to a market economy, such as Hungary. In the transitional economies special factors are also significant. In the further part of this study I examine some of these special factors. I have searched for the factors appearing in Hungary that determine the capital structure, beyond the examined "classical" factors.

Ownership structure

In my assumption the proportion of foreign ownership influences capital structure decisions. Those companies where foreign owners have a majority stake found it easier to borrow, because the appearance of foreign owners signalled to the bank a favourable financial situation in the company. From the middle of the '90s – after which the informational asymmetries decreased in Hungary – the signalling effect of foreign ownership decreased.

The necessity of transformation of ownership structure came from political changes. The macroeconomical circumstance of foreign indebtedness of the country forced the government to privatise. Privatisation became necessary in such an environment, which brought about a quick change in the ownership structure. As a result, foreign ownership became very significant.

In such circumstances privatisation is considered as a special factor that meaningfully increased the ratio of equity to the total assets. After mass privatisation ended, the country's ability to lock in foreign direct investments decreased considerably. It became typical that if the

strategic owner was foreign, the capital leverage was higher.

My hypothesis was that between 1992 and 1995 the equity had a determining role in capital structure. After 1995 the importance of external capital increased, especially in foreign-owned companies, and capital leverage increased year by year, while the retained earnings were also increasing.

Method of examination: quantifying the correlation between the foreign capital ratio and the capital leverage, and measuring the median of capital structure grouped by ownership structure and industrial sector.

Result of examination: There is a positive correlation between foreign ownership and capital leverage. The correlation coefficient weakens in the last four years of the examined period, so the existence of a foreign owner gradually comes to have a smaller effect on the capital leverage, and the domestic companies have a similar capital structure. In every industry I measured higher capital leverage in the case of foreign-owned companies, but the difference in capital structure between the foreign and domestic companies differed from industry to industry.

Examination of maturity matching

In my assumption the principle of maturity matching would not prevail in the case of the Hungarian companies; the companies would have to finance some of their fixed assets from current liabilities.

According to the principle of maturity matching, companies finance their fixed assets from long-term sources, while their current assets are financed from current liabilities. If we establish the financing strategy, it is important to consider the basic rule that long-term investments should be financed from equity or long-term liabilities, and current assets may be financed from current liabilities (Bozsik 1998). In the frame of this hypothesis, I examined whether the Hungarian companies have followed this rule.

Method of examination: In the interest of examining maturity matching I have counted the fixed assets to equity and long-term liabilities ratio. The [fixed assets / (equity + long-term liabilities)] indicator informs us to what extent the company uses the capital to finance its fixed assets. If the value of the indicator is lower than 1, the company does not use its whole capital to finance its fixed assets, but instead some of its current assets are also financed from long-term sources, i.e. the company follows a conservative strategy. If the ratio is over 1, the amount of fixed assets is greater than the size of capital employed; in this case we are talking about an aggressive strategy for the company.

Result of examination:

The Hungarian companies fulfil the principle of maturity matching; the current assets are financed from current liabilities, the fixed assets are financed from capital employed, i.e. (equity + long term liabilities).

Corporate capital structure between 2004-2010

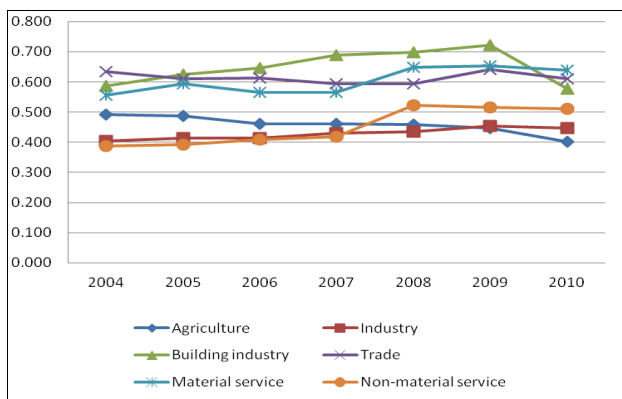


Figure 2. [Total liabilities/liabilities and equity] ratio by sector in Hungary, 2004-2010

The figure above shows the changes in the capital leverage between 2004 and 2010. This period can be splitted into two parts– before and after crisis periods. In the first period (from 2004 till 2008) you can see the increase of capital leverage similarly to the previous figure. There is only one exception – the agriculture. In the agriculture the increase of capital leverage stopped in 2003, and thanks to the enter in the European Union, the indebtedness began to decline. The main reason behind this break could be the vast increase in subsidies which replaced the bank loans.

In the opposite side we can detect a big increase in capital leverage in case of building industry. Following the booming period of the Hungarian economy, the building industry faced big demand (motorway building, new homes). To meet the increasing demand, the industry requires higher level of loans. But this opportunity turned to a major concern, when the economic crisis broke up. The build offices, houses can not be sold, and the industry is now forced to pay back the raised loans. The difficult situation of building industry caused high losses for the Hungarian banks as well. For example the Hungarian Foreign Trade Bank should have written off 160 billion forint impairment to project loans granted for building office houses. The industry branch represents the widest range of activity from mining to processing industry. The figure above shows a slight increase in capital leverage till the crisis. Unfortunately we cannot draw generalised conclusion from that fact, because the major actors are here the local subsidiaries of multinational companies, where the size of capital function is the function of the way of profit repatriation. If the parent company decides to withdraw the money as interest, the Hungarian subsidiary have high capital leverage (high ratio of inter-company credit). If the main way of profit repatriation is the transfer prices, or leasing, the capital leverage is low. The credit terms of Hungarian banks are not competitive with the bids of Western banks, so it is very rare, that a multinational company raises loan in Hungary.

The capital leverage of trade branch didn't change dramatically. There was a moderate decrease in the first part of period, then a slight increase between 2006-2008, and after the crisis a small decrease again. The loan requirements of trade is generally not too sensitive to the economic cycle. The operating loan of trade depends on the average stock turnover, and the trade business requires only limited project loan.

The material and the non-material services can be treated together, because the shapes of their capital leverage curve are very similar. The material services requires higher leverage. These services include freight, accommodation, real estate deals. The non-material services requires less capital but more labour force, since they include education, health care, and other services. Naturally the capital investments requires project loans that is the reason why the material services use more loan – consequently have got higher leverage. However it is an interesting fact that the leverage of non material services advanced the leverage of industry in 2007. This is a not healthy phenomenon, it shows the accelerating indebtedness of public institutions as universities, hospitals and museums.

I think this chart perfectly demonstrate the sensitiveness of leverage to economic cycles (in the booming period we see an increase of leverage, while in recession there is a decline), but also we see, that the cycles don't affect the same extent to the different industries. The most sensitive leverage can be detected by the building industry, the least change can be observed by the processing industry and trade.

CONCLUSION

The research results draw attention to the gap between theory and practice. Knowledge of this gap helps to draw the attention to narrowing the assumption of models, and to bringing theory nearer to practice. The introduced theories, taken together, shed light on which factors (may) influence the corporate capital structure. However, the importance of influencing factors varies in different countries, sectors, and companies, and from one period to another the extent (and perhaps the manner) of influence changes. The introduction of various theories highlights the variety of possible approaches, and points out that a variety of views should be considered during the examination. The comparison highlights the strengths and weaknesses of a number of theories.

It is important to consider that the influencing factors of capital structure are split into two distinct groups (macro- and corporate factors). The full list of factors influencing the capital structure can be only discovered by examination of both. This study focuses on the influencing role of corporate factors.

It may be very useful for the corporate specialist to know the influencing role of corporate factors when developing a effective financing policy, and it may

encourage maximising the corporate value through the decrease of capital cost. The results illustrate expressively that no single theory has exclusive importance in forming capital structure, but several

theories are relevant. This recognition can help executives to determine the relevant factors in how business decisions react to financing policy.

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Empirical Analysis of Public Energy Consumption – The Case of a Hungarian Village –

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SUMMARY

Global changes in recent decades have led to a demand to replace natural gas with renewable energy sources. The aim of this study is to prove that natural gas as an energy resource is not affordable in small towns or villages, which have been facing a difficult time because of socio-cultural factors and the lack of economic resources. A village in North Hungary, Csernely was selected, because its geographical and economic conditions are appropriate for implementation of this change. Csernely is a typical Hungarian small village, which is in need of development. We performed a cluster analysis and found that the proportion of 'household clusters' reflects the social stratification of villages in Hungary.

A long-term goal is to develop an energy supply model based on an alternative resource (such as biomass) that is available on location, is able to substitute for natural gas, and covers fully or partially the heat energy needs of Csernely (Szemmelveisz et al., 2011). The first step is to show that households in Csernely would benefit from the replacement of natural gas. We investigated whether there is any significant difference between the use of gas and solid fuels in the households in Csernely. We found that households are willing to use other alternative energy sources, and that the majority of them have already started to use solid fuels. However, with organized implementation, this can be more efficient and cheaper as well.

Journal of Economic Literature (JEL) code: Q42

RESEARCH AIM AND BACKGROUND

Research Aim

The aim of this research is short-term, to show that the consumption of natural gas should be replaced in the near future, mainly in small villages, such as in Csernely. A long-term goal is to find the best alternative resource that is available on location, is able to substitute for natural gas, and covers fully or partially the heat energy needs of Csernely. The final goal is to develop an energy supply model based on that alternative energy.

Background

Natural gas is one of the most popular fossil fuels, because it can be the most conveniently used for both industrial and municipal heating purposes. However, the global environmental, economic, commercial and political changes of the recent decades have led to a demand for replacing natural gas with renewable energy sources, which is an important technical, economic and social challenge.

We made a secondary research on natural gas consumption to see the relevance of our research aim and primary research. The following are some reasons to decrease the use of natural gas and replace it with other energy sources:

1. Natural gas production will continue to decrease in Hungary. According to the data of International Energy Agency, it was only 2.9 Bcm in 2010, compared with the neighbor countries. Furthermore, the bulk of the required amount is imported, mainly from Russia. Natural gas transportation over thousands of kilometers of pipeline (see Figure 1) is risky because a system failure can cause serious supply problems, especially when it is heating season and ensuring its continuity is vital. Moreover, natural gas importers can have a huge influence – not only economic, but also political – on the country. According to statistics, the European OECD countries are the largest natural gas importers in the world (e.g. 1039 Bcm in 2008). Hungary requires imports as well; the quantity of imported natural gas was 48 times higher than its exported quantity in 2010. Its self-sufficiency is only 24%, which is lower than in the majority of the neighbor countries. This is summarized in Table 1.



Source: International Energy Agency (www.iea.org/gtf/index.asp; date of access: 10-12-2011)

Figure 1. Natural Gas Trade Flows in 2011

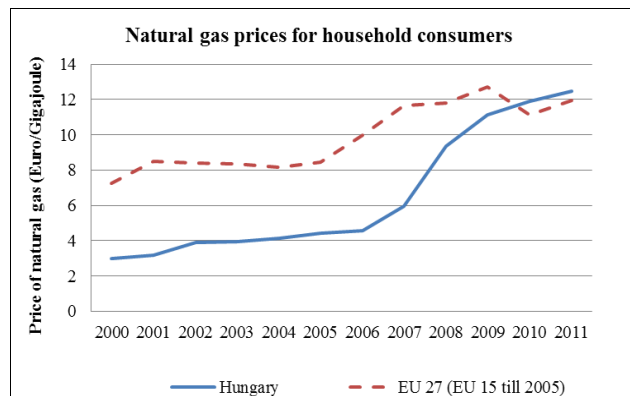
Table 1. Natural gas information (Bcm) in Hungary (2010)

Production (Bcm)	2.9
Gas demand (Bcm)	12.1
Total imports (Bcm)	9.6
Total exports (Bcm)	0.2
Total storage capacity (Bcm)	4.2
Self-sufficiency (%)	24

Source: International Energy Agency, www.iea.org
(Date of access: 10-12-2011)

2. The price of natural gas is growing faster than the average in the international energy market. This is particularly important from the aspect of households, because the majority of natural gas is used by the residential sector (35% in 2009), and the second largest proportion of its usage (30%) in Hungary is for electricity and heat. Prices in relation to purchasing power parity represent that a Hungarian consumer should pay more than a French, Austrian or German consumer.

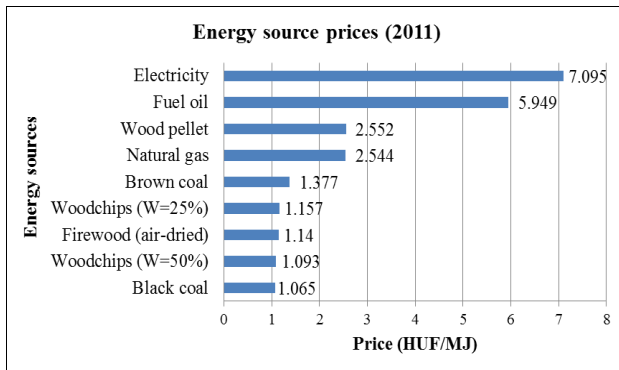
As it is seen in Figure 2, nowadays the natural gas prices in Hungary are higher than the EU average. Hence, the majority of households cannot afford to heat with natural gas.



Source: Eurostat

Figure 2. Natural gas prices in Hungary and the European Union (2000-2011)

3. The price of natural gas is much higher than other alternative sources. The following chart represents the unit prices of energy sources per megajoule at the beginning of 2011.



Source: Szűcs et al., 2011

Figure 3. Energy source prices in Hungary (2011)

4. The storage of large quantities of natural gas is difficult and complicated, and can be implemented only under special circumstances, such as exhausted gas fields. The Hungarian total storage capacity was enough only for 35% of its total gas demand in 2010. However, according to the data of the International Energy Agency, the Hungarian total storage capacity is higher than that in the neighbouring countries. Natural gas can be stored for a maximum of few hours only at the place of use, and this storage requires high-volume, high pressure, and expensive equipment.
5. Carbon components of fossils emit the well-known greenhouse gas, carbon dioxide, upon combustion. According to climate experts, the main reason for global warming is the carbon dioxide emitted into the atmosphere because of the combustion of fossil fuels. Moreover, the International Convention on Climate Change obliges Hungary to reduce carbon dioxide emissions. (Point Carbon, date of access: 08-12-2011)

From 1st July, 2011, the feed-in obligation of electricity produced from gas engines was stopped, so uneconomical engines were shut down (Hungarian Energy Office). Therefore it is not worth obtaining the hot water from these engines, which is close to half of annual residential heat demand. (Szűcs et al., 2011)

In order to develop economical solutions, well-established research and development are needed, taking specific conditions and requirements into account. Besides the price of energy resources and their environmental impacts, attention should also be given to the safety of service users. That is why we carried out quantitative research in a small village in North Hungary, Csernely, to see . A further goal is to develop an energy supply model based on an alternative resource that is available on location, is able to substitute for natural gas and covers fully or partially the heat energy needs of small towns (Szemmelveisz et al., 2011).

RESEARCH METHOD

Data Collection

The empirical data collection was designed and implemented by researchers and lecturers of the University of Miskolc, also involving students. Households in Csernely were examined by primary research, using personal interviews based on questionnaires.

Csernely is a small village, which is situated in North Hungary, on the west slope of the Bükk-mountains, on the bank of the brook Csernely (www.nemzetijelkepek.hu; date of access: 15-12-2011). It has a population of 819 people (2011) on 2062 ha (website of Csernely, date of access: 12-12-2011). Because of its situation the through traffic is big. The number of true-born residents has a decreasing tendency, but the vacant households are purchased by Dutch and British citizens. The running water, gas and sewage system is developed (<http://csernelyem.5mp.eu>; date of access: 12-12-2011). It follows that the village has not just past and present but future as well.

The questionnaire was preceded by the compilation of a long consultation process, as expected results should serve several and sometimes different approaches of research. Ultimately, a questionnaire was drawn up containing fifty questions, both closed and open, as well as demographic, quality and metric information. The aim of this primary research was to assess every household in the village, with the abstract principle that households are places of residence during the survey. This target was not achieved because many households were left out (could not be involved) in the survey, because they were not approached or the houses were deserted. Data collection resulted in almost 65% of the population households as a sample (222 out of 350; <http://csernelyem.5mp.eu>; date of access: 12-12-2011). Representativeness is defined in the expectation in the planning of sampling and in choosing the sampling process, and not only in the case of stratified samples. In practice, representativeness is expected from the intake based on numerous parameters.

Our study did not seek to make national or generalized conclusions, and therefore the lack of representativeness does not limit the analytical potential and applicability of results.

Data Organization

According to the number of completed, usable questionnaires we found that the error is significant when drawing conclusions. Far fewer questionnaires were obtained than expected, so not all households were observed in the village, which is a non-sampling error of the research.

This error partly comes from the incorrect definition of population. This problem often occurs during data collection, as practical research has rarely reference to well-defined, clearly designated populations. There are several residential properties located in the village which are not occupied, but this turned out only on the occasion of the personal visit. Such properties should not form part of the framework of the underlying population, since they are not relevant, either from the aspect of energy use nor any other research topic.

On the other hand, we had non-sampling error because of non-responses due to the lack of interest in the population. Based on domestic and international research findings, we can state that the biggest problem when carrying out surveys is when answers are not given. Some authors argue that the extent of this may exceed the rate of sampling error in some cases (Hunyadi and Vita, 2002). However, if we know and take into account the non-response rate, it improves the interpretation of statistics.

This type of error can the most effectively be reduced by prevention; therefore the members of the research team took measures to reduce the error. Before the personal visit, the population was informed about the exact time and purpose that they would be visited by an interviewer. The interviewers were educated about effective communication, confidence-inspiring appearance, and the importance of patient cooperation. Based on our experience, we can say that in general the aloofness of the elderly prevented the data collection. Older residents are likely to distrust outsiders or be reluctant to discuss financial matters. This negative impact was intensified by the demographic structure of the village, which shows an aging population, mostly composed of pensioners.

Aside from the non-sampling error above, the error resulting from data collection and data fixing was negligible, since it was eliminated and improved by using effective data management.

However, partial non-response resulted in significant disruption to the analytical work as well. Namely, in some of the households the respondent did not possess the required information, or did not wish to answer. To reduce the partial non-response, imputation was used. Unfortunately, the implementation of complex multivariate imputation was not possible because there were too many variables with missing data, which would have provided inputs into the regression.

For the imputation of demographic variables – instead of the grand mean imputation – more sophisticated imputation based on partial means was used. On the basis on external information imputation groups were created, their averages were defined, and then missing values were supplemented with the average of the corresponding groups. In the case of economic variables and other metric variables, more complicated procedures were needed.

In national statistical surveys, such as the Household Budget Survey's expenditure items, the principle of similarity (hot deck) imputation is used to replace data. The similarity-based methods can be applied if the sample elements (in this case, households) show similarity according to different variables. The essence of hot deck imputation is to find data about the most similar individuals to individuals containing missing data in which the required data is available, and then replace missing values with them. There are several techniques to define the extent and aspects of similarities (Mahalanobis distance, squared Euclidean distance, etc.).

We separately defined discriminant functions for variables containing missing values using discriminant analysis by several predictor variables, which helped in the separation of respondents from non-respondents. To measure the discriminatory effect, Mahalanobis distance measure was used, thereby selecting the most similar households to each other. The following were the independent variables of analysis:

- gender of the head of family;
- age of the head of family;
- activity status of the head of family;
- number of rooms;
- household size;
- income category.

Using stepwise method, variables showing significant correlation with the discriminant function were selected from these variables. Although the results are considered statistically significant according to the Wilk's lambda, based on the canonical correlation coefficients it was below 0.5 (e.g. 0.394) in some cases. Classification results showed that in case of each variable which should be imputed, the hit ratio (correct classification) was approximately 70-90%. However, the use of results is limited, since a higher proportion of respondents are correctly identified. The SPSS program saves the estimated function values and Mahalanobis distances, so imputation could be used. In those cases when several individuals with the same distance belonged to non-respondents, the average value of these individuals was imputed.

DATA ANALYSIS

First of all, testing the imputation, we used discriminant analysis. This is a multivariate method that helps to predict the classification of cases into groups (here: respondents vs. non-respondents) on the basis of independent variables. The analysis helps in deciding whether the groups differ significantly from each other, and which variables cause this difference. From this, we can estimate which case will belong to which group. Therefore, discriminant analysis is an extremely useful analytical method in market research. For more detailed description of the method, see also Székelyi and Barna

(2002), Szűcs (2002), Sajtos and Mitev (2007), and Ketskemény and Izsó (2005).

The households in Csernely were generally analyzed by the measures of descriptive statistics (such as mean, mode, median, quartiles, standard deviation and asymmetry) and measures of stochastic dependence among variables. When both the dependent and independent variables were nominal or geographical variables, we analyzed them by cross-table analysis (using Cramer measure, adjusted residual statistics, odds ratio and risk metrics). When the dependent variable was quantitative and the independent was qualitative, we used analysis of variance with F-statistics. In the case of quantitative dependent and independent variables, we analyzed the relation by correlation and regression analysis. However, sometimes the dependent variable was a discrete, categorical one; this was classification.

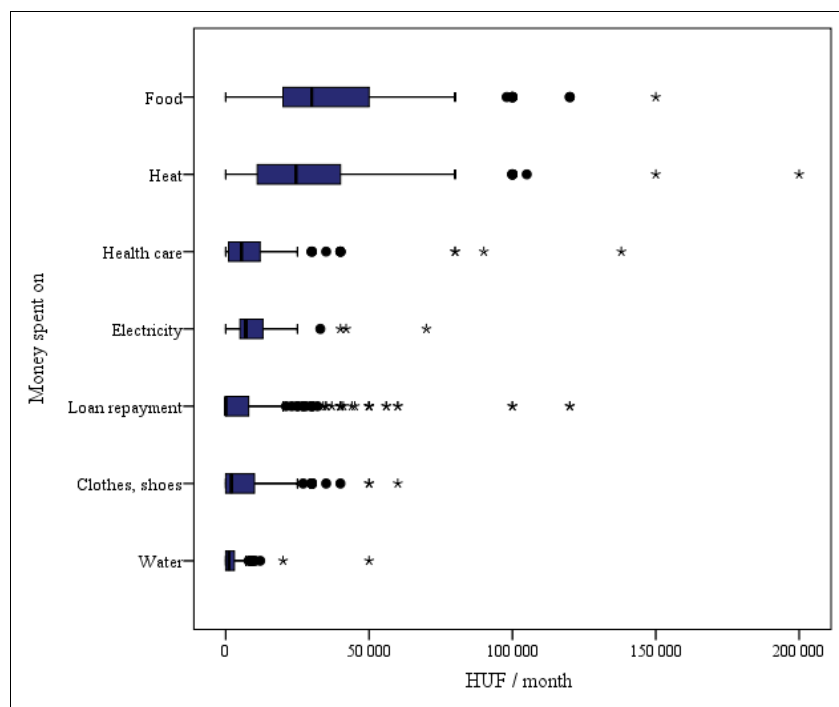
The composition of households was analyzed by cluster analysis. Cluster analysis is a dimension reduction method that aims to show that there are groups where within-group distance is minimal, since cases are more similar to each other than to members of other groups (Varga and Szilágyi, 2011). We used hierarchical cluster analysis, because it provides more choices than a simple illustration, such as distance and similarity measures, further methods, and the definition of ideal number of clusters. It is a series of cascading steps, which defines

clusters according to the previous cluster solutions as long as we get the ideal number of clusters. After testing the assumptions of the analysis, we used the Ward method, because it is the most frequently used method in case of economic calculations. It can be used in case of metric variables. The cluster to be merged is the one which will minimize the increase in within-group variance (Sajtos and Mitev, 2007). This method tends to create small and similar-sized, homogenous clusters. The method is sensitive to outliers, therefore we eliminated them. The validity of clusters was tested by non-hierarchical cluster methods and discriminant analysis. For more detailed description of method, see also Falus and Ollé (2000), Sajtos and Mitev (2007) and Ketskemény and Izsó (2005).

For data analysis, we used Microsoft Excel 2010 and the SPSS 19.0 statistical program.

RESULTS

Our hypothesis was that natural gas should be replaced in Csernely. To prove this, first of all we analyzed the households by quantitative statistical methods. We found that the average spending on heat is the second largest expenditure (27582.57 ± 25660.46) after the average spending on food (35524.77 ± 24978.92). The boxplot of households' monthly expenditure is represented in Figure 4.

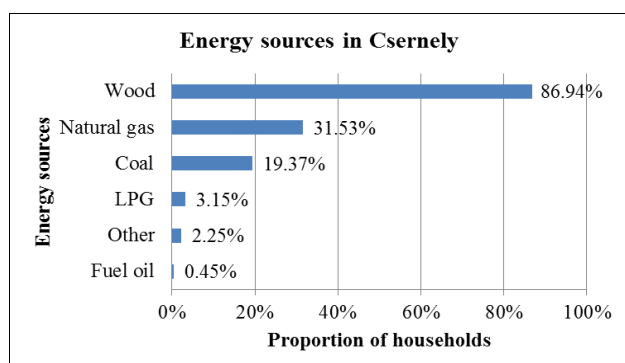


Source: Own creation according to own research, SPSS 19.0

Figure 4. Average monthly expenditure per household in Csernely (n=222)

Moreover, we investigated the proportion of energy sources used in Csernely, and we found that wood is the most frequently used source (86.94%) in households, followed by natural gas (31.53%), as shown in Figure 5.

However, 67.7% of households use only solid fuels and 11.4% of them heat only with gas, while 20.9% of respondents heat with solid fuels and gas or other fossil fuels as well.



Source: Own creation according to own research

Figure 5. Energy sources used in Csernely (n=222)

Then we investigated whether there is any significant difference between the use of gas and solid fuels in the households in Csernely. For nominal variables, we used cross-tab analysis: chi-square test and Cramer’s V measure. Furthermore, an examination of residuals could tell us more about how the model fails to fit. The adjusted residual is the observed minus expected value divided by an estimate of its standard error, which is expressed in standard deviation units above or below the mean (SPSS Tutorial 19.0). According to a rule of thumb, an adjusted residual greater than or equal to 2 is regarded as significant. So the major differences between households using gas or solid fuel on the basis of the calculations described above are summarized in Table 2. Only significant relations ($p < 0.1$) are represented.

Table 2. Nominal characteristics of households in Csernely according to the type of heating

Characteristics ($p < 0.1$)	Heat with	
	Mainly Gas (n=71)	Solid Fuel (n=149)
Type of house	Semi-detached house	Farmhouse
Number of rooms in the house	3	1-2
Running water	There is	None
Hot water	There is	None
Sewage	There is	None
Flush toilet	There is	None
Bathroom	There is	None
Debt	Not have	Have
Heard about renewable energy?	Yes	No

Relationships are available where the Adjusted Residual is ≥ 2 .

Source: Own creation according to own research

According to the results, people heating mainly with gas typically live in a 3-room, well-equipped semi-detached house and have no debts. This means that those people use gas who can afford to do so. The major users of solid fuels are those living in farmhouses.

Moreover, we tested whether the probability of heating with gas is the same for two groups. For this, we defined odds that describe the strength of association

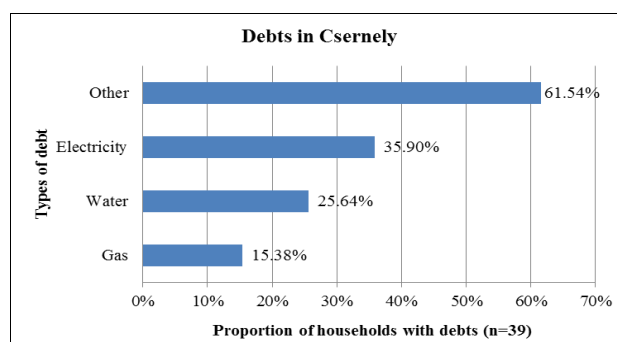
between two binary values. An odds ratio is used to compare the odds for the two groups, as shown in Table 3.

Table 3. Different odds ratios for gas vs. solid fuel heating in Csernely

Parameter ($p < 0.1$)	Odds ratio (Gas/Solid fuel)	CI 95%
There is running water	4.391	2.027; 9.510
There is hot water	3.803	1.751; 8.259
There is sewage	3.477	1.688; 7.159
There is flush toilet	3.479	1.599; 7.570
There is bathroom	3.130	1.321; 7.418
Have debt	0.475	0.206; 1.095

Source: Own creation according to own research

These ratios mean that using gas is at least 3 times more likely than using solid fuel in those houses where there is running water, hot water, sewage, a flush toilet or a bathroom; while it is more than twice as likely for households who have debt to heat with solid fuels.



Source: Own creation according to own research

Figure 6. Types of debt in Csernely

From Figure 6 we can see that 15.38% of households that have debts are indebted because of gas heating, while for 35.9% of them it is due to their debts for electricity.

As we can see from Table 4, according to the metric characteristics of households, the most significant difference between using gas or solid fuels is the age of the head of household. On the average, the head of households is older than the average in those households where they use mainly gas instead of solid fuels. Moreover, the average floor space, average health care expenditure and the average quantity of garbage have a significant relation to the type of energy used.

To enhance the efficiency of research and for better use of database information, we attempted to explore the hidden structure of households (population). According to our hypothesis, the structure that can be discovered in the households will help in a more detailed analysis of energy consumption habits and rates. Indeed, different conclusions are related to homogeneous groups of households with different demographic and economic characteristics. For this, we analyzed the composition of households by cluster analysis.

Table 4. Metric characteristics of households in Csernely according to the type of heating

Characteristics	Total (n=220)	Heat with		P value of ANOVA (<0.350)
		Mainly Gas (n=71)	Solid Fuel (n=149)	
Age of head of household	58.00 ± 16.61	65.70 ± 14.25	54.34 ± 16.44	0.000
Floor space (m ²)	86.28 ± 43.51	97.14 ± 42.46	81.10 ± 43.19	0.011
Average amount spent on health care (HUF/month)	9511.59 ± 14896.03	13180.99 ± 20365.22	7763.09 ± 9994.48	0.011
Garbage (liters/week)	88.56 ± 90.88	103.06 ± 133.35	81.73 ± 61.03	0.119
Average amount spent on food (HUF/month)	35325.00 ± 24947.89	32584.51 ± 20497.38	36630.87 ± 26775.81	0.262
Monthly income (HUF/month)	115775.5 ± 70971.36	123415.21 ± 77448.26	112135.10 ± 67638.43	0.271
Average amount spent on electricity (HUF/month)	9231.35 ± 7582.51	8497.07 ± 5082.13	9581.25 ± 8513.43	0.323

¹ mean ± standard deviation

Source: Own creation according to own research

The first task was to find variables that lead to similarity between households, show a stochastic relation with energy use and do not correlate with each other. As using uncorrelated (or weakly correlated) variables is an assumption of cluster analysis, this was the main aspect of variable selection. Results are given in Table 5. According to the results of the correlation matrix, there is no strong correlation, and most results significantly differ from zero.

According to the results of correlation matrix, there is no strong correlation, and most results significantly differ from zero.

Testing further assumptions, we did not discover any outliers in the data set. The classification clearly resulted in one solution of three homogeneous groups. One of the clusters represents people with an average or above-average standard of living – the well off group – while the members of the second group have a lower standard of living, they are the poor¹. The third group is a small group mainly made up of households of the elderly.

We believe that results of clusters can be further refined if we have appropriate information, which is unfortunately not available for this study because of the limitations of the data set. For the validation of cluster analysis, we performed an analysis of variance on the following metric, economic and demographic variables:

- > Age of the head of household;
- > Household size (persons);
- > Number of rooms;
- > Total expenditure of households;
- > Income of households.

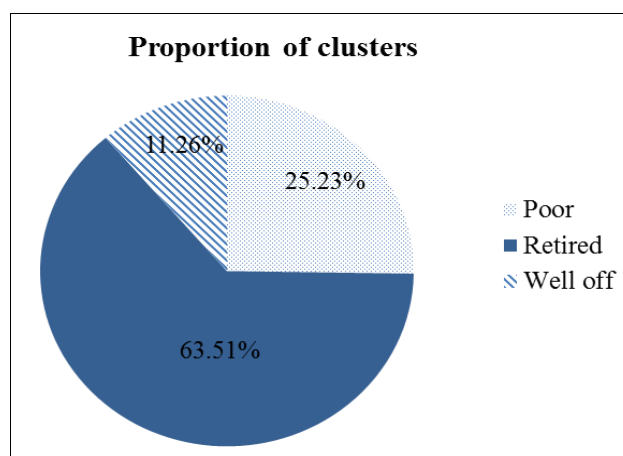
Significant differences between the averages of households were proved by Dunnett's T3 Post Hoc test. Group averages of different types of households significantly differed for nearly all variables, and only one aspect was an exception: the average income of the poor and pensioners was close. This phenomenon does not indicate incorrect classification, but rather confirms the actual socio-economic conditions of Hungarian villages.

Table 5. Correlation matrix of underlying variables for cluster analysis

		Number of rooms	Average monthly income	Number of household members
Number of rooms	Pearson Correlation	1	0.274**	0.027
	Sig. (2-tailed)		0.000	0.688
	N	222	222	222
Average monthly income	Pearson Correlation	0.274**	1	0.310**
	Sig. (2-tailed)	0.000		0.000
	N	222	222	222
Number of household members	Pearson Correlation	0.027	0.310**	1
	Sig. (2-tailed)	0.688	0.000	
	N	222	222	222

** Correlation is significant at the 0.01 level (2-tailed).

The proportion of households belonging to different clusters accurately reflects the social stratification of villages in the country (see also HCSO), which is represented on the pie chart in Figure 7.



Source: Own creation according to own research

Figure 7. Proportion of household clusters

¹ Under the term "standard of living" we do not necessarily mean the correct, classical economics, statistical formulation, but a description of living conditions on the basis on variables available in the database.

As the validation of cluster analysis showed, households of the ‘well off’ cluster have a higher income, mid-sized households and relatively large residential property. In addition, a high proportion of cluster members graduated from secondary school or higher education. Besides the main income of the head of the household, additional jobs or higher pensions contribute to the relatively high income of households. The financial stability of cluster members is proved by the fact that only three households have debts toward a service provider.

In contrast, ‘poor’ household members are younger, on the average. The typically larger (more than 4 members on the average) households in the cluster have only two rooms, reflecting their financial situation. These households have usually more expenditure than income in a month, so they built up the largest ratio of debt in Csernely. Their highest level of education is vocational or technical school, but the majority of them finished only eight years of primary school, or have even less education. Their income mainly comes from casual work, unemployment benefits, and child care benefits.

The largest group is the cluster of pensioners. These households have relatively the lowest income and also the lowest expenditures in the village. The main reason is that usually a household of this cluster contains a maximum of two members, where the average age is 64 years. The frugal lifestyle of pensioners in a village is demonstrated, because in comparison to their low income their expenditures are low as well, and only 10% of them have some kind of debt. However, relatively large (2-3 rooms) residential property belongs to these small households, which requires a relatively high cost of maintaining.

Concerning the energy use characteristics of the household clusters, significant differences can be found in the amount of energy use and awareness of the developments in the energy sector.

Table 6. Cross-tabulation of type of heat and household clusters

Type of Heat		Household Clusters			Total
		Poor	Retired	Well off	
Gas	Count	3	19	3	25
	Proportion (%)	12.00	76.00	12.00	100
	Adjusted Residual	-1.6	1.4	0.1	
Solid Fuel	Count	49	87	13	149
	Proportion (%)	32.89	58.39	8.72	100
	Adjusted Residual	3.9	-2.3	-1.8	
Gas and Solid Fuel	Count	3	34	9	46
	Proportion (%)	6.52	73.91	19.57	100
	Adjusted Residual	-3.3	1.6	2.0	
Total	Count	55	140	25	220

Source: Own creation according to own research

During the analysis of heating energy consumption, as shown in Table 6, we found that the majority of ‘poor’ households use solid fuels. Pensioners are the largest group of gas consumers in Csernely, because besides the convenience of gas heating (it does not require any

physical effort, such as cutting wood, carrying, etc.) partial heating of residential buildings can be easily solved. This is the major advantage of gas heating in contrast to central heating (either solid or gas), resulting in cost savings, and it makes gas heating popular for one-person and typically retired households. Analyzing the internal ratios in case of heating in wealthy households, we found that they typically have the option of both solid and gas heating installation.

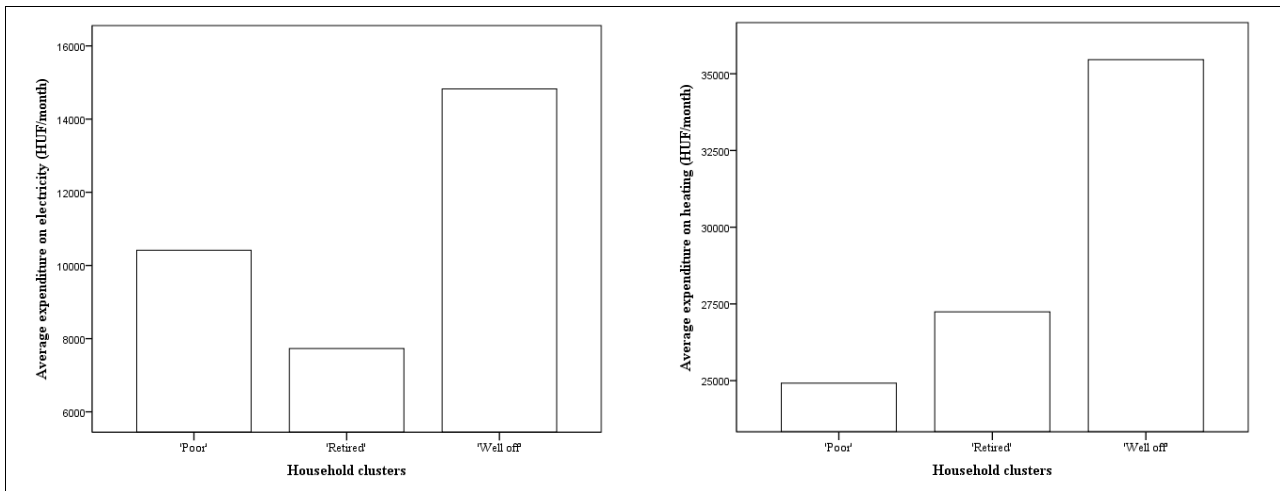
From the aspect of environmental improvements, people living in small villages are usually not informed and also not interested. The reason for this is that information of public interest and communication systems dealing with environmental issues – particularly because of pollution concentration in large cities – do not consider the inhabitants of small towns as an intended target group. Apart from the wealthy households, the other two clusters have hardly even heard about renewable energy sources. Moreover, only 10% of households dispose of their waste selectively. Thus, without more specified future goals, centralized management and effective communication, the implementation of environmentally friendly energy use has very little chance.

Studying the energy use of household clusters, we focused on the characteristics of electricity and heating energy use, because these two are the largest items in residential use. (The transportation energy use was not relevant, precisely because of the demographic composition. Mainly people live in Csernely who seldom leave the village.)

The differences in energy consumption of each cluster are well detected in both types of energy. The ‘wealthy’ households consume significant quantities of both electricity and energy for heating compared to other clusters. The retired households have exactly the opposite consumer behaviour, because they have low energy consumption from both types. In the case of the poor households, no such conclusions can be drawn. Heating, as a major cost item of households, is very low for poor households. This is due to the use of solid fuels. Some of the winter fuel can be gathered from the garden, agricultural waste and from the nearby forests. In addition, burning waste is significant (which is, unfortunately, without any selection), including burning environmentally harmful materials as well. Thus, the cost of energy spent on heating can be minimized. In contrast, electricity consumption is much higher for poor than for retired people. The purchase of electricity is determined by technical evolution; on the one hand, it cannot be produced at home, or replaced with anything. It can be concluded that the average monthly expenditure on electricity is strongly correlated to the level of other expenditures, while average expenditure on heat is not. The total expenditure of the ‘poor’ group is higher than in the case of pensioners, while lower than for ‘wealthy’ people. The same relation can be observed in electricity consumption as well. Thus considering the distribution of

actual energy consumption, the electricity consumption shows a more realistic portfolio than the heating costs, which take up a larger proportion within total

expenditures. Therefore, further research can be the analysis of electricity consumption in more detail.



Source: Own creation according to own research

Figure 8. Average expenditure on electricity (left) and heating (right) by type of household cluster

CONCLUSION

Analyzing the questionnaire asked in Csernely, we found that the average spending on heat is the second largest expenditure of households. More than half of households with debts are indebted because of gas heating or electricity.

A cluster analysis showed that three clusters exist in the village: the poor, the retired and the well off clusters. The proportion of 'household clusters' reflects the social stratification of villages in Hungary.

We investigated whether there is any significant difference between the use of gas and solid fuels in the households in Csernely. The major difference is that mainly well off people heat with gas, because of its price.

Wood is the most frequently used energy source (86.94%) in households, followed by natural gas, however the majority of households uses combined heating. We found that households are willing to use other alternative energy sources as well. However, with organized implementation, this can be more efficient and cheaper. Therefore households in Csernely would benefit from the replacement of natural gas.

This study is the base of further investigations. Since people are willing to (or have to) replace natural gas, a research about alternative resources (such as biomass) – which are able to substitute for natural gas, and covers fully or partially the heat energy needs of Csernely – is required.

Acknowledgements

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A Case Study of Privatization without Consideration: The Failure of Voucher Privatization in the Czech Republic

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SUMMARY

The theory of coupon privatization was developed by Milton Friedman in the 1970s as a quicker alternative to stock privatization. According to this theory, several transformed Central and Eastern European countries have provided their state entrepreneurial assets – to various degrees – to private ownership. The largest voucher asset transmission took place in the Czech Republic, where more than half of the total privatization value was transferred to private ownership by this institutional method. The current study presents the socioeconomic motivations, achievements, and failures of this radical privatization model and finally, it draws lessons and conclusions regarding the Bohemian application of this extremist (in an economic-political sense) privatization technique. The study will be part of a dissertation including the comparative analysis of European privatization models.

Keywords: transformation, ownership, privatization, coupons, structure

Journal of Economic Literature (JEL) code: H82

INTRODUCTION

What makes the privatization practice of Czech transition unique and special is that the majority of state-owned assets of significant market value, suitable for income generation, were transferred into private ownership without consideration. Within this study, privatization without consideration refers to that Czech citizens did not have to pay for the received state assets. The term is equivalent to the terms of free, voucher and coupon privatization. The tool for this is one of the special products of privatization-related institutional innovations: coupon privatization, also known as voucher privatization. By knowing the intention to transfer assets freely (1000 CZK registration fee) it is relevant to ask what forced political decision-makers to make this definitely radical (from an economic aspect) choice. In answering this question, I use the tool of the historiographic approach of economic science to present the social-economic criteria affecting the decision.

Also in case of the Czechs, the selected method of privatization, at first sight, seems to be only of a technical nature; however, in fact, the value judgment and thinking of a given society about change in its political system, about transformation and about the beginning of the

development of a special Central and Eastern European capitalism are expressed in it. As we will see, Czech reforms selected a uniquely extremist form for the transmission of state ownership to private ownership, to which, members of society responded with initiative and entrepreneurship (Hazlett 1995).

In my opinion, the features of systemic privatization are most adaptable to Czech privatization because this was the deepest and ideologically most established privatization form of longest effect. The main feature of this was that it aspired not only to solving specific problems but also to structural changes. We can distinguish three main purposes: first, it tries to irrevocably decrease the interest-enforcement capacities of certain groups by a power shift. In this case, the pullout of the state results in the balance of power tilting for the benefit of the elite against employees (for instance, the transmission of a plant to the private sector, which is less impressionable by unions). Second, it means a perceptual shift if the purpose of privatization is the delegitimization of the state sector in the case of some functions, namely the elimination of expectations against the state in some areas of the economy. This process can be observed, for instance, in each country of the post-socialist block, where the state tries to get rid of all of the functions it had kept after the political system change

merely out of necessity. The third is institutional shift in a way that it urges people to rely on the private sector. The purpose here is to reduce or completely eliminate the citizens' reliance on the state because, in many cases, it results in the inefficient distribution of goods. This change, in many cases, includes also the transmission of decision-making competencies into the private sector, thus replacing bureaucratic structures with private markets. The accountability of the private sector has to be ensured by the state; however, in some cases, the private sector may be more accountable than bureaucracy. The change of institutions can result in the establishment of new interest groups or new classes (Feigenbaum and Henig 1997). All of the objectives of systemic privatization can be completely identified and have been realized in the radical, voucher privatization of the Czech Republic.

THE MOTIVATIONS OF THE RADICAL CZECH PRIVATIZATION

The selected privatization institutional method of the Czechs was definitely considered as genuine and unusual (maybe extremist) in the privatization practice of Central and Eastern European countries coming to a political system change. I present its socioeconomic determining factors below.

The status of the state budget

At the beginning of the transformation of Central and Eastern European (CEE) countries, most of the affected nation-states struggled with their unbalanced budgets, unlike the Czech Republic, where the budget was so balanced that the modest surpluses of the early years were replaced by a budget deficit first in 1996. The yearly balance of state budget compared to the GDP, between 1993 and 1996, was, in order, the following: +2.7; +0.8; +0.2; -0.5 percent (Czech Ministry of Finance 1996). This positive status of the budget resulted from the conservative budget politics of the country, the relevant features of which were partly the gradual reduction of the role of the state and partly keeping social expenditures at a moderate level. This economic political practice was maintained up until 1998. It is clearly visible from the data of balance that the sale of state assets against consideration was under no pressure from the direction of the budget. In this relation, Czechs were almost in an unprecedented situation among the changing CEE countries.

The status of Czech government debt in the years of transformation

The rate of the government's gross debt shows a strong correlation with the status of the budget. The government

debt rate of the Czech Republic, in an international comparison, presented the country's situation as extremely favorable and as exceptionally good, compared to other countries in transition. The values of government debt rate compared to the GDP, between 1993 and 1996, were, in order, the following: 19.1; 18.1; 16.4; 13.7 percent (Czech Ministry of Finance 1996). The government debt rate depends on several factors: the absolute amount of government debt, GDP, budget deficit, the primary balance of the budget deficit, inflation, increase of GDP volume, the real interest rate, the rates of revaluation margin and of other debts to GDP. There is a definite econometric coherence between the previous nine factors (Czeti and Hoffmann 2006); as a result of these, the government debt rate of the Czech Republic presented a gradual improvement also in the years of voucher privatization. The almost unprecedented favorable government debt position allowed the Czechs to not have to seek radical solutions to moderate their gross government debt level, so the mass privatization of state property, as a civil right, without consideration – not exclusively – could be a real alternative.

The expected speed of the selected institutional method

The coupon privatization method meant that adult citizens could purchase vouchers for a minimum fee, a civil right to which approximately eight million adult citizens were entitled. These coupons could be converted directly only to shares of middle and large companies or indirectly through the so-called Investment Privatization Funds (IPF). This way, the coupons proved a right to a certain percent of state assets (Csáky and Macher 1998). After the documented purchase of these, the privatization process (converting vouchers to stocks and business shares of state enterprises) was carried out according to standardized rules and frameworks, thus ensuring the relative speed of privatization compared to other methods. So in this institutional process of privatization, the speed of privatization was more important than its content and its economic and legal quality. (In the economic lingo, this is called “naïve privatization” by many people). The effect of voucher privatization on state asset transformation is well depicted by the Czech Republic, where, as a result of the application of this technique, the share of private sector reached, by 1995, 70% of GDP, which was considered to be the highest value at that time in that region (ICEG EC 2003).

The implementation of social justice

The main reason for the selected method of Czech privatization was the implementation of social justice. This was based on the declared principle that communal property shall be transferred to private ownership for a nominal fee. This intention was supported by the

argument that citizens established the former communal property to be distributed among themselves together, so the equal proportion received from it will be socially fair. Despite that some people consider social justice to be only an empty figure of speech and therefore meaningless – because, according to them, there are no distribution problems in society (Hayek 1995) – this neoliberal approach provided a theoretical basis for Czech privatization to distribute communal property without consideration (by using coupons). The integral part of this system of view was the argument that investments and growth cannot be motivated by reducing, spreading or sharing entrepreneurial risk. Moreover, on the contrary: risk-taking must be forced even by eliminating risk-sharing networks (enterprises and banks) (Bruszt and Stark 1996). The practical application of this forced risk-taking was started only after privatization.

The prevention of the return of communist nomenclature

The elaboration of the tool system of “coupon fundamentalism,” which meant that every state enterprise had to be privatized without consideration, was highly motivated by the fact that the elite had to face the return of members of the old system. This seemed reasonable to the extent that there was no national support of appropriate level yet. The successful implementation of transformation was made difficult also by the fact that one could not count on members of the institutional apparatus in this, therefore the leaders of political system change wanted to establish a new class of owners. This social layer was connected to transformation through its already acquired property and protected its established existence from socialist restoration, thus preventing the expansion of the former political elite. So, during the change, its speed and depth were emphasized; this is the reason for the Czechs choosing the institutional process of coupon privatization (Dessewffy and Ravasz 2008). “Coupon fundamentalism,” as will be presented in the following parts of the study, was not fully realized because other methods of privatization were also used when privatizing state assets.

THE PHASES OF PRIVATIZATION AND ITS INSTITUTIONAL FEATURES

The shift of ownership in the Czech Republic consisted of two phases and two key institutions.

The phases of privatization

The process of Czech privatization included two characteristic phases. The first one, the so-called “small privatization,” took place between 1991 and 1993 and its technique was the public auction. Within the framework

of this, 22,000 small state enterprises, businesses, etc. were sold, predominantly to domestic investors. During its second phase, the so-called “large privatization,” 1,302 enterprises of communal ownership were privatized and this process continued also after the country was divided into two, up until 1997. The privatization process, which mostly included mid-sized and large companies, was carried out by using coupons. Every adult could take out a so-called coupon book, for which they had to pay 1,000 CZK. Every CZK (by taking goodwill, calculated with asset-evaluation processes and methods of that time, into consideration) was worth an asset of 35 CZK, from which it is visible that, with this technique, state assets were transferred into private ownership almost free of charge. Vouchers purchased for a minimum fee could be changed to entrepreneurial share ownership or to the investment units of the fund itself directly or by interposing privatization investment funds.

Key institutions of mass privatization

Privatization was controlled by the National Property Fund (NPF); the substantive privatization was carried out in privatization investment funds that were, among the privatization-related institutional innovations, the necessary tools for applying the coupon technique. Their technical role was to concentrate vouchers not used directly for privatization, then to convert them to stocks and shares of state-owned enterprises. Their other function was more relevant than this one, namely “to actively participate, as the main external institutional shareholders of the newly privatized enterprises, in the leadership of enterprises, like »real« owners” (Simonetti et al. 1999, p. 1). By the end of the “large privatization” (1996), 28% of coupon-underwriting investors used their coupons directly for purchasing stocks or shares, while the remaining 72% sold them as investment funds. During voucher privatization, 426 investment funds were operating that tried to concentrate coupons in the market and, besides creating investor portfolios, they participated in the restructuring of already privatized ex-state-owned enterprises (Mejstřík 2003). Funds established to involve coupons were owned, almost without exception, by financial institutions (mostly banks) that were, however, predominantly owned by the state. The result of this difference in ownership relations was that investments funds were – indirectly – actually owned by the state. This ownership composition made it particularly difficult to make companies competitive and to improve their efficiency.

THE SOCIAL ACCEPTANCE OF COUPON TECHNIQUE

The social acceptance (political support) of the voucher privatization process, most broadly used in the Czech Republic, was based on the widest base in the

privatization practice of CEE countries because this method involved citizens to the greatest extent in privatizing the entrepreneurial assets of the state by providing property almost free of charge, although in a limited amount. Coupons for a symbolic price, receiving a share equally, providing further discounts to certain social layers and the fact that the communist nomenclature did not enjoy any advantages in the process, all contributed to this type of privatization in the Czech Republic being carried out with significant social support between 1991 and 1997. The popularity of mass ownership-transfer for a minimal fee was not accidental. Providing properties through privatization to the wide masses was not free of political considerations. As was found by empirical research, privatizations carried out free of charge or at discount prices meant a significant number of votes everywhere for political forces and governments carrying out such programs.

THE RELATIONSHIP BETWEEN CZECH ANTI-BANKRUPTCY PRACTICE AND PRIVATIZATION

The relationship between Czech privatization and bankruptcy proceedings, in relation to companies in difficult situations but selected for privatization, resulted in a special symbiosis. During the first wave of the “large privatization,” the government pursued a heavily questionable anti-bankruptcy proceeding instead of the desirable bankruptcy regulation. This was manifested in state enterprises selected for privatization, and in an insolvent state or close to that, were subsidized from the privatization incomes of companies privatized through market methods (auction, tender, etc.). Governmental economic policy, in this process, was guided by the fact that a consistent bankruptcy practice – namely if these companies were allowed to go bankrupt before ownership shift – would endanger the success of the approved coupon privatization strategy. The consequence of this was that state subsidies were needed by companies selected for privatization and entering into a strengthening market environment, for a significant period of time and in significant amounts.

THE MAIN DATA OF COUPON PRIVATIZATION

Coupon privatization was closed by providing company shares to private investors and investment funds. Due to coupon privatization, assets worth nearly 350 billion CZK (nearly 12 billion US dollars) were transferred to private ownership. The proportion of companies’ capital included in privatization was between 7% and 97%. Companies were required to keep 3% of their shares in order to be able to satisfy compensation demands in the

future. An average of 61.4% of the shares of companies involved in the first wave was distributed within the framework of coupon privatization. The remaining proportion of shares was sold to foreign investors or was handed over free of charge to local authorities, or was left in the ownership of the National Property Fund, either permanently or temporarily. This was necessary in order for the state to preserve a domestic majority ownership in some important sectors, and therefore its national influence. A portion of state assets was privatized with the help of several other techniques (for example, ownership-transfer for local governments, for social security funds or as compensation, etc.) (Gál 2005). The typical method in the process of privatization was that the management of the company selected for privatization worked out the plan of ownership shift, which was then evaluated and accepted or rejected by the ministry of privatization. This way, the ministry was able to regulate the composition of privatization portfolio. The data of the so-called “large privatizations” are included in Table 1.

Table 1. The development of large privatization in the Czech Republic

Applied privatization method	Number of units	Value (billion CZK)	Distribution (percent)	Number of employees (1000 employees)	Employee distribution (percent)
Public auction	465	5	1	16	1
Public tender	462	16	3	71	5
Direct sale	1553	37	6	156	12
Corporations' privatization	1377	527	88	1094	81
From corporations' privatization: coupon	1302	269	45	1041	77
Asset-transfer free of charge	1432	12	2	15	1
Total	5358	597	100	1352	100

Source: Mládek 2011, Table 1, p.2

At the beginning of the current study, I referred to the fact that, in the economic change of system, during the transformation of state assets, more than the half of it was carried out free of charge, by using coupons, and parallel to this, also market sale and asset-transfer were carried out free of charge. Several important interrelations result from Table 1. While the average company privatization value was 111 million CZK, the same value, in case of companies privatized through coupons, was nearly 207 million CZK. It is more relevant data than the previous one that, while the average employee number was 252 workers, in the case of voucher-privatized companies, the value of the same index was nearly 800. These data also show that, apart from the privatization of state companies of strategic importance, mid-sized and large companies were involved in this particular privatization process. Privatization transactions achieved by market methods (stock introduction, public auction, tender, direct sale) also have a significant value. The free asset-transfer seemed to be significant only in the quantity of units rather than in its value. In this so-called large privatization phase, the state asset privatized with the coupon method represented a

value of 269 billion CZK, which is a rate of 45% from the total amount of privatization of 597 billion CZK. At the completion of Czech ownership-transformation, its total value reached 700 billion CZK, and more than 50% of this was privatized with the voucher method (World Bank 1999, p. 142).

SECONDARY PRIVATIZATION

At the time of primary privatization, the vast majority of privatization investment funds were owned by banks and financial institutions that were, however, owned by the state. The uncertainty of ownership rights, cross-ownership in many cases, and the fact that small investors were uninformed induced a lack of motivation in crisis investors, which pushed them toward selling their properties at less than normal value. As a result, only investors with insider information and managers following only their personal interests remained in the market. This depressive investor environment and the less transparent market conditions finally led to the startup of secondary privatization, which meant that masses of small investors sold investment units/shares of privatization funds and shares of companies privatized, to a lesser extent, directly, with loss or in better cases, with a minimum profit (Mejstřík 2003). The purchasers of these were, in most cases, the funds themselves and since a kind of uniting process started among them, ownership rights were more and more concentrated, which meant the cessation of the dispersed ownership structure, namely it meant secondary privatization (Soós 2010).

THE INTERRELATION OF CZECH TRANSFORMATION AND PRIVATIZATION

The interrelation of transformation and privatization in the Czech Republic and the appearance of dysfunctional items experienced in spite of good intentions are usefully highlight by the following train of thought:

During its time, privatization in transitional economies seemed to be rational for many, although by looking back to the process (in many cases) it was mishandled. Most people would have liked if an orderly operational legal framework (contractual regulation, bankruptcy proceeding, corporate management and competition) had been created already before restructuring and implementation, but at least parallel to that. No one knew, however, how long the gates of reformation would be open. At that time, a fast and thorough privatization seemed to be a reasonable game while subsequently managing problems. Today, in the more advantageous situation, it seems that supporters of privatization over-estimated its advantages and under-estimated its costs, especially the political costs of the

process; its obstacles preventing the continuation of reform. So, the playing of the same game, with seven years of experience, is less verifiable. (...) The search for allowances can be found both in private and in state-owned companies. The brave initiative of voucher privatization in the Czech Republic failed partly due to this and partly due to the fact that capital markets, without appropriate legal and institutional framework, do not demand the necessary discipline from managers and do not ensure the efficient outsourcing of scarce capital. (Stiglitz 2001, p. 74)

The previous interrelation confirms that when market institutional items are not created during organic development but as a result of some kind of a bureaucratic coordination – as happened in the countries of the entire Central and East European transformation – the disharmony developing among them is encoded.

THE EFFECT OF COUPON PRIVATIZATION ON SOCIAL INEQUALITY

In this section, I examine how state property, allocated to Czech citizens without consideration, modified inequality in the Czech Republic. To reflect social inequality, I use the so-called Gini-index, which value can be a number between 0 and 100 (or 0 and 1). Zero indicates complete equality, while one-hundred stands for one person possessing all property. The closer the value of the index is to 100, the higher the level of inequality is. My first hypothesis is the following: if everyone receives a share from state property on a citizenship basis, the level of social inequality should be reduced (*ceteris paribus*). This should occur because the same amount of state property results in a much lower increase in the wealth rate of people with higher income than in that of people with lower income. My second hypothesis is that, in the Czech Republic, the state property allocated without consideration should reduce inequality between such people, compared to people of countries without state property allocation without consideration (*ceteris paribus*). I examine the change of this compared to Hungarian data.

The change of inequality in the Czech Republic

The value of Gini-index in the country, before privatization, was 20, while it was 27 when it was terminated (ILO, 2008:11). The 7-point increase in the value of the index shows that inequality increased in the Czech Republic. Despite the increase, the value of 27 is almost equal to that of the developed region of Northern Europe (Sweden, Norway and Finland). This means that my first hypothesis statement is not justified; inequality did not decrease but increased in the Czech Republic, due to civil asset growth allocated without consideration.

Therefore I conclude that other determining factors had much stronger, opposing effect on the change in the value of the index.

The development of inequality compared to the change in Hungary

The two countries are connected through a common history, from several aspects. However, their executed privatizations are very different. In the Czech Republic, more than half of the state property was sold without consideration, while in Hungary, it was sold mostly at a market value. So there was a significant difference in the method of privatization. The value of Gini-index in Hungary was 21 at the beginning of privatization and it was 28 at the end of it (ILO, 2008:11). The rate of change was 7, just the same as was the increase in the Czech Republic (from 20 to 27). This means that the levels of inequality, in the two countries and within the examined period, increased to the same extent, although this increase was a bit higher in the Czech Republic. The difference, however, is not significant. So my other conclusion is that the state property allocated to Czech citizens without consideration, by coupon method, did not reduce their inequality, not even by comparing it to the social difference of Hungarian citizens. The Hungarian change of value of the Gini-index was not influenced by state property allocated without consideration because there was no asset transfer based on such right.

SUMMARY

The effects, consequences and morals of mass privatization in the Czech Republic should be analyzed by comparative analysis, trivially, compared to the results of an optimal expected privatization. Statements:

- In the case of insufficient and incoherent regulation, privatization could fulfill its purposes only partially and in a rudimentary form. During primary privatization in the Czech Republic, the regulation of the protection of small investors, of the ownership management of companies, of the privatization investment funds but especially that of the institutions of capital market was extremely deficient. In such an environment, a more effective combination of capital items compared to the status before privatization cannot be expected. “The only privatization that can be successful, in a macroeconomic sense, is the one that deepens also the capital market, namely if there are public issuing and stock distribution of company papers. In addition, the condition of success is the transformation of corporate governance (since production factors will or will not be combined more successfully due to this)” (Csaba 2002, p. 282).
- Inherited ownership relations were rearranged by voucher privatization at a significantly slower speed and radicalism than expected by those developing its theory and implementing its realization. In the Czech Republic, political followers of liberal privatization practice enjoyed strong support; despite this, the development of detailed rules and the measurement of the effects of its implementation took a relatively long time, which slowed the privatization process down. The lack of radical ownership shift is explained by that only 28% of the approximately 6.5 million citizens requesting coupon books converted their vouchers directly to property rights, thus becoming an owner in a commercial company. The majority, 72%, converted their coupons to company shares only indirectly, by the intermediation of privatization investment companies owned mostly by state-owned banks and financial institutions. This institutional process, however, did not mean a radical change in ownership relations.
- During primary privatization, the bankruptcy proceeding practice followed by the economic policy led to serious consequences by the regulation of company insolvency being loose and inconsistent. The subsidy of other companies facing payment difficulties and selected for appointed for privatization, from the consideration of companies privatized by the market method resulted in these remaining functional until their privatization. This economic political practice significantly contributed to the fact that the transformational decline typical of every transforming CEE post-socialist country appeared much later in the Czech Republic than it should have.
- The fragmented ownership structure strengthened the positions of the management. As is shown in Table 1, 1,302 ex-state-owned companies employing more than one million employees were privatized with the coupon method between 1991 and 1997. The main feature of the ownership structure of companies privatized this way was that they were owned by a disorganized aggregate of minority shareholders owning only some shares. However, shareholders are able to control management only moderately in such a dispersed ownership structure. This then led to the development of the excessive power of Chief Executive Officers (Simonetti et al., 1999).
- The integration of Investment Privatization Funds (IPF) into the institutional system of the market economy was difficult due to their system-alien nature. These funds were the organizational key factors of Czech privatization; their main role was to collect and concentrate vouchers distributed as a civil right and then to “convert” them to stocks and shares of state-owned companies. The act of conversion is privatization itself, the owner shift. The problem in the structure established by primary privatization after political system change is that the above-

defined funds are not actors established in an organic economic development but they are the intermediate elements, established by a bureaucratic institutional system, of this particular Czech economic development process that, as a result of the organic development of economy, was going to atrophy. This is supported by the fact that while the number of funds was 1,048 during the golden age of voucher privatization (1995), ten years later (in 2005) only 109, one-tenth of them, still existed (Hanousek and Kocenda 2008).

- The coupon, institutional mass privatization is counter-selected among state-owned companies to be privatized. The government still tried to realize income, in cash, from the privatization of state entrepreneurial asset. However, a more significant income could be expected from the privatization of strategic companies that, in the given circumstances, functioned appropriately or whose activities were expected to be of perspective. Such companies were not even appointed for privatization; but in this way, the privatized companies were those with less positive economic indices and future strategic status. Finally, from the Czech total privatization, worth 700 billion CZK, a value of 190 billion CZK was privatized by market methods, which is a rate of 27% (World Bank 1999).

Still, what can we discover in its economic historic significance of Czech coupon privatization? Maybe in that this method was part of a political strategy in which the “clear post-socialist revolutionists” of a new age fought the “members of the embedded nomenclature” of old times for power (Ellerman 2001).

CONCLUSIONS

- The so-called primary privatization, carried out by interposing coupons, of company assets and of tools appropriate for income generation of the Czech (Czechoslovak in the beginning) state did not establish an ownership layer in the Czech Republic based on broad masses. The statement is supported by that only approximately 6.5 million of the approximately 8 million Czech adults entitled to state property used the offered option and took out so-called coupon books. However, a more relevant fact than this is that 72% (4.7 million people) of those requesting coupons sold their vouchers, with minimum profit or at a loss, to privatization

investment funds, thus indicating that they did not want to become classical capitalist owners (minority shareholders) in commercial companies. The realizable property value of approximately 35,000 CZK (approximately 1,200 dollars) from exchanging a coupon booklet did not mean a significant growth of wealth for citizens.

- As a result of coupon privatization, a semi-state – semi-market ownership relation structure was created. This statement is supported by the fact that most of the 426 IPF companies established were owned by banks and financial institutions, which were, however, at that time – during the so-called primary privatization phase – owned mostly by the state. However, such an ownership structure did not meet the requirements of a market economy characterized by the predominance of the private sector because the rate of state property in the funds established to concentrate vouchers, though indirectly, was disproportionately high.
- The development of economic structure based on the dominancy of private ownership, together with all of its institutions, is inevitable for market coordination and for establishing its optimal operating status. However, in the transforming Czech economy, the institutional actors inevitable for the measurement of market performance of state-owned companies appointed for privatization did not exist yet, such as a stock exchange, competition supervision, etc. In this early phase of social-economic transformation, due to the lack of these and later their initial, embryonic status, these were not able to provide valid economic information to define the real and expected market values of privatized companies.
- Comparison of the pre and post privatization values of Gini-index shows that allocating state assets without consideration to the citizens did not reduced property inequalities (as it might have been expected) but on the contrary, social inequalities even increased (*ceteris paribus*).

My final conclusive remark about Czech coupon privatization is that though this institutional method contributed significantly to the privatization of state assets, it did not do it to the extent and in the way originally expected. This, however, is no more than one of the derailments of huge social changes controlled from above that occurred several times, not only in the Czech Republic but also in other countries at the time of the large transformation of Central and Eastern Europe.

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Web 2.0 Technologies in Internal and External Communications in the Banking Sector

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SUMMARY

In a setting where the market-based economy is gradually yielding to a network-based economy, and social and economic relations are increasingly based on networking, banks are not exempt from changes brought about by developments in ICT and the Internet permeating every pore of social and economic life. Over the past few years, Web 2.0 technologies have made a significant impact on internal and external information flow in banking organizations, changing their analogue nature into digital, through blogs, wikis, multimedia sharing and social networking sites.

Key words: financial institutions, banking sector, Web 2.0, blogs, wikis, multimedia sharing, social networking, Web 2.0 applications/services.

Journal of Economic Literature (JEL) code: O33, O39, M39

INTRODUCTION

The assertion that achieving satisfactory business results in conditions of continuous change is unimaginable without the use of information and communication technologies (ICT) is established as an axiom nowadays. This observation refers both to changes related to simple, structured tasks and to changes of the highest complexity related to strategy and organisation. However, the mere introduction or raising the level of ICT implementation in the business process is only a prerequisite, but not a self-sufficient measure: it is necessary to change thought and business behavioural patterns in order to attain the set business objectives. Only such behaviour of business entities may result in “changing the shape of competition, the dynamics of the customer relationship, the speed of fulfilment, and the nature of leadership” (Kalakota & Robinson 2002, xix).

The desired business operation described in the paragraph above is e-business. It can be freely said that e-business is the dominant form of business operation where man’s social needs will still be satisfied by means of computers and the Internet. For the past few years, Web 2.0 applications and services have become the key technologies for meeting individual needs via the Internet.

The focus of this article is placed on implications of Web 2.0 technology for external and internal information flow in financial institution, and the key hypothesis is the

claim that Web Revolution, manifested in an increasing representation of Web 2.0 technologies, can be channelled and driven towards the common interests of both providers and users of financial services and products.

WEB 2.0 APPLICATIONS AND SERVICES

How difficult (or even impossible) it is to define Web 2.0 is aptly illustrated in a statement by Sir Tim Berners-Lee, the father of the World Wide Web: “...I think Web 2.0 is of course a piece of jargon; nobody even knows what it means” (Farber, 2006). Still, the common denominator of most interpretations of the concept of Web 2.0 is the view that (with reservations) it is the second generation of WWW, which, compared to Web 1.0, places greater emphasis on active participation, collaboration, sharing ideas and knowledge, thus enabling, as stated by Dybwad (2005), “...collaborative remixability — a transformative process in which the information and media we've organized and shared can be recombined and built on to create new forms, concepts, ideas, mashups and services” (Dybwad, 2005).

Web 2.0 users are not required to possess engineering knowledge of background technologies. The most popular categories of Web 2.0 applications (often referred to as building blocks concatenated into Web 2.0) include

blogs, wikis, social networking, tagging and social bookmarking, multimedia sharing, podcasting, RSS, etc. Owing to the rapid development of ICT over the past few years, these categories of Web 2.0 have become ubiquitous, thus contributing largely to accomplishing the goal of ubiquitous, i.e. pervasive computing (Mahadev, 2001; Sakal, 2007).

THE KEY IDEAS OF WEB 2.0

Anderson (2007) lists six key ideas whose implementation has resulted in the thriving growth of popularity of Web 2.0 applications: (1) individual production and user generated content; (2) harnessing the power of the crowd; (3) data on an epic scale; (4) architecture of participation; (5) network effects; and (6) openness (Anderson, 2007, p. 14). We shall consider some of these ideas in more detail:

1. Individual production and user-generated content: Owing to the proliferation of high-quality and comparatively inexpensive audio and video recording gadgets (notably mobile phones and smartphones), as well as uncomplicated and yet sufficiently powerful open source software, an increasing number of people are creating audio and video contents and sharing them with others. This gave rise to the phenomenon of “citizen journalism” (Gillmor, 2004), or “exposure culture”, which “reflects the philosophy of the Web, in which getting noticed is everything” (Wu, 2005).
2. Harnessing the power of the crowd: This basic idea of Web 2.0 refers to three subcategories: Wisdom of Crowds, Crowdsourcing and Folksonomy.
 - a) Wisdom of Crowds is the basic idea of Web 2.0-style thinking, starting from the viewpoint that the solution to the problem, proposed collectively but independently by individuals comprising a large group, the so-called crowd, is better in quality than a solution offered by the most intelligent group member. As stated by Anderson (Anderson, 2007), it is cognitive decision marketing similar to that used in the quiz show “Who Wants to Be a Millionaire?”, when the contestant resorts to “asking the audience.”
 - b) Crowdsourcing is based on the idea of outsourcing, but the role of the third party is taken over by numerous amateurs, who prefer the knowledge that their work (photography, graphics, or video recording) was selected from a mass of similar ones to receiving fees for their work. The work of web-based stock photo agencies, where one can purchase royalty-free photographs taken by amateurs at comparatively reasonable prices and use them further in designing web sites, booklets, bindings, etc., is based on this principle.

c) Folksonomy is a web service that enables web site description by enabling users to add tags (key words). This is a collaborative categorization of Internet locations, which includes three elements: (1) the person tagging; (2) the object being tagged as its own entity; and (3) the tag being used on that object (Vander Wal, 2005). This categorisation being publicly available, folksonomy features as an alternative to web browsers in information retrieval. The best known service of this kind is www.delicious.com.

3. Data on an epic scale: The amount of information available has never been larger, especially since Web 2.0 enabled mash-up through the use of Open API. This has resulted in the recombination of available information, as well as datafication, which means that real information is increasingly difficult, and very often literally impossible to find without web locations such as Google, Amazon, ebay, etc. A substantial problem produced by mash-up is the issue of intellectual property of the “borrowed” information.

The last three principles stated by Anderson (Anderson, 2007) (Architecture of Participation, Network Effects, Openness) stem from Metcalfe's Law, and relate to the economic and social implications of adding new users to a service based on the Internet.

THE MOST POPULAR WEB 2.0 APPLICATIONS AND SERVICES

Blogs

The term “weblog” was first coined by Jorn Barger in 1997 (Wortham, 2007), and, breaking the word “weblog” into “wee” and “blog”, Peter Merholz (Merholz, 2002) coined the word “blog” in 1999. Baker and More define weblogs or blogs as “...personal web pages, usually frequently modified, in which an individual posts information about himself or herself or about topics of interest” (Baker & Moore, 2008, p. 81). Baggetun and Wasson (2006) regard blogs as journals: “A weblog is a web page that serves as a publicly accessible personal or group journal for an individual or a group.” (p. 454). The same authors argue that that blogs can also be regarded as a knowledge management system “here knowledge elements are annotated and augmented by the readers” (p. 455), while Williams and Jacobs (2004) called blogs an “easy to use form of micro-publishing offering the opportunity for collaborative activity and knowledge sharing”.

Blog entries can take on the form of texts and/or multimedia. Posts are ordered chronologically: the latest are the first on the list, while the earlier posts are available through a system of menus and links.

Blogs are tagged, and thereby categorised, and visitors can make comments on a blog entry, thus establishing communication, exchanging ideas and opinions between bloggers and their readers. Offering the readers to make comments on blog entries, the blogger is permanently open to communication, which is one of the most significant aspects of blogging culture.

Stressing the huge potential of blogs, Eide and Eide (2005) label blogs as an “important and influential sociocultural force”, listing the following most important positive characteristics:

1. “Blogs can promote critical and analytical thinking. [...]
2. Blogging can be a powerful promoter of creative, intuitive, and associational thinking. [...]
3. Blogs promote analogical thinking. [...]
4. Blogging is a powerful medium for increasing access and exposure to quality information. [...]
5. Blogging combines the best of solitary reflection and social interaction.”

Out of the fundamental ideas of Web 2.0 concept (Anderson, 2007) stated in Section 1.1, wikis as well as blogs confirm the effectiveness of Harnessing the power of the crowd.

Wikis

To a certain extent, wikis resemble blogs. Mattison (2003) contends that both wikis and blogs are about collaborative work and examples of groupware, but “a wiki can be a blog, but a blog does not have to be a wiki”. Leuf and Cunningham (2001), the originators of the wiki concept, defined a wiki as “...freely expandable collection of interlinked web pages, a hypertext system for storing and modifying information - a database, where each page is easily edited by any user with a forms-capable web browser client” (p. 14). Having posted an entry on a blog, the author enables readers only to comment, but not to change the post or other readers’ comments. Wikis are far more open than blogs, and allow their users to change what was written by other users. Generally speaking, all wiki visitors can participate in creating wiki contents, and practically, wikis are under permanent revision. Unlike blogs, wikis have a history function, directing readers to previous versions of pages, and a rollback function, restoring previous versions. On the one hand, proponents of wikis point to their ease of use, extreme flexibility and open access, but on the other, they are subject to malicious actions and vandalism (Bogatin, 2006).

Wikis share the positive characteristics attributed to blogs. Financial institutions’ wikis may serve as shared knowledge repositories “with the knowledge base growing over time” (Godwin-Jones, 2003, p. 15). According to Kokkinaki (2009), “...wikis improve teamwork skills, critical thinking skills, group processing and social skills...they promote better comprehension, active processing and positive interdependence while at

the same time they can be used as a digital environment for ‘problem sharing’ and prompt feedback” (p. 1121).

Evans (2010) states the figure of 16 million articles available on Wikipedia.

Multimedia sharing and Social Networking Sites (SNSs)

Anderson’s ideas (Anderson, 2007), serving as the basis for Web 2.0 (discussed in Section 1.3 of this article), particularly the idea of individual production and user generated content, have undergone a high degree of personalisation through multimedia sharing sites (such as YouTube, Flickr, etc.) and social networking sites, such as Facebook, MySpace, Twitter, LinkedIn, etc.

The statistics below support the above assertions: According to Facebook Press Room data (Facebook, 2010), Facebook currently has more than 500 million users, half of whom are regular. An average user has 130 friends, and is linked to 80 community pages, groups and events, creating 90 items of content monthly. Over 30 billion items of content (such as web links, blog posts, news stories, picture albums, notes etc) are shared per month. Evans (2010) states that Twitter had 75 million users in February 2010, hosting more than 4 billion images. More recent data, from May 2010, report a rise in the number of Twitter accounts to 160 million (Bianchi, 2010). As for Youtube, over 2 billion items of video footage were watched in May the same year, the average visit time of this site was 15 minutes, and 24 hours of video footage were uploaded per minute (Metekohy, 2010). To compare, the same author states that 20 hours of video clips were uploaded in May 2009, and 13 hours in May 2008. According to Evans (2010), LinkedIn has 50,000,000 members.

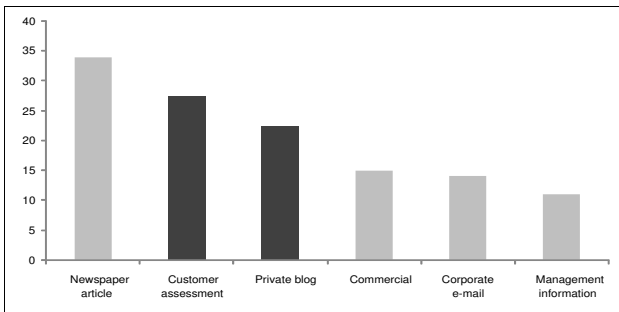
The concepts of social tagging, social bookmarking, tag clouds, folksonomy and collabulary (a collective vocabulary) (Anderson, 2007, p. 9) are organically related to multimedia sharing sites.

THE ROLE OF WEB 2.0 IN EXTERNAL AND INTERNAL INFORMATION FLOW AND EXCHANGE OF FINANCIAL INSTITUTIONS

The relationship between Web 2.0 applications/services and financial institutions was analysed through the prism of new ways of gathering and displaying financial organisations’ external and internal information. To this end, we used available statistical data, primarily related to banking, for several reasons: every third European is currently using online banking, and this is expected to rise to 60% by 2020 (Meyer, 2010). Moreover, a high number of bank account holders use the Internet:

according to O’Brian and McCarthy (2011), in the UK, where as many as 73% of residents use the Web, 54% of account holders use Internet banking, while 80% of them are informed about online banking services.

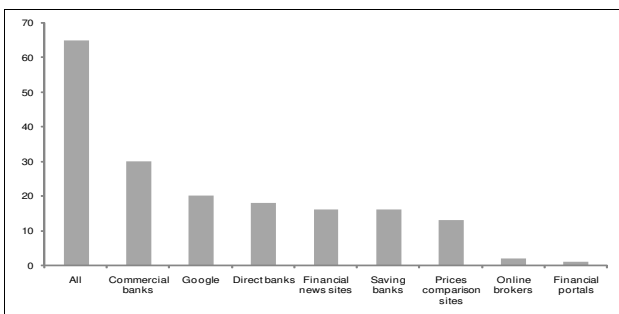
Interactive Web 2.0 applications have altered the way financial service users gather information about services and providing institutions. This has transformed users from passive consumers of information created by professional editors into active creators and users of word-of-mouth information. Information is consumed from online communities and customer reviews. Private posts are read, and, naturally compared critically to official information published by financial institutions in the form of advertisements, e-mails, brochures, official web presentations, etc. Sources trusted by German Internet users when gathering information on financial services and products are shown in Figure 1.



Source: Heng, 2008, p. 6.

Figure 1. Sources trusted by German Internet users (%).

Referring to research results announced by the Institut für Medien und Konsumentenforschung IMUK GmbH, Meyer (2011b) states that German financial service users utilising social media are characterised by a stronger demand for financial information (20.6% respondents) compared to those who do not use social media (13.4%). In a study published earlier discussing the habits of German Internet subscribers, the same author (Meyer, 2010), gives the figure of as many as 65% subscribers using the Internet for researching financial products, 13% for purchasing financial products, and 2% using mobile banking. In the same publication, Meyer writes about the methods of gathering information on financial services employed by German Internet users, as shown in Figure 2.

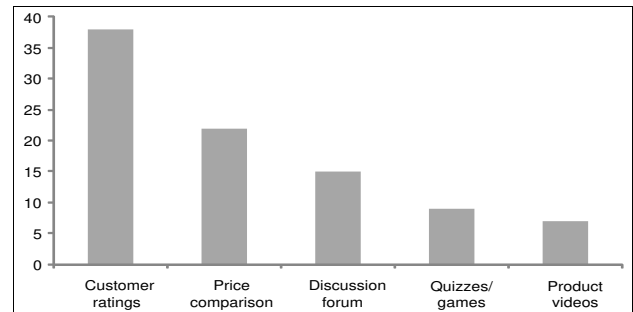


Source: Meyer, 2010, p. 4

Figure 2. Financial research by German Internet users

As Figure 2 shows, carrying out competitive price analysis and other ways of comparing competing financial services seems to have become quite easy. As it were, financial institutions are under meticulous scrutiny, exposed to publicly available comments and criticism more than ever before, with numerous ways for users to express their discontent and annoyance, resulting in an increasing degree of transparency in service pricing, lowered margins, and multiple rises in reputational risks. In most cases, information is only a few clicks away, and users tend to gather it before making decisions on specific financial services. This also means a multiple increase in the power of the financial service user, confirming Robin Morgan’s well-known statement that “Information is power” (Hillard, 2010, p. 6).

Figure 3 illustrates the content and functionality that US customers expect from bank portals in their banks.

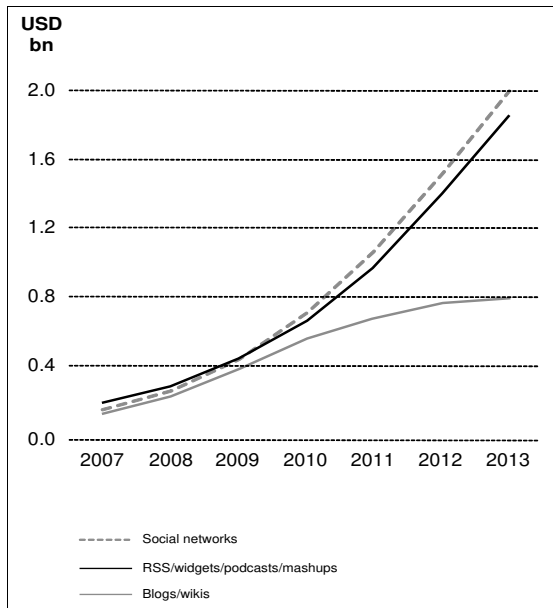


Source: Heng, 2008, p. 11.

Figure 3. Content and functionality that US customers expect from bank sites (%)

It can be argued that comparability of competing financial products and services is not a welcome phenomenon for financial institution. In their attempts to alleviate the seriousness of this situation as much as possible, financial institutions, particularly retail banks, tend to launch non-standard and emotion-laden products, thus trying to avoid direct comparability. According to O’Brian and McCarthy (2011), a further aggravating circumstance for financial institutions is a decline in the trust of the general public: on the UK market, the public deems that the financial sector is much to blame for the current economic problems.

Despite evident unfavourable impacts, financial institutions also understand the possible benefits of Web 2.0 technologies. These can be used for differentiation from competitors, and so for covering as large market segments as possible. Moreover, institutions can gather valuable information from their current and/or potential users, or gain insight into forthcoming trends. In this respect, citing the research results published by Gartner Research, Heng et al. (2007) deem that 75% of financial institutions will be using some of the Web 2.0 applications by 2012. This opinion is also supported by Forester Research Inc.’s results from 2008 cited in Heng (2008) about planned corporate investments in Web 2.0 worldwide (Figure 4).



Source: Heng, 2008, p. 9

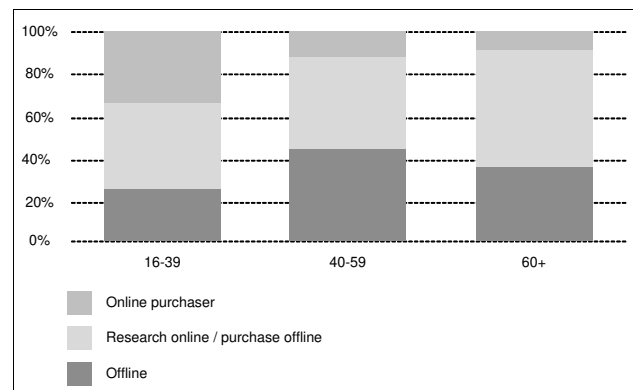
Figure 4. Corporate investments in Web 2.0 worldwide (USD bn)

The fact that each individual user of financial services can reach a large number of people using Web 2.0 technologies (which was an opportunity practically available only to celebrities and public personalities in the earlier analogue world) also means that financial organisations can approach a given target group relatively inexpensively, build their own image, influence public opinion, respond to previous negative publicity, etc. This also implies high-quality monitoring of the Web 2.0 sphere. Financial institutions should monitor their image in the Web 2.0 sphere, similarly to what they do in the case of the traditional media. It is highly dangerous when financial institutions do not take into account the opinion formed about them in the Web 2.0 sphere. It is also crucial to spot unfavourable information or misinformation at an early stage and nip it in the bud, which implies that financial institutions should be actively present in the Web 2.0 sphere, as many of them already are. According to the results of a survey conducted by Research Inc. on 38 global financial services firms, cited in Meyer (2010, p.4), 65% of respondent financial institutions use Twitter, 59% use Facebook, 59% of them use YouTube, while none of the social medial tools were used by only 21% of respondents.

The potentials of Web 2.0 in external communication are a valuable marketing opportunity for the financial sector, where it is difficult to achieve the targeted goal of feel and touch of products or services. A particularly appealing segment is the growing population of young potential users of financial services, who are technically conscious, and very often immune to traditional marketing campaigns (Heng et al., 2007). This market segment, however, requires caution, due to a possible collision between the new and the old image. In situations

when financial institutions are unwilling to give up their long-nurtured, well-established, even somewhat distant image of a high degree of privacy and professionalism, and at the same time want to create a cool, provoking, youthful image via the open-communication culture of Web 2.0, a multi-brand strategy imposes itself as a logical solution. In both cases, financial organisations' web contents must be substantial, authentic and credible, regularly updated (once or several times a day or a month), and responses to financial users' comments must be prompt (especially in the case of negative comments and reactions).

The significance of young users of financial services is also illustrated in Figure 5, showing that users aged 16 to 39 are keen on purchasing financial services online, deciding to purchase offline only after having completed online research.



Source: Meyer, 2011b, p. 3

Figure 5. New financial products in Germany, by age and sales channel (%)

Heng (2008) states that nearly 50% of German users aged between 14 and 29 have posted information online. This percentage is significantly lower with mature users, amounting to 18% at the age of 30 to 44, and only 8% in the case of web population aged 45-49.

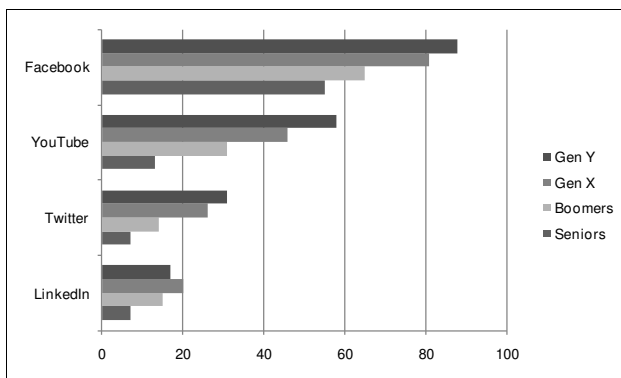
The benefits of Web 2.0 technologies can be reaped by financial institutions not only when creating external information, but also in internal information flow. In particular, introducing corporate blogs and wikis tends to add a qualitatively new dimension to financial institutions' internal processes, through new forms of knowledge aggregation and distribution. As Stobbe (2009) contends, the application of wikis may result in high benefits from know-how management, reflected in support to group work and communication, project documentation, knowledge grouping and structuring and error correction, owing to the wisdom of crowds. The same author also adds the benefits from blogs: enhanced communication, a reduced number of e-mails, increased relevance, openness and interactivity of information, etc.

In addition to the above-mentioned benefits, internal blogs and wikis also tend to improve expertise sharing and dialogue between the staff and management, providing managing and/or executive structures with the

opportunity of timely response to critical topics. It can also be said that Web 2.0 technologies facilitate the identification of employees with financial organisations' financial products and corporate culture.

Social media and banks

Social media have become a part of daily routine of a large section of online consumers; so, for instance, according to some estimates, about 75% US online consumers visit social networks or blogs (Fiserv, 2010), whereas this percentage is lower in Germany, amounting to about 40% (Meyer, 2011a, p. 2). Figure 6 shows the popularity of some social media or micro blogging sites among the members of Y, X, Baby Boomer and Senior generations in the USA.



Source: Adapted from Fiserv, 2010, p.1.

Figure 6. Use of social networks and micro blogging sites by the members of Y, X, Baby Boomer and Senior generations in the USA (% online consumers)

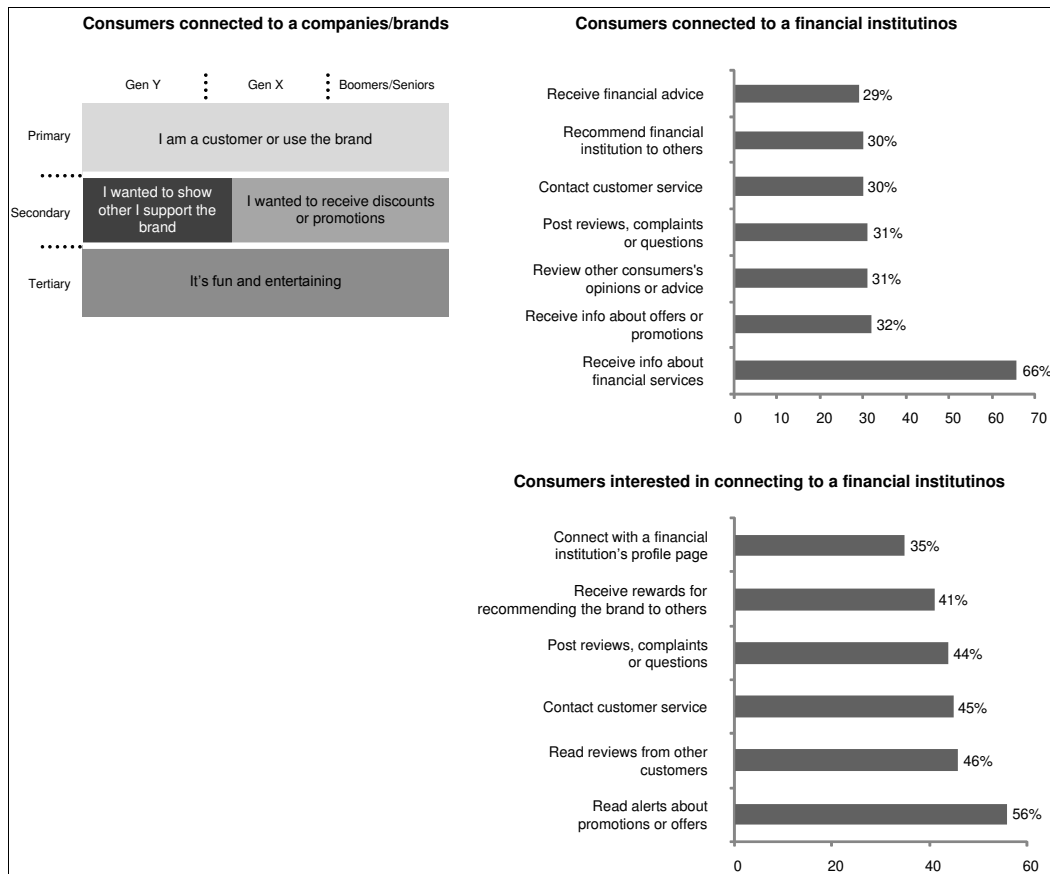
It is beyond doubt that online consumers use social media, notably Facebook, mostly to maintain contact with their friends, relatives and co-workers. Social media, however, do not feature any more merely as a channel for chatting, sharing photos or posting videos. It is a powerful customer engagement tool and a marketing channel for establishing connections between businesses and brands on the one side and consumer on the other. This phenomenon occurs on a relational level and helps build a relation-based community. In the case of companies and brands, this is accomplished to a high extent: as many as 57% of online consumers have some kind of connection to a company or a brand by way of a social site, but on the other hand, despite the fact that many aspects of banking (such as online bill payment) have already been changed significantly, the number of clients connected to their banks is far below that figure – only 10%, but 36% of clients who are not connected to banks yet are interested in doing it soon (Fiserv, 2010). Other sources give similar data. According to Retail Banker International (2010), two-thirds of bank

customers are unwilling to make commitments and establish deeper relations with them. Approaching the issue from the banks' point of view, Tavan (2011) states that social media are currently not used as a tool for engaging customers by 60% of retail banks worldwide, social media platforms are currently used for customer enquiries by only 6% of retail banks, and only 12% are expressing their intention to do so by the end of 2012.

It would be interesting to compare the motives of connecting to companies, brands and financial institutions, shown in Figure 7. Apparently, financial institutions demonstrate only a portion of secondary motives found in companies and brands, whereas fun and entertainment do not figure on the list of financial institution customers' motives.

Researching why banks lag behind companies and brands in the number of followers on various social media, Fiserv (2010) lists the following reasons: a lack of awareness (in 31% of respondents), not understanding the value proposition (46% of respondents will rather go to a bank's web site to seek information than do it on social media sites), privacy/security concerns (45% bank clients prefer to keep their personal information private). Reasons stated by Retail Banker International (2010) are somewhat different: conservatism found in banks, no apparent client demand for this functionality, as well as uncertainty regarding return on investment in social media projects.

As regards conservatism, research conducted by Financial Brand (2011a) on 20 banks with a combined client base of 85 million people showed that large banks have to invest ten times as much effort in attracting Facebook users than their smaller competitors. Another research by the same source (Financial Brand, 2011b) relates that 35 top banks present on Facebook claim to have nearly 9 million fans, which would mean they have reached an average of 0.6% of client base, i.e. one in every 173 clients. If three top-performing banks are excluded from this calculation, the average figure will decline to one in every 525 clients, i.e. only 0.2% of their client base. The situation is additionally worrying if one takes into account the following assessment of the same source (Financial Brand, 2011b): probably over 35% of social media connections come from spammers, social media experts, industry insiders and people living outside a firm's geographic reach. Financial Brand (2011b) finds it ironic that more fans are generated by non-financial Facebook promos: those financial organisations that appeal to the largest number of fans more often than not build their Facebook presence around any other issue than personal finance, ranging from charity causes to athletes and celebrities. This is indirect evidence of how difficult it is for financial organisations to grow a social media following organically, only by staying within the boundaries of their business model.

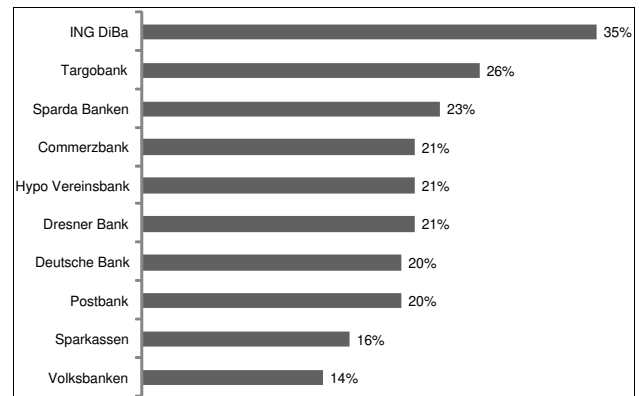


Source: Adapted from Fiserv, 2010, p. 2.

Figure 7. Motivators for being connected to a company/brand and financial institution

What can banks do to raise the number of connected clients and fans? First of all they should use the undoubtedly existent potentials: it is stated in Section 2 of this article that 60% of Europeans are expected to use internet banking (Meyer, 2011a). In this sense, banks potentially stand a better chance to engage customers than many other firms, in view of the fact that they already have omnipresent online interactions with their clients by way of internet banking (Retail Banker International, 2010). Accordingly, it may also be interesting to take a look at the claim presented by Fiserv (2010), about the correlation between the interest in social media and higher usage degrees of online banking: as few as 2% of those already connected, and only 8% of people interested in connected do NOT use online banking (Fiserv, 2010, p. 5). This claim is corroborated by Deutsche Bank Research's data, showing that German bank clients are highly familiar with the use of social media (figure 8). Unlike Fiserv's research (Fiserv, 2010),

this one encompasses both categories of clients: those using online banking and those not doing so.



Source: Adapted from Meyer, 2011a, p. 2.

Figure 8. Share of social media users among German bank clients (%)

Table 1. Top 35 banks on Facebook

Bank	Facebook likes	Customers	%	1 Follower for every [x] customers
Chase	2,900,179	55,000,000	5.27%	19
American Express	2,428,059	48,900,000	4.97%	21
Barclays	930,789	48,000,000	1.9%	51
RBS	611,116	40,000,000	1.52%	66
Akbank	542,182	8,000,000	6.78%	15
Garanti	524,592	9,800,000	5.35%	19
Visa	311,289	408,000,000	0.08%	1,25
Citi	197,412	300,000,000	0.07%	1,42
BNP Paribas	153,617	18,000,000	0.85%	117
Santander	137,125	25,000,000	0.55%	180
ING	86,215	85,000,000	0.10%	1
Deutsche Bank	80,528	24,900,000	0.32%	310
BofA	66,066	57,000,000	0.12%	825
HSBC	58,142	95,000,000	0.06%	1,65
Commonwealth	53,972	10,000,000	0.53%	184
Standard Chartered	51,688	14,000,000	0.37%	265
Crédit Agricole	49,945	49,000,000	0.10%	1
Standard Bank	35,802	10,500,000	0.34%	293
ABSA	35,013	11,300,000	0.31%	317
BBVA	32,022	47,000,000	0.07%	1,42
TD Canada	23,289	11,000,000	0.21%	475
ASB	19,318	1,000,000	1.93%	52
Capitec	14,508	2,500,000	0.58%	172
US Bank	13,907	15,000,000	0.09%	900
Wells Fargo	11,605	70,000,000	0.02%	5
Arvest	10,307	450	2.29%	44
Erste Bank & Sparkasse	8,869	17,400,000	0.05%	2
Commerzbank	8,177	15,000,000	0.05%	2
NAB/UBank	6,806	10,600,000	0.06%	1,65
First Tennessee	6,323	1,100,000	0.57%	174
Lloyds TSB	5,316	30,000,000	0.02%	5
MB Financial	5,221	500	1.04%	96
Nedbank	3,305	5,100,000	0.06%	1,65
Dexia	2,71	800	0.34%	293
Isbank	1,791	14,000,000	0.01%	10
SunTrust	1,748	6,500,000	0.03%	3,333

Source: Adapted from Financial Brand, 2011b

Fiserv (2010, pp. 5-6) gives the following general guidelines for increasing the number of fans, i.e. connected bank clients:

1. Embrace the opportunity. Banks should seize the opportunity to create and advance digital relationships by way of social media, the more so because (as stated by Retail Banker International (2010)) word-of-mouth marketing features as the fastest-growing segment in the sector of marketing services.
2. Increase awareness. Social media messaging should be incorporated into existing marketing efforts within other channels. This could be as elementary as incorporating Facebook or Twitter icons into digital or printed marketing communication.
3. Differentiate social media from the transaction-driven website. The principal reasons for

connecting with a brand tend to be personal and relational. Banks must draw a clear distinction between the social media channel from the transactional channel, and provide customers with community-building activities, for instance, opportunity to receive recommendations from fellow customers otherwise unavailable at traditional websites.

4. Dispel security and privacy issues. Banks have to clarify and convey response to security and privacy expectations found within social media so as to eliminate obstacles to adoption.

Busman, Hyde and Sandrock (2011) take the stand that retail banks should address the needs of younger, more Web-savvy customers (also referred to as Generation C, or the Connected Generation), by way of devising new services and products, characterised by higher simplicity and transparency, and using the power of digital

platforms as well as social networking to enhance their marketing. The same authors (Busman, Hyde & Sandrock, 2011) provide positive examples, such as Spanish BBVA bank and German Fidor Bank. BBVA bank has developed a personal finance management tool, called “Tú cuentas” (“You count”), aggregating account balances and transactions in one place, categorising the transactions, and automatically generating special offers tailored to customers’ financial needs. Fidor Bank relies heavily on technologies and uses blogs and forums, being actively present on social networking sites to communicate with customers. They provide services such as e-wallets, which enable quick and secure access to accounts, electronic transactions, as well as a bonus program for clients participating actively in its community functions (Busman, Hyde & Sandrock, 2011).

Both banks can also serve as a positive example for sales cost cutting: Online forums gather customers to exchange opinions on various products and services, explaining them to each other, and so reducing reluctance among buyers. Banks can set up blogs to target particular client segment, and introduce them to relevant product and services, using case examples to help explain them. Both of the above mentioned banks already let clients speak directly to financial advisors and bankers through video conference, and provide greater convenience at a much lower cost than in brick-and-mortar bank environment.

In order to increase the number of connected clients, Retail Banker International (2010) advocates introducing social media tools for enhancing banking service, such as: live chat capabilities and virtual agents, helping clients find their way through complex information or application procedures; widgets, RSS feeds and blogs providing clients with real-time, up-to-date information

and alerts; and online communities, social networks and online personal finance management (PFM) tools enabling client questions and help each other.

CONCLUSION

Financial institutions are not exempt from the development of network relations and the omnipresence of Web 2.0 applications and services; on the contrary. This article has presented the key Web 2.0 ideas, briefly described the most popular Web 2.0 services and application, and presented the opportunities and threats of using wikis and blogs to the users of financial services and products, but also to financial institutions.

The users of financial services and products can be expected to use information related to the quality of financial services drawn from social networking even more intensively in the future. Information required for the comparative analysis of prices and quality of financial services is already simple to gather. For this reason, financial organisations are subject to public criticism more than ever, which has inevitably resulted in lower margins and increased reputational risk. However, Web 2.0 applications and services also offer benefits to financial institutions, both in external and in internal information flow. This new form of disseminating information to the public is especially convenient to young users of financial services, well versed in using Web 2.0 application, and often resistant to classical, traditional marketing campaigns. With such potential of Web 2.0 application, the forthcoming years are likely to see a significant increase in investment in building financial Web 2.0 applications.

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