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CHALLENGES IN THE CARPATHIAN BASIN

Innovation and technology in the knowledge based economy

10-12th of May, 2018

Csíkszereda – Seklerburg – Miercurea Ciuc

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Innovation and technology in the knowledge based economy

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Dear Reader!

You are holding the volume of studies presented at the 14th Annual International Conference on Economics and Business – CHALLENGES IN THE CARPATHIAN BASIN – *Innovation and technology in the knowledge based economy* -organized by the Sapientia Hungarian University of Transylvania, Faculty of Economic and Human sciences in Miercurea Ciuc, 10-12th of May 2018.

This year's conference had a special focus on innovation, technology and their economic impact on local communities, and national economies as well. It is recommended to scientists, researchers and representatives of the economic and business sector. An additional goal of the conference is to provide a space for discussion for academics and professionals interested in business, planning, organization and human resources issues as well as in mathematics, sustainable development and regional economics.

The changes that have occurred within the economic environment and the ongoing disadvantageous situation of peripherals have led to the actuality of the topic, especially as far as Szeklerland is concerned. The competition of transnational business in global economy and the nature of international markets created such economic relations and organizational forms which strongly influenced the companies and insitutions within the Carpathian Basin. Global competition resulted in various technical instruments, tech solutions and innovations, but at the same time it has also taken into account the local resources. The effects of local factors are of utmost importance in the previously mentioned region. On the one hand, it is characterized by unique products and services; on the other hand, it is marked by strong local identity.

The main objective of the conference is to reveal these initiatives, products and services and to provide specific examples on how to market these local and regional products and services. The conference welcomed mainly studies about successful local initiatives, positive examples of local entrepreneurship for local stakeholders. The conference includes the following sections: management, financial affairs, marketing, regional development and politics, mathematics and IT, agricultural and rural development.

Over 40 studies have been submitted by a total of 60 authors. More than half of the studies submitted deal with regional policy; however, the studies submitted concern a wide range of issues.

The present volume contains all the articles submitted, which have undergone unified formatting and minor spellcheck. After the conference the scientific committee, based on the editors' and chairperson's recommendations, will select the articles to be published in an English conference proceeding volume. Selected articles will undergo professional evaluation, proofreading and editing before being published.

The organization of the conference and the publishing of the conference proceedings were sponsored by the T Systems Magyarország Zrt., we are grateful for their support!

COMPLEX EXAMINATION OF THE INFLUENCING FACTORS OF DEVELOPMENT IN SZABOLCS-SZATMÁR-BEREG COUNTY

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Abstract:
There are several research papers dealing with disadvantaged rural areas; however it is not easy to find one which examines the development paths in the chosen region and its immediate environment as well, by complex methods. In our study we try to determine those "hot-spots" which could positively or negatively influence the development of a settlement. Our chosen territorial area is Szabolcs-Szatmár-Bereg County which is one of the most disadvantaged areas in Hungary. We use the Regional Performance Analysis method, because this method allows the user to analyse the development rate of the territorial units and their territorial (development) potentials and challenges, which play key role in the formation of territorial differences.

Keywords: methodology, development, comparison, measurable

1. INTRODUCTION

Recent territorial development programmes focus on so-called "smart" solutions and strategies, but these initiatives are currently concentrating only on cities. These solutions cannot be adopted for rural disadvantaged areas yet, as there are a number of "hot spots" that exist in these areas, which hamper development. Of course, they have other "hot spots" as well, that can be the basis of development. To turn these elements into such "hot spots", it is necessary to identify the resources and conditions that are essential to the development as well as the obstacles to progress. The easiest way is to use a complex method that compares the different characteristics and properties of the examined territorial unit(s) to the specificities of other territorial units based on a predefined criteria system. This step is needed because the developmental spheres of the territorial units and the regional (developmental) competition between them play a decisive role in the development of territorial disparities. Our research investigates the difficulties and possible solutions of these hot spots.
To identify the necessary resources, it is essential to examine the economic and social activities that help to maintain the population of the countryside, in order to make a settlement a successful (smart) city or village. "The SMART concept of the European Union (both SMART City and SMART Village concept) aims at improving the quality of life and the improvement of the social, economic and environmental infrastructure in this area, as well as by the improvement of the quantity and quality of services available."(Káposzta - Kollár, 2017). To sum it up, the survival of a settlement depends to a great extent on the capital invested there, and they can attract this capital (money, human resources, innovation, concepts such as Smart City / Village) by preserving and developing their own resources. This ability of the rural regions is generally low and not discovered.
The role of rural and disadvantaged (or lagging behind) areas is getting more and more important in the policies of the European Union (EU). The main reason behind this is the presence of differences between regions in size, historical, economic, social and environmental development level and in many other aspects. A region's survival is strongly connected to the capital invested into them but there are two well-known ways how they could attract it. Firstly, they have to utilise their resources or they have to improve their infrastructure. Both of them need capital for their initiation, but the benefits gained may be worth it.

Several researchers (Péli – Neszmélyi, 2015; Káposzta, 2014) state that the most significant development activities must be carried out in the centres, because only these 'core areas' can generate dynamic growth in their agglomeration areas, and in the ever expanding outer peripheries. Furthermore, they state that the main driver of regional disparities is the restructuring effects of socio-economic processes and these factors become more and more significant. As a solution for the peripheral (lagging behind) regions they mention the knowledge about processes resulting regional differences and their impact on the spatial structure, the endogenous based development strategies and improvement of internal capital.
The standpoint of the EU is that each region has a specific 'territorial capital' that is distinct from other areas and generates a higher return for specific investments than for others, since these are better suited to the area and use its assets and potential more effectively. For example, many rural areas possess values which are not obvious for the first sight, but they can be utilized for many purposes, for example, as recreation areas. The role and the importance of the locality is a growing issue in the EU and worldwide as well. Besides the rational planning of community resources and the full-scale mapping of local resources the involvement of the local population is very important in working out complex development directions (Áldorfai et al., 2015).
Determining development potentials in the light of the 2014-2020 rural policy strategy European Union (EU) is particularly important, as this may be a way out of the disadvantaged areas. However, while regional research emphasizes the importance of local development, the disadvantageous state – the lack of professional knowledge in particular - often questions the foundations of development (Ritter et al., 2013; Tóth, 2018). Lack of professional knowledge becomes an important factor in strategy creation because we need to consider a multivariate relationship system.
According to Káposzta (2014), the main reason for the development of territorial disparities is that the socio-economic processes are constantly restructured in space and time, and these factors are further intensified by the globalization of the world. A comprehensive understanding of the impacts of processes emerging from disadvantaged situations in time (territorial inequality) and in space (spatial structure changes) can help the improvement of regions, since states and local governments cannot provide answers alone about the urbanization and environmental issues of globalization. In this multivariate system, it is primarily necessary to base on the renewal and development of its own forces - opportunities, endogenous potentials, but a proper mapping is also needed (Tóth - Káposzta, 2014; Virág, 2017).
Agriculture is no longer the only constituent part of the countryside. The development of the rural economy is a much more complex and complicated system, since taking into account the EU's subsidy policy and its trends, it is clear that rural development plays a key role in structural transformation, rural industrial development, food economy, infrastructure improvement, social problems, tourism and the environment. Thus, one of the important phenomena of rural restructuring in Hungary is the flow of labor from the agriculture to other economic sectors (Káposzta - Nagy, 2013; Áldorfainé Czabadai, 2016). Disadvantaged - peripheral - rural settlements turn to local economic development to deal with the workforce surplus, to provide basic services, but there is a need for strong infrastructure and local community (Ritter, 2014). These conditions are strongly related to the economic and social underdevelopment of the areas concerned, which also challenges competitiveness and endogenous developments (Kassai-Ritter, 2011).
The role of local groups becomes increasingly important in our globalizing world. The reason for this is obvious, as each unit of territory has different attributes (size, history, etc.) that determine its location in the territorial competition. Less-developed areas, from a logical point of view, will fall short of the more developed ones, i.e. will lose their active population. However, as it is typical of the V4 countries and in Hungary as well, basically, it is the big cities that can develop their own resources so that their capital attractiveness is stable. But it is also important to mention that large cities are the "core areas" that are able to generate dynamic growth in their agglomeration and gradually expanding on an increasingly large periphery (Pél - Neszmélyi, 2015).
Due to the complexity of the territorial disparities, it is not sufficient to conduct a territorial study on the basis of only a few economic characteristics. However, it is advisable to apply a complex statistical method that influences the level of development that can determine the "hot spots" at the settlement level that

influence the development of the settlement in a positive or negative direction. The European Union is more and more strict regarding to planning documents, but the quality of these materials is currently not always high enough. To solve this problem, in our opinion, a complex expert system can answer the task of building an inventory and monitoring system based on an objective viewpoint. The methodology used in the research (Regional Performance Analysis) can analyse development in a certain time period by using static and dynamic tests.
Systematic approach, exploration of local problems, objective mapping based on a wide database and advanced methodological processing of strategy, and the foundation of effective development activities. What kind of expert method should we create? It should be objective, be able to demonstrate the most up-to-date situation, and it should be able to provide comparability between the evaluated regions and to identify individual developmental strengths and areas to be developed.
What is the best-known assessment expert method? Performance analysis used in the labor market. Performance evaluation assesses the performance of all employees working in the organization over a given period in order to improve the quality and quantity of work performed in some way and to maintain or increase the employee's work satisfaction (Juhász, 2008, Gulyás, 2012).
How can we adapt performance analysis to regionalism? If we consider a larger region an organization, then settlements can be considered the employees. So performance analysis is part of a consciously developed system that assesses and evaluates the performance of each settlement in the region for a given period (Hot Spot Selection). It also allows the user to make suggestions to increase the performance of your "company"; therefore, it is able to maintain or increase the satisfaction of the local generated by higher performance levels.

2. DATA AND METHODS

The methodology compares the characteristics and properties of the examined territorial unit(s) to the specificities of other territorial units based on a predefined criteria system. This step is needed because the developmental spheres of the territorial units and their competition play a decisive role in the development of territorial disparities (Péli, 2013).
Stemming from this theory, the predefined indexing system contains more than 60 basic indicators, followed by 40 derived indicators from the complete TEIR database. It forms a set of indicators along four dimensions to explore the level of development of the surveyed territorial units, namely the local economy, society, the environment and the infrastructure.
In many rural areas, the level of territorial (developmental) competitiveness is extremely low, so it is important to identify the "hotspots" of the region. These hotspots could be either the pillars of development or points to be developed in the future.
Regional Performance Analysis measures the given spatial unit in two ways: dynamically and statically. First, the level of development (dynamic), which examines the change in the same characteristics of the units in a given time interval, and then the level of development (static), which examines the current state of the spatial units in each year of the time interval.
Next, the system compares the performance of the spatial unit with the average performance of a predetermined, larger region, and then evaluates it based on a predetermined criteria system and finally defines the performance of the area at the dimension and index level.
The classification of the Regional Performance Analysis (RPA) is indicated by Table 1, which, based on our methodology, contains 7 categories (intensively developing, developing, began developing, stagnant, lagging, declining, more declining) on a scale from -100 to 100.

Table 1: The classification of the Regional Performance Analysis

Sorting	Name

50,001	<=	100	intensively developing
20,001	<=	50	developing
5,001	<=	20	began developing
-5	<=	5	stagnant
-20	<=	-5,001	lagging
-50	<=	-20,001	declining
-100	<=	-50,001	more declining

Source: The author's own editing, 2018

The complex methodology provides us with a number of possibilities thanks to a significant number of benchmarks, while keeping the objective viewpoint (Table 2). Of course, the benchmark is limited, as in the case of a district-level examination, only settlement and district-level spatial performance can be calculated. But at national level, it is possible to evaluate settlement-, district-, LAG-, county-, regional- and country level performance as well. Within this, the system generates dimension and indicator-level performance values. Of course, since we are talking about a complex analytical system, the applied program (excel) performs the calculations automatically (using functions). In the present investigation, the settlements of Szabolcs-Szatmár-Bereg (hereinafter SZSZB) county were examined for the 2007-2013 programming period, for which the benchmark was the county average.

Figure 2: A possible table of results of the Regional Performance Analysis

benchmark	Name	Local economy				Society				Infrastructure				Environment			
		A indicator	… indicator	Z indicator	Dimension value	A indicator	… indicator	Z indicator	Dimension value	A indicator	… indicator	Z indicator	Dimension value	A indicator	… indicator	Z indicator	Dimension value
district average	A settlement																
LAG average	… settlement																
country average	Z settlement																
region average	district-wide average																
nation average	LAG-wide average																
	country-wide average																
	region-wide average																
	nation-wide average																

Source: The author's own editing, 2018

Of course, it would be quite difficult to analyse only a data table. With the help of QGIS we created a map of the data, which represents spatial distribution better. Finally, we illustrate the results at settlement, county and regional level on various maps by the use of Quantum GIS program.

3. RESULTS AND DISCUSSION

Table 3 illustrates in separate cells the dimension-, indicator- and index level results of our research. The county belongs to the lagging category on index level, similarly to the dimensions of society, local economy and environment. Only the infrastructure dimension could reach the stagnant state. The index-level value of the county is influenced mostly by the poor indicators of local economy and the society dimension. When we look at the indicators and their changes in the social dimension, we can clearly see that mostly people living in deep poverty remain or move to most of the settlements, thereby dominating their social composition.

Table 3: The result of the Regional Performance Analysis (county level)

	Local economy											
	The proportion of businesses operating within the registered ones	Number of retail stores per capita in 1000	Gross value added per capita	Revenue from small-scale agriculture per 1000 inhabitants	The relative income per one inhabitant of working age	Number of commercial accommodations per capita in 1000	Number of catering establishments per 1000 inhabitants	The number of guest nights per guest in one of the commercial and non-commercial accommodation	Number of non-commercial accommodations per capita in 1000n	The number of subsidies payed within the frame of the 1., 3. and 4. axes of the EAFRD	The amount of local taxes per capita	**Dimension value**
Szabolcs-Szatmár-Bereg County	-36,32	-3,90	-13,49	18,36	-3,10	-68,68	2,50	-40,65	-52,19	25,74	-17,35	-17,19

	Society										
	Net migration per 1,000 persons	Natural increase per 1,000 persons	Population density	Aging index	Dependency index	Relative economic activity (%)	The relative ratio of registered unemployed	The relative indicator of the registered people unemployed for more than 180 days	Regular social assistance amount used per 1000 inhabitants	Participating in cultural events per 1000 inhabitants	**Dimension value**
Szabolcs-Szatmár-Bereg County	-21,38	-30,43	-27,30	7,58	9,44	15,41	-22,17	-21,72	-24,25	-38,63	-15,35

	Environment									
	The amount of municipal solid waste shipped from the inhabitants	The generated amount of hazardous waste	The proportion of homes involved in regular waste collection	The rate of households involved in selective waste collection	The proportion of recycled municipal solid waste	The primary utility gap	The amount of support payments related to environmental actions per 1000 people	Fines, penalties and other special revenue of the Local Government related to local taxes	The volume of wood per 1 hectare	**Dimension value**
Szabolcs-Szatmár-Bereg County	-52,54	52,60	2,78	-53,13	-42,47	-35,70	24,49	60,98	4,37	-4,29

	Infrastructure										
	Average distance in time to the micro-regional centers	Secondary utility gap	The rate of domestic gas consumers	The rate of household electricity consumers	The number of passenger cars per 1,000 persons	The number of patients per one family doctor	The number of social catering recipients per 1000 inhabitants	Average student numbers in primary schools	The rate of public spaces and roads built by the Local Government	The rate of sidewalks built by the Local Government	**Dimension value**
Szabolcs-Szatmár-Bereg County	3,61	20,06	-12,26	-11,72	0,10	12,87	-18,96	-4,93	-21,12	-25,01	-5,74

Regional Performance Analysis - Szabolcs-Szatmár-Bereg County	-10,96

Source: The author's own editing

3.1. The Regional Performance Analysis of the dimensions

Local economy dimension: As shown in Table 3, this dimension shows the worst performance of the region, resulting from operating businesses and commercial accommodation and related indicators; however, the 'payments from axes 1, 3 and 4 of the ERDFA' performed outstandingly. From this we drew the conclusion that the agricultural and tourism activities are not highly significant sectors in the county, since their poor performance dragged back the performance of the entire dimension. On the other hand, there is a great effort to improve this situation, since the ERDFA payments were used to develop SMEs. Of course, most of these payments are related to agriculture and, in spite of their efforts, they do not know their business, including entrepreneurship, in a positive direction and ensure the survival of businesses.
Society dimension: The second worst position was earned by the society dimension, resulting from changes in the composition of the population and of the increase of unemployment. Table 3 shows that population densities are declining as a result of a negative change in migration balance and natural growth. We can only observe a developing situation in the age composition and economic activity of the society. Territorial

research so far shows that if social indicators show the same results as in present study, people in deep poverty characterize the social composition of the region.

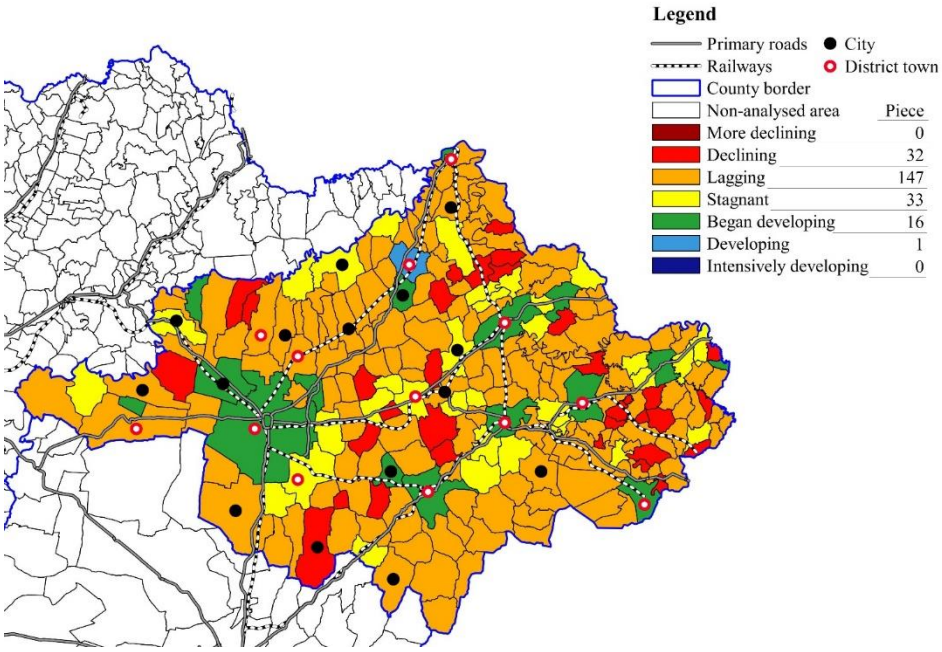
Environment dimension: On the indicator level the environment dimension shows the most significant difference, by which we mean that the highest and lowest values were both produced by this dimension. This duality comes from environment protection, since the high amount of hazardous waste produced here and fines related to waste management is very high in the county, but selective waste collecting and waste utilisation is very low. This leads us to believe that the infrastructure related to environment protection is poor in the region.

Infrastructure dimension: In SZSZB county the number of general practitioners and the public utility endowment show stable development compared to county and regional levels, opposing to the size of the road network, which shows the lowest value from the indicators. In our opinion the majorty of the indicators is influenced by the high number of people living in deep poverty; an increasing number of people need social catering services, etc.

3.2. The Regional Performance Analysis of the settlement level

The results of the analysis of the settlement level data are presented on maps. According to Péli (2013), the most important development investments need to be implemented in the centres, because only these core areas are able to generate dynamic growth in their agglomerations, and in the gradually growing peripheries. This theory is proved to be right, based on our calculations. SZSZB county contains 1 town with county seat right, 13 towns that serve as district seats and 15 other towns. These towns (marked with black or red-white circles on the map) are situated along the main transport corridors of the county. These towns are dispersed in space, but a common point is that they are all located relatively far from the country border. The results of the Regional Performance Analysis are shown in Figure 1, which indicates that the areas and settlements around cities and main traffic corridors are at least stagnating or developing. Overall, not even one settlement develops intensively, while 1 is simply developing, 16 has started to develop, 33 stagnates, 147 lags behind, 32 are declining and there is no settlement that is extremely declining, considering all dimensions.

Figure 1: The results of the Regional Performance Analysis of the settlement level

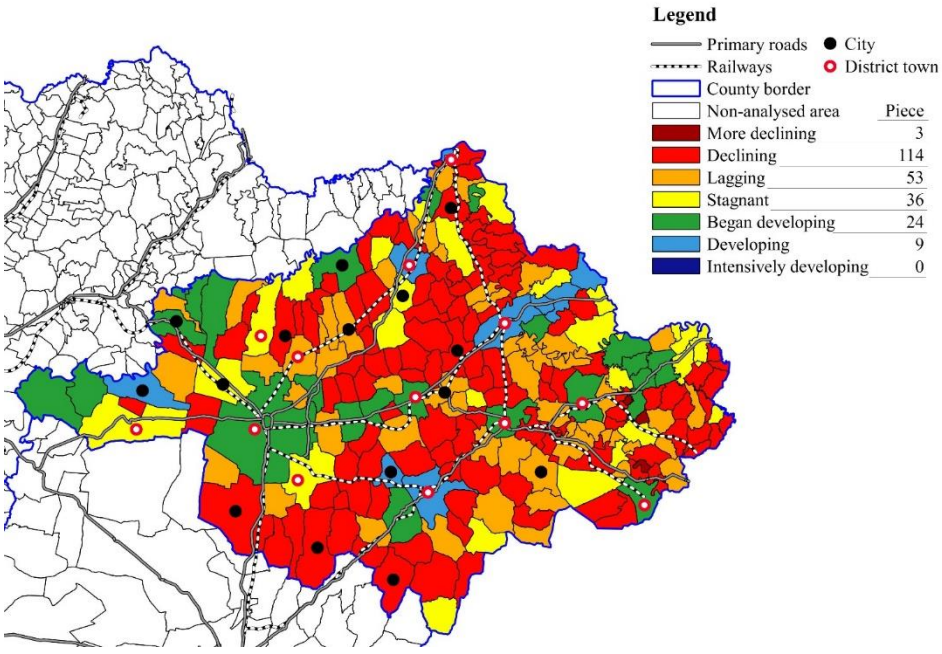


Source: The author's own editing by using the QGIS application, 2018

This illustrates well that cities and major transport corridors are the most important features in which development is taking place, because these areas are hot spots allowing development, for the society and the economy as well. Our results reveal that in the case of towns the interrelations of the economic and infrastructure dimensions could serve as development hotspots, while for small settlements the economy and the environment dimensions are the ones along which progress can be initiated. Unfortunately, in the case of declining performance settlements, we observed the combined negative effect of 3 dimensions. In three settlements (all with less than 500 inhabitants) all four dimensions are lagging behind or declining. Thus, in these settlements, the results show a degree of deterioration that whole dimensions can be identified as hot spots to be developed. In our opinion, a settlement alone cannot respond to more serious challenges, so external intervention is necessary if we want to prevent the collapse of these settlements.

Local economy (Figure 2) is a lagging dimension, and the worst-performing dimension of the region; however, it was found that on settlement level we can observe development, to some extent. The result The performance analysis shows nine settlements are developing, 24 settlements have started to develop, 36 settlements are stagnant, 53 settlements are lagging, 114 settlements are declining and 3 settlements are even more declining. This distribution indicates the local economic situation of the county well. There is a considerable (100 units) difference between the lowest and highest values. It was interesting to find that the developed settlements are somewhat dispersed in space; however, they are mostly situated close to larger towns or transport hubs. It was also found, that around these settlements the economy has started to decline. This may be due the fact that the developing settlements drain away the economic potential (e.g. labour force) from them, and they could not counter this effect so far. However, in the certain branches of the economy there is some development (retail, hospitality), as in almost half of the declining settlements the gross added value has at least stagnated or developed. Thus, we determined that the hot spot of local economy should be the development and competitiveness of the local enterprises.. As we have uncovered at the county level analysis, it was observable on a settlement level as well, that in the case of local economy, except for developing settlements, neither tourism nor agriculture prospers, in spite of the fact the main profile of the settlements of SZSZB county used to be agricultural small-scale production (Figure 2).

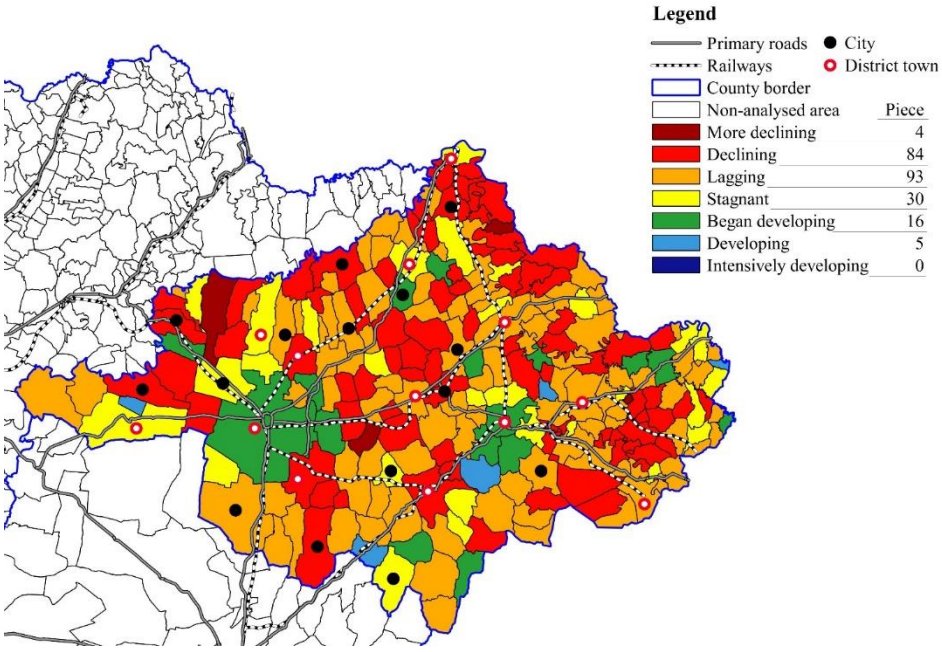
Figure 2: The map of the local economy dimension of the Regional Performance Analysis (settlement level)



Source: The author's own editing by using the QGIS application, 2018

The society dimension (Figure 3) is also lagging, but it shows a better situation than the local economy dimension, based on the Regional Performance Analysis. According to the results of the study, the society is developing in 5 settlements; it has started to develop in 16; 30 are stagnant; 93 are lagging behind; 84 are declining and 4 settlements are even more declining. This distribution illustrates the situation of the county's society, as the difference between extreme values is significant. Figure 3 shows the relative dispersion of developing settlements and that a significant part of these settlements - apart from 3 towns - is a village.
The performance of the society is significant along the traffic corridors and is lagging behind in the inner core. We conclude that the social relations, the rural environment and the Hungarian/ ethnic culture have a significant influence in the formation of the social structure in these areas.

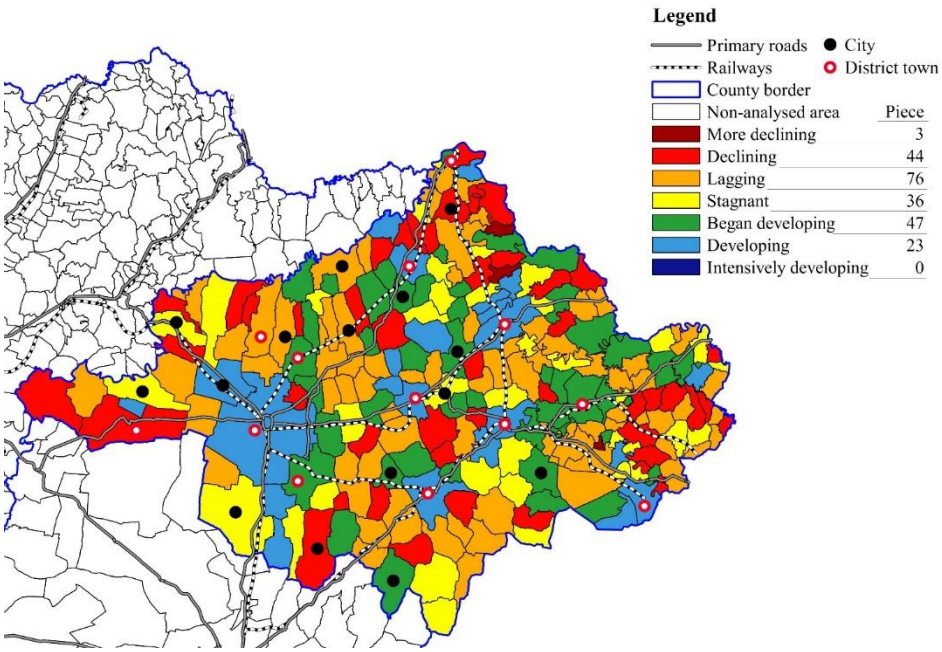
Figure 3: The map of the society dimension of the Regional Performance Analysis (settlement level)



Source: The author's own editing by using the QGIS application, 2018

The infrastructure dimension (Figure 4) is also a lagging, but this dimension contains most of the developing settlements. Unfortunately, the significant number of declining settlements hinder the progress of the whole county. According to the Regional Performance Analysis, in 23 settlements local ecomy is developing; in 47 settlements it has started to develop; in 36 settlements it is stagnant; in 76 settlements it is lagging behind; in 44 settlements it is declining and in 3 settlements local economy is declining even more. The survival of a settlement depends to a great extent on the capital invested there, and capital can be fundamentally attracted and developed in two ways: either through the proper use of their own resources or by improving the state of their infrastructure. Figure 4 shows that settlements that do not show social or economic development in the field of infrastructure have produced significant developmental value over the 7 years examined. This indicator is not influenced by the direction, type or size of the major transport routes, but rather by the local decision-makers' response to compensating for deficiencies. This is a prerequisite for the establishment of invested capital and all other (even human) resources.

Figure 4: The map of the infrastructure dimension of the Regional Performance Analysis (settlement level)



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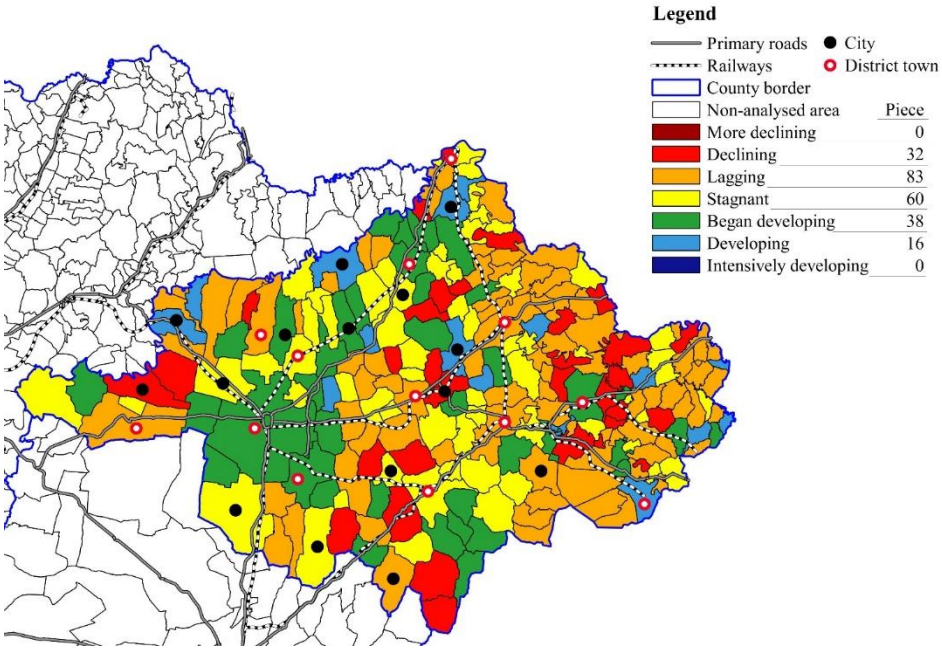
As we have mentioned, the environmental dimension (Figure 5) is the only one that has obtained a stagnant rating from the four dimensions, but it is still in the negative range. At indicator level, this dimension also shows some differences, but here it is possible to detect a topic, waste management as a hot spot. A significant number of settlements are also developing here, mainly close to larger towns or along major routes. In these areas more attention is paid to the protection of the environment, but even in these parts we can observe that waste management is not carried out properly.

Figure 5: The map of the environment dimension of the Regional Performance Analysis (settlement level)



Source: The author's own editing by using the QGIS application, 2018

4. CONCLUSION

It is clear from our research that the cities, in the vicinity of the centres of districts or road networks in particular, are the ones that are at least stagnant or have begun to develop. Kisvárda is the fastest developing settlement in Szabolcs-Szatmár-Bereg county. In our view, cities and major transport routes play a significant role in the changes in the county's resources, due to their significant economic and social development. There are large differences in the performance of different settlements in the county and their composite average show a lagging performance. The majority of the villages are declining, and their declining state is typically determined by three dimensions: the local economy, the society and the infrastructure dimensions. In the case of three settlements, all four dimensions show very poor performance; these settlements may have hot spots that require external intervention. In developing and stagnant settlements, agriculture is the the only sector that shows potential, although there is development in other branches of the economy as well (retail, catering, etc.) to some extent, since in nearly half of the declining settlements the gross added value has stagnated or started to develop. Based on these, the most important hot spot in the county is the development and improvement of the competitiveness of the enterprises (including infrastructure development).
We believe that we started to develop a new methodology with our study, which shows similarity to many theoretical concepts, and therefore it supports the foundation of development plans. We believe that the Regional Performance Analysis has the potential to describe reality with static and dynamic methods to identify development paths in a given time period. Therefore, reflects to the market economy, social and other global processes, and to development initiated by national and international capital as well. In other words, we can tell how successfully the regions could meet the challenge posed by these processes. Since the index can be derived to all of its elements, including the levels of dimensions and indicators, as well as to static and dynamic analyses, we can see which are the specific local characteristics, strengths or weaknesses. Also, we can see which regions perform better or weaker. By learning these we can find those development nodes/hot spots (which can be either characteristics or geographical areas) which are necessary to develop, or on which later development can be based on.

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THE ROLE AND IMPORTANCE OF ECONOMIC DISTRICTS IN THE REGIONAL DEVELOPMENT

Lilla Áldorfainé Czabadai - Dr. Izabella Oláh

ABSTRACT

The separation of the economy or the economic activities into districts or zones is typical in several countries of the World for example in Russia, China or in the USA. In Hungary we can find coherent territorial units formed by some aspects (for example beneficiary areas, disadvantageous areas, recreational areas, vine yards, free business zones or agglomeration) in the territorial development policies and strategies. However, the concrete definition of the economic districts and the harmonization of districts formed so far are missing. In our study we try to discover the importance of definition of economic districts by taking into account the national history and practices. Furthermore, we examine the presence of such districts and their role in the economic development and in the regional development as well.

KEY WORDS

economic district, regionalism, development

INTRODUCTION

First of all, in order to clarify the aim of our study it is necessary to define 'district' (appearing in the title) as an expression. We use the definition of district as a minor territorial unit categorized by several factors. Therefore, in our research district-making means the process of designation of areas which belong together based on some similar characteristics. Under territorial designation people usually imagine a territorial unit framed by administrative borders drawing on the history of Hungary and its well established administrative units, called counties.

Besides the regional, micro-regional, county, district and settlement level categorization (which is based on the EU harmonization efforts) there are other types of territorial units not directly related to the administrative borders. Based on administrative borders we distinguish for example disadvantageous, beneficiary districts or areas which are developed or developed by complex programmes. In this category we can mention those groups of settlements which have a disadvantageous situation from a socio-economic and infrastructural perspective, significant unemployment rate and the free business (enterprise) zones.

Into the not strictly administratively bordered districts we can classify for example the agricultural districts, the wine-producing regions, the agglomeration zones, the outstanding recreational areas and the outstanding touristic development regions. These aforementioned territorial units could stand as the basis of development policies however, the significance of their development generating role has decreased in the past few years due to the lack of connecting strategies or the anomalies of the existing development plans. In the meantime the demand for coordination and territorial concentration of the developments has increased (Gerencsér et al, 2017).

MATERIAL AND METHODS

In our study we attempt to present the most important districts which we have already mentioned in the introduction, furthermore we try to discover the methodology, criteria system of their determination and their importance in the formation of economic development through the different regional (territorial) development conceptions.

We chose the document analysis as a method to process the literature and the legal background connected to our topic. During our research we overviewed the regional (territorial) development conceptions,

strategies and directions of the past fifty years, the theories related to regionalism and development. In addition we examined in detail those parts which are dealing with the territorial distribution of the economic activities (for example in agricultural or touristic sector). Investigating the legal background we analysed the indicator systems and location of those territorial units which are regulated by law (e.g. disadvantaged regions). After the comparison of the examined elements we draw our conclusions and make some suggestions.

RESULTS AND DISCUSSION

We can see that regarding the division of space and the creation of spatial levels, and related to the economic geographic approach and regional research, that space consists of unique subsystems, and therefore it can be divided into parts with unique characteristics. These spatial units can most commonly be analysed, however it is also an important prerequisite that the specific units in question have an internal spatial characteristic themselves; therefore, if they are not homogenous within their boundaries they should not be treated as one-dimensional units (Nemes Nagy, 2017).

From an economic geographic point of view we distinguish three main spatial levels. Firstly, there is the phenomenon level which expresses that regardless of examination the human, natural and geographical processes do exist. The second is the analysis level which refers to the measurements of the investigated unit, where the problem can be observed and analysed. The third is the mapping level which illustrates the degree/measures of a specificity or problem on a map compared to its actual values in reality. The role of map-illustrations in case of territorial division processes has increased in the context of regional policies and in the elaboration of development plans as well. The importance of the most commonly "used" spaces (global, national, regional and local) is not permanent, it highly depends on the actual power relations, external processes – e.g. the EU policies are overrating the regional level. Therefore neither of them is enough to understand the examined territorial units; their status is influenced by several other levels of processes (Mészáros, 2017).

According to Nemes Nagy (2017) in order for us to be able to investigate the spatial characteristics of a chosen unit we can create our own examination ("test") area. In most of the cases it means an already existing administrative or statistical system, but often creating an optimal territorial division has become the subject of the research. This means that analyses can be carried out within the already defined administrative borders, but for a more suitable implementation of the examination researchers can determine their own spatial division which often appears as a system of economic districts.

Based on Rechnitzer and Smahó (2016) it is worth doing research on the practical issues of the spatial division (Hungarian regional development policy) from the 1960's, because experts handle this period as an "incursion decade" of regional planning and territorial policy. From 1958 the decision makers consider the regional (territorial) planning as a part of the national economy and they define four elements of it :

– examination section (as a result of the first detailed territorial analyses they separated the country into nine regions with the following centres: Budapest, Miskolc, Debrecen, Szolnok, Szeged, Pécs, Nagykanizsa, Székesfehérvár, Győr)

- preparation of regional concepts
- elaboration of regional development concepts
- elaboration of regional management plans

Regional planning below national level appeared first in 1965. The settlement network development plans of the counties were completed; moreover other regional and local concepts were evolved such as the development plans of Budapest and the Lake Balaton. The economic districts played a big role in the preparation of installation plans in certain sectors. In those days Ferenc Erdei (author, village researcher, and sociologist) was dealing widely with the development issues of the settlement network based on field experiences and international outlook. The National Settlement-network Development Concept (1971) is heavily grounded in his work (Kőszegfalvi, 2009).

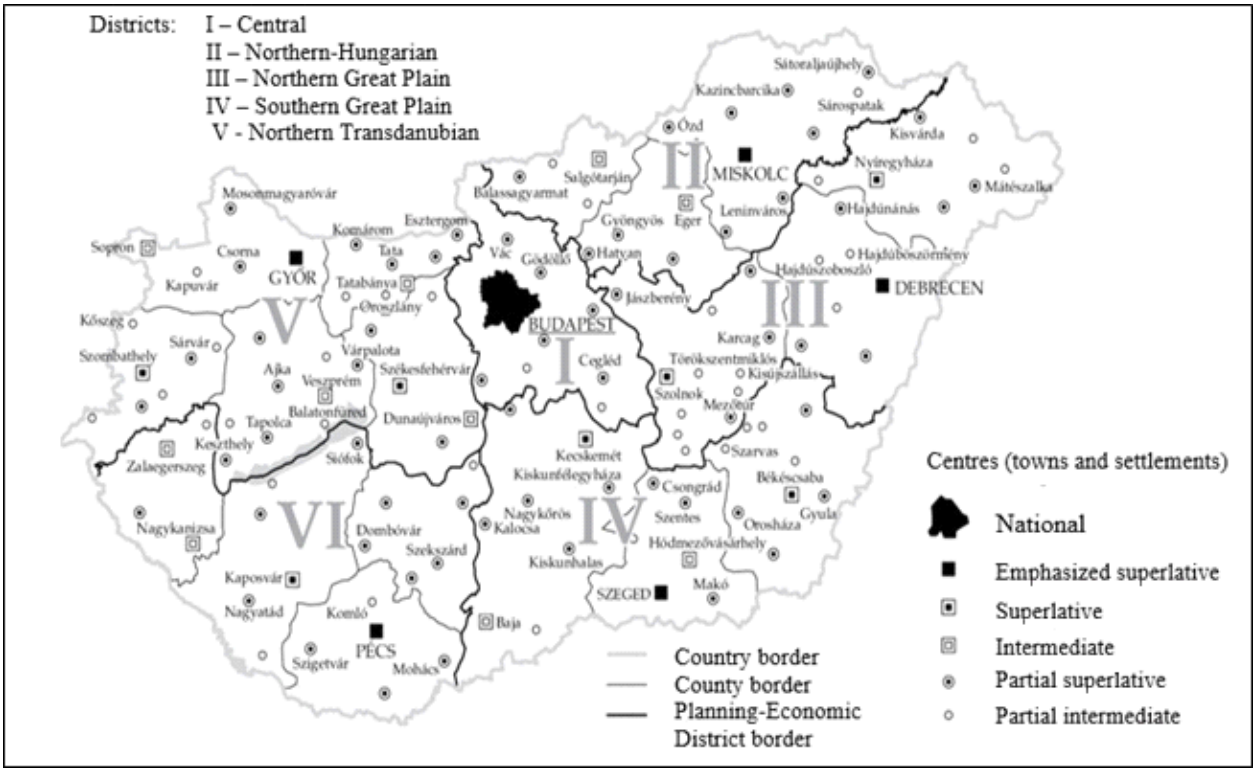

Figure 1: Planning-Economic Districts, National Settlement Network Development Concept, 1971
Source: *Rechnitzer-Smahó*, 2016

The five planning-economic districts (Fig.1.) were novelties because these were formed as a result of a detailed analysis. Besides the planning-economic districts the concept defines 15 industrial, 23 recreational-touristic, 10 cross-border and 17 developing agglomeration areas/ regions (Rechnitzer et al., 2016). It is important to highlight that the radial spatial structure and the dominance of the city centres (especially Budapest) were not changed. In this period there were plenty of opportunities to transform the management system but the governance did not accept the previous proposal with nine territorial units and they did not change the administrative borders of the counties even if the the district system was eliminated (Kőszegfalvi, 2009).

We can interpret the study of Laczkó (1975) as a completion of the National Settlement-network Development Concept which explores the lagging behind regions and their location in Hungary (Fig. 2.). Later Bibó (1986) made a proposal for the rethinking of the territorial division. In his work (Fig.3) he suggested the delimitation of six national town-district based districts (ignoring county borders), territories that are equal to the five superlative centres previously highlighted in the National Settlement-network Development Concept.

In the early 1980's the settlement network development concept was criticized as a uniformed, instruction-planned concept which doesn't take into account the local capabilities. The concept was modified in 1985. The most important changes were taking into account the quality of development of the regional centres instead of the quantity of development and the management (development) issues of the outstanding regions as well. According to this new strategy the disadvantageous, the small village, the recreation areas and the border regions were defined (Balaton, Velencei-tó, Bükk-Mátra, Dunakanyar) as priority regions. As a result of the concept the territorial definition and development program of the economically disadvantageous regions were accepted (Beluszky, 1993).

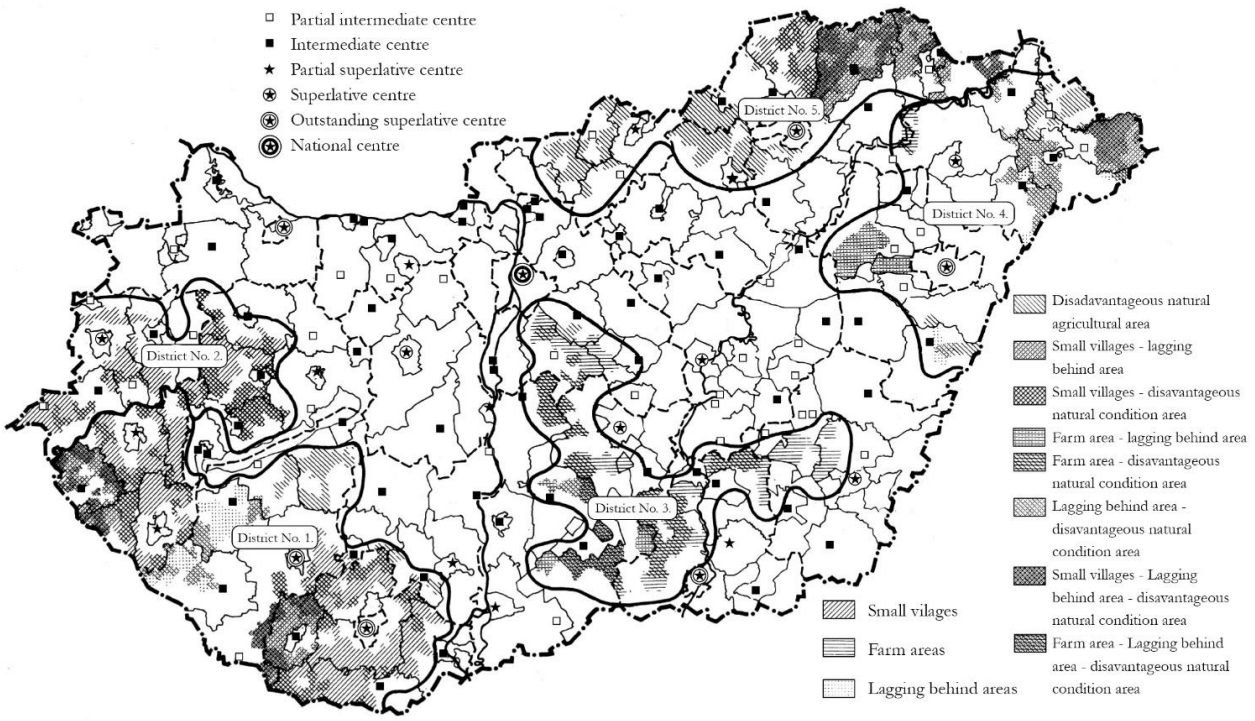

Figure 2: Lagging behind areas based on Laczkó (1975)

Source: *Rechnitzer-Smahó*, 2016

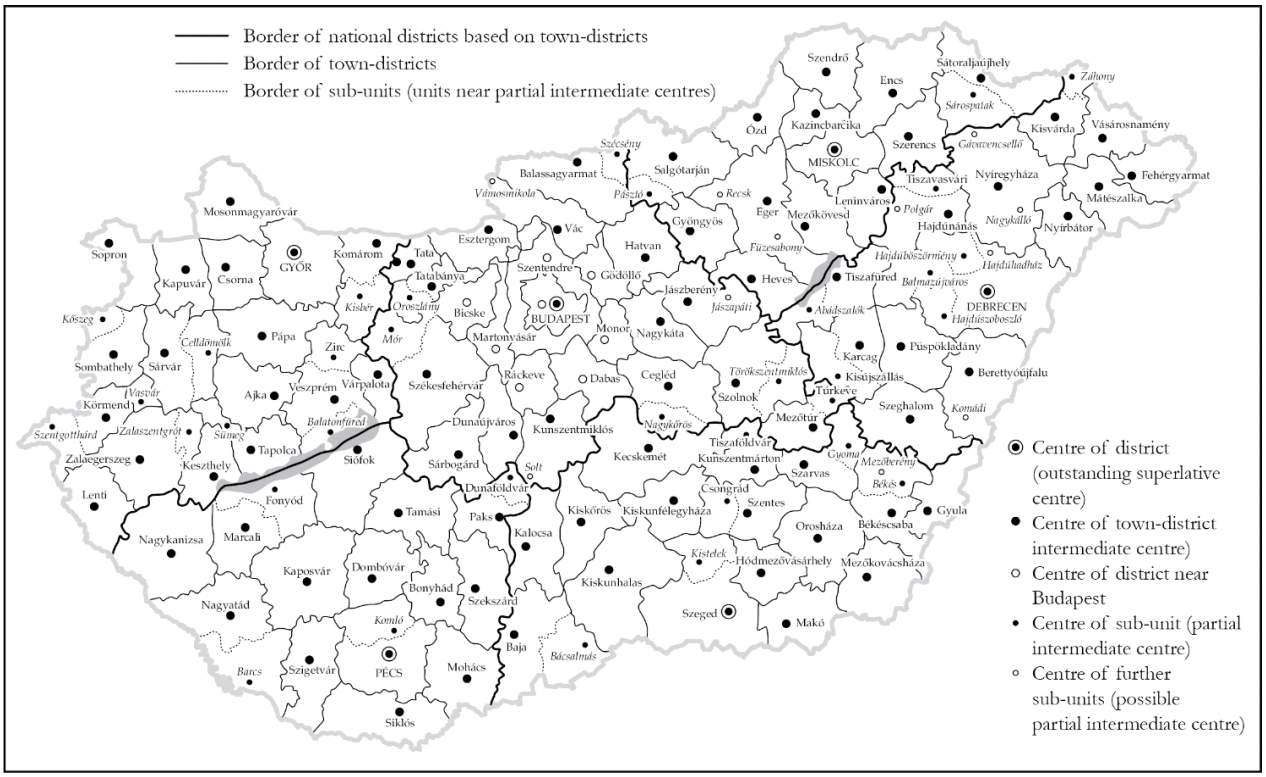

Figure 3: Territorial units based on Bibó (1986)

Source: *Rechnitzer-Smahó*, 2016

After this transition the choice of location, the investments and the employment demands of the economic operators were highly influenced by the differences between the regions. We can see the development

generating zones on Fig. 4. The identification of the disadvantageous areas or the regions with special conditions (e.g. Great Plain areas, heavy industrial areas and lagging behind regions) and the implementation (financing) of their development programs were more and more emphasized (Rechnitzer, 1993).

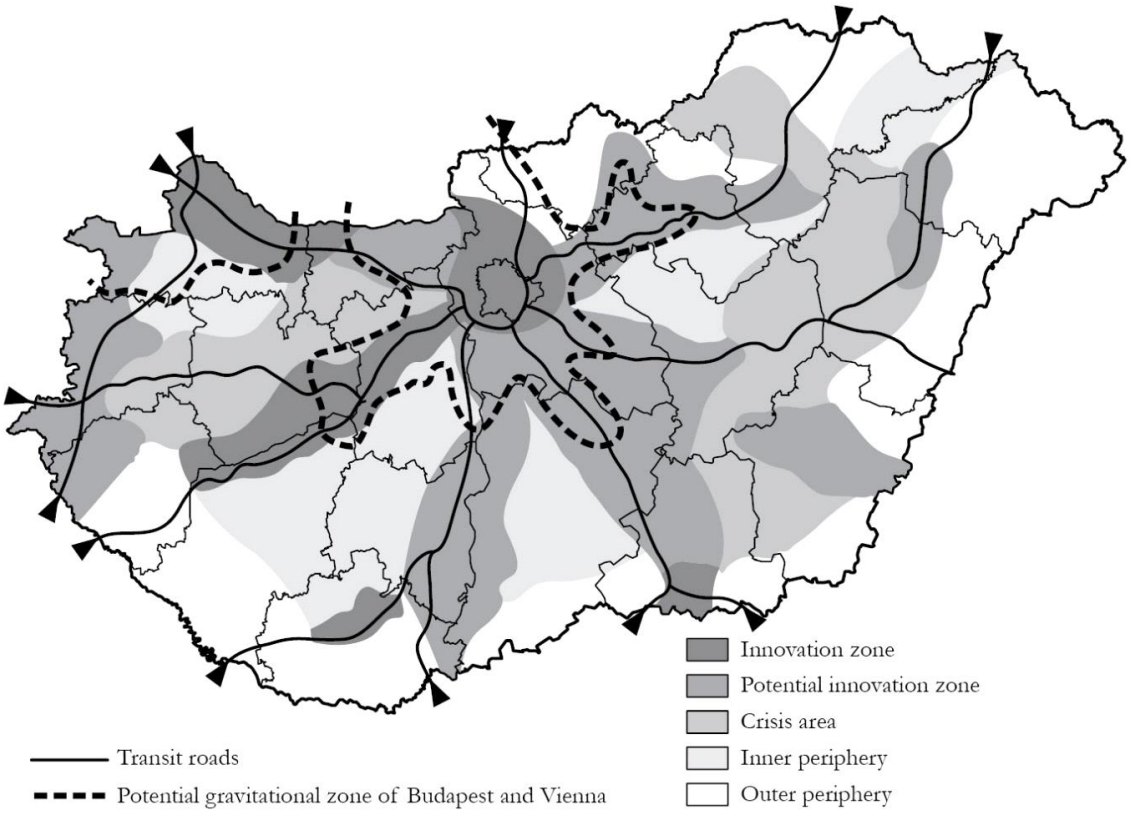

Figure 4: Economy based development zones
Source: *Rechnitzer-Smahó*, 2016

Act XXI. of 1996 on regional development and land use regulated the definition of 'region' and according to this defined the outstanding regions and the terms of regional development. The act described the 'region' as an overall expression for the different territorial units (country, region, county, district, outstanding areas and the certain areas of them). According to the act outstanding regions are those territorial units which are coherent from economic, social or environmental point of view and extend over one or more counties (or the capital). According to the law there is national interest in the integrated planning and development of these emphasized regions. Besides the previous term, the act mentions the definition of the free business zone, the lagging behind region, the beneficiary region and the disadvantageous border region. In order to implement the development efforts of outstanding regions the Balaton Development Committee (BDC) and the Budapest Agglomeration Development Committee (BADC) were established (Act XXI. of 1996). It is worth mentioning that the Regional Development Concept and Strategic Program of Budapest Agglomeration was completed in 2007, but beyond the planning activities the Budapest Agglomeration Development Committee did not receive authority and financing to continue its operation (Tosics, 2016).
Harmonization efforts appeared in the regional development concepts after the EU accession. The role of the decentralized institutions and funds were increased, the regional operative programs got more emphasized because they had to meet the expectations of the national and the European Union development priorities as well. The National Spatial Development Concept (2005) highlights for example the definition of regionally outstanding regions which are special regions extending over the area of more regions and require coherent development management. In order to dissolve the stress in the territorial

structure, the concept identifies the beneficiary regions on a micro-region basis and states that it is necessary that most funds flow into these regions. According to the law the most disadvantageous regions could not include more than 30 percentage of the population and the critically lagging behind regions could not include more than 10 percentage of the population (Act 97/2005 (XII.25.)). At the same time the importance of the definition of the urban and rural areas was highlighted probably due to the accessibility of subsidies aimed at developing rural areas.
The National Development and Territorial Development Concept (NDTDC) concerning the time period 2014-2020 contain important statements concerning the unique (special) type of regions and the targeted aims related to them are not, or are just slightly, built into the former development policies. Furthermore, only a few special interventions have been implemented tailored to these regions in the past years. The issue of the territorial division appears in the document. Among the development proposals we can see the designation of the location and the authority of functional regions (Recreation zone around Budapest, Economic, technical core areas, Regions with predominately settlement function, Regions with touristic function, Regions with environmental orientation and nature-friendly economic activity and Regions with good agricultural conditions) on Figure 5, however these are not treated as 'regulation' based regions.

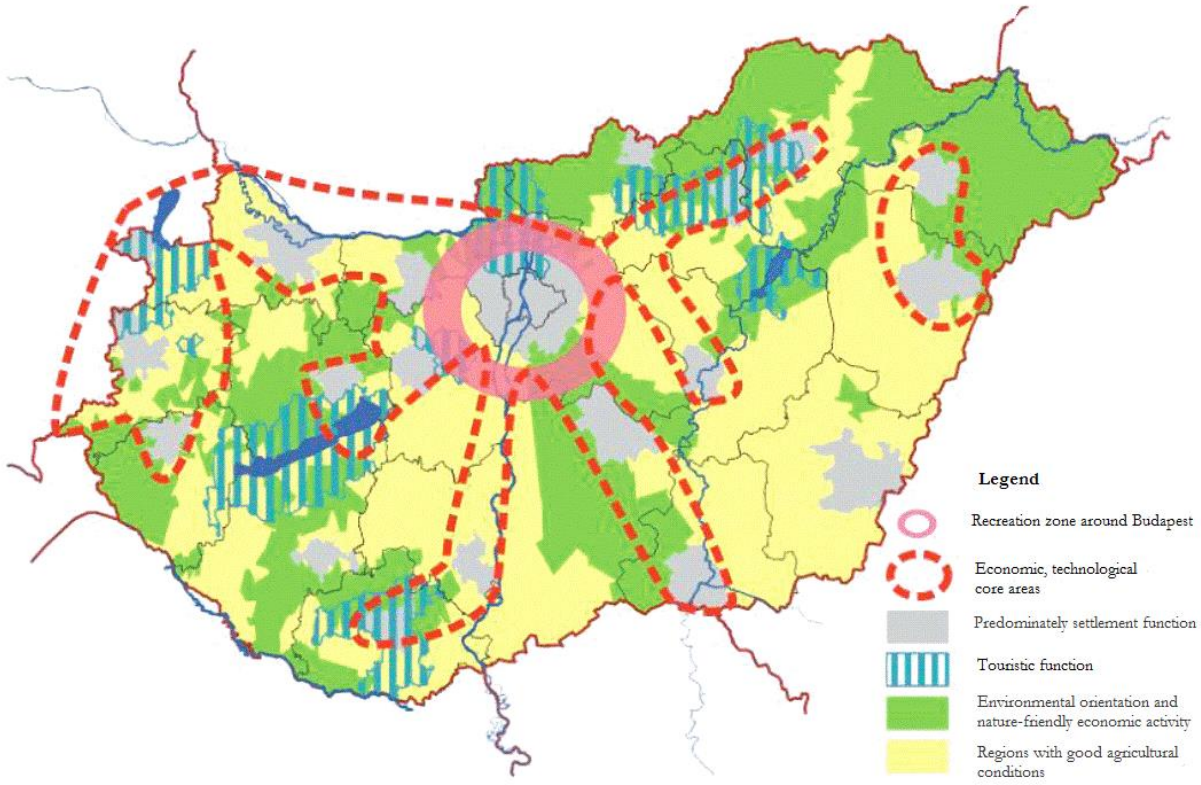

Figure 5: Functional regions
Source: *National Development and Territorial Development Concept*, 2014

The increase of the significance of unique regions is shown in the identification of several development tasks, such as: Rural areas with special landscape, environmental problems and features (Homokhátság, Tisza-völgy), Regions with significant social issues and disadvantages (Cserehát, Ormánság), Rural areas which claim catching-up (homestead regions), Regions with outstanding landscape values (Balaton) and Regions with unique landscape and recreation function (Tokaj-Hegyalja, Pannonhalma, Őrség, Fertő-tó,

Hortobágy, Bugac, Villányi borvidék, Ormánság). Besides the aforementioned categories the concept defines the development goals of cultural landscape zones (Fig. 6.) as well (NDTDC, 2014).

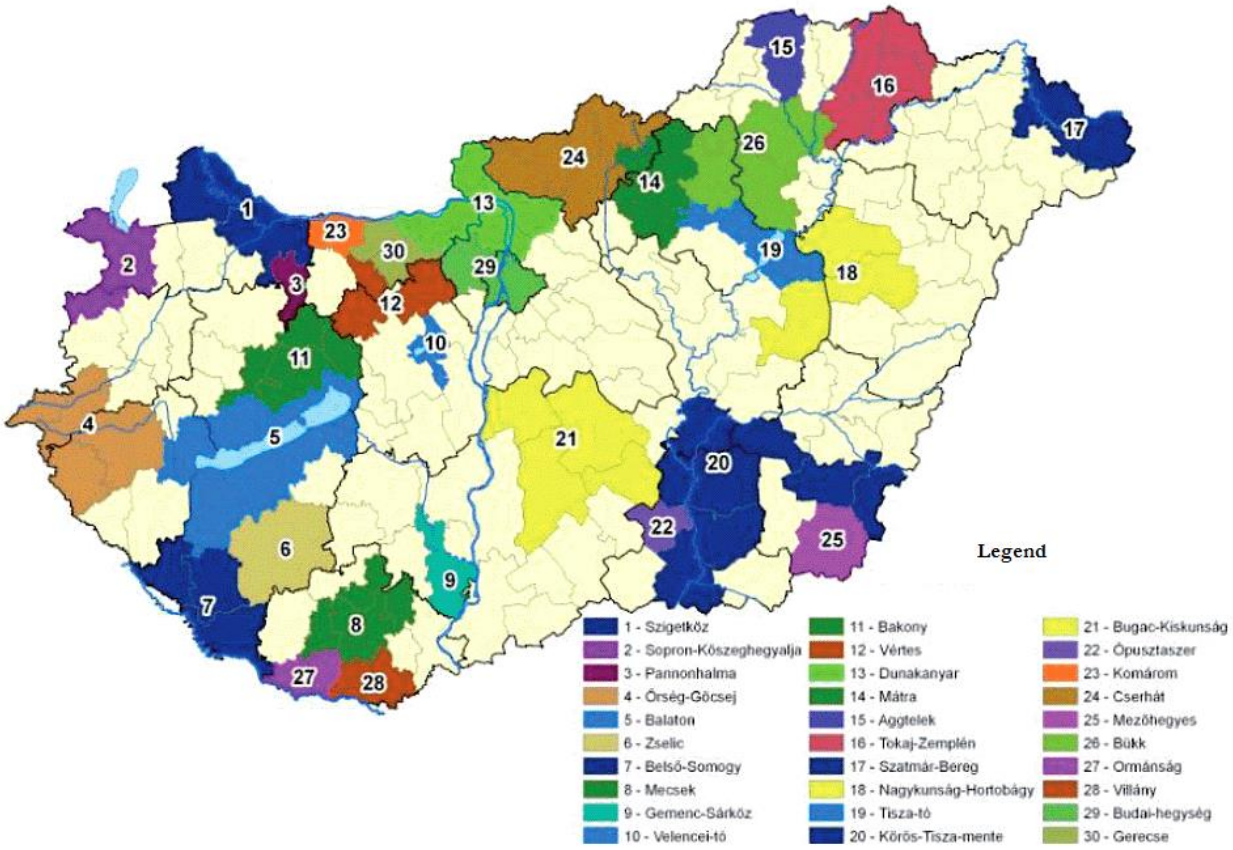

Figure 6: Cultural landscapes
Source: *National Development and Territorial Development Concept*, 2014

The issues and the role of the agricultural production and the agricultural districts in the territorial development have been transformed in the past decades. In the 1960's the researches aimed the examination of the productivity and the optimum location of production by using different methodologies and indicator systems (Bernát et al, 1961; Enyedi, 1965; Kukovics et al 1973). After the transition - thanks to the sectorial changes - the studies dealt with competitiveness issues, the possibilities of the specialization or diversification and disadvantageous situation caused by the back seat position of agriculture (Bernát, 1997; Bernát et al, 2002). After the EU accession the developments connected to the agriculture and agricultural production got more emphasized in the field of rural development mostly along environmental viewpoints (sensitive natural areas, Natura 2000) and the diversification of agricultural activities (for example agrotourism, rural tourism) (Káposzta et al, 2013)). Within the coherent agricultural territorial units we can mention the agricultural landscape districts or the wine-producing regions, however neither of them have development plans - which are related to rural development programs or concepts - implemented in practice as we can experience in the case of Balaton Development Region.
Returning to the touristic perspective of territorial division, Act CLVI. of 2016 regulates the governmental tasks regarding the development of the touristic regions. This law has been completed with two regulations in 2016 and 2017 (429/2016, 140/2017) which define the area of the touristic regions and the outstanding touristic development regions and specify the settlements that belong to them. The regulations identify the Balaton (with 174 settlements), the settlements of Sopron-Fertő (15+ the area of the Fertő-Hanság National Park) and the settlements of Tokaj, Upper-Tisza and Nyírség (98) as outstanding touristic development regions. However the Act does not provide any information about the methodology of the classification (about the criteria of the coherency).

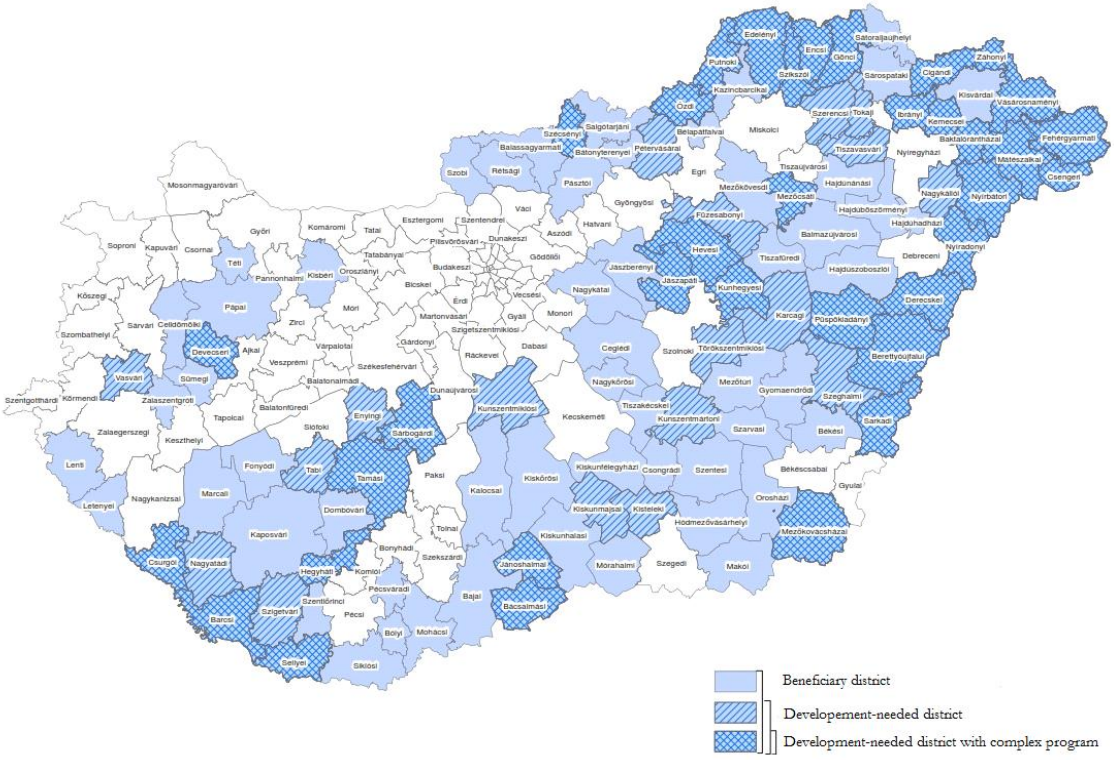

Figure 7: Beneficiary districts

Source: *105/2015 regulation,* 2015

We can find a detailed and available description in the legal regulation about the complex methodology of classification in the case of beneficiary districts and settlements. The act (290/2014 and 105/2015 regulations) in both cases uses (and used previously in the times of the micro-region system) complex social, economic and infrastructural development indicators along four dimensions: social and demographical conditions, housing and living conditions, local economy and labour market, infrastructural and environmental indicators to define the beneficiary regions. In the case of district level examination on Figure 7, a much bigger part of the country seems disadvantageous than as a result of settlement level analyses on Figure 8, where we can rather observe a high concentration of disadvantageous situations.

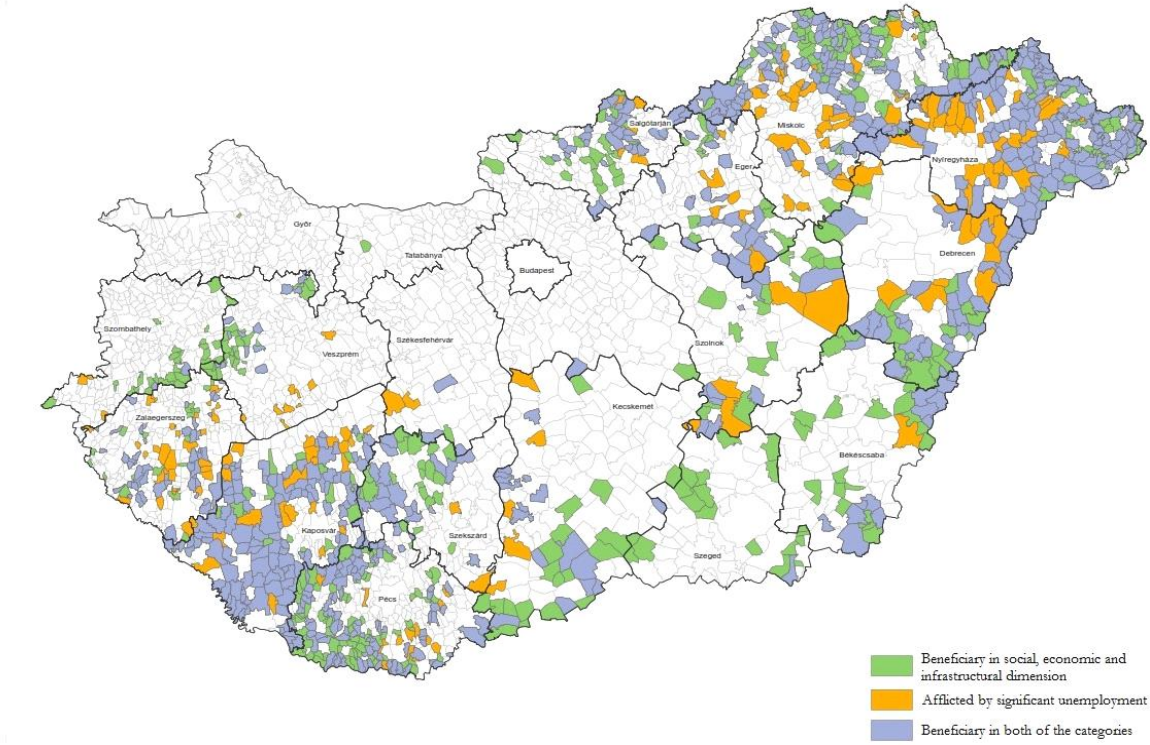

Figure 8: Beneficiary settlements

Source: *105/2015 regulation,* 2015

If we can see the economic strand of district creation, we can say that we can link the territorial concentration of economy to certain territorial units (region, county, district, settlement), but the thickening points of economic activities do not necessarily follow these systems (which is confirmed by the previous train of thoughts). However in order to simplify the measurement methods it is worth choosing a predetermined level for our examinations (Szakálné Kanó, 2017).
The abovementioned statement is an important standpoint during the elaboration of territorial and regional development policies. If we are thinking on a regional level this kind of dimensional division could show the directions of the national or the macro-regional developments. The directions of policies in the case of specially defined regions are determined by district, rather by settlement level analyses. Therefore, a decentralized territorial management system with clarified function has become necessary, because we cannot integrate the presented diversity into the relatively strict administrative system (Nemes Nagy, 2017).

CONCLUSION

The present study has revealed that the development aimed territorial division has been an important element of the regional (territorial) development policy since decades. It is indisputable that for the effective implementation of district-creation it is necessary to analyse the historical background, the local features and demands of the chosen territorial unit. The examined concepts and the relevant literature shows the need to determine and identify new territorial units – the definition of coherent, special or unique territorial units could classify as development priority more than fifty years.
Besides the administrative-based divisions (for example disadvantageous districts) the outstanding regions play a significant role as well. The location and name of these highlighted regions did not change a lot – the Balaton region, the agglomeration around Budapest, the Lake Velence, the Lake Fertő, the wine-producing region of Villány and Tokaj belong typically into this category. Regarding the disadvantageous regions the same issues have re-appeared from period to period, but only a few actions, intended to solve

the problems, could provide remedy. The areas characterized as the most tourism generating outstanding development regions often overlap with the areas of disadvantageous regions; therefore, it is obvious that there are settlements which belong into multiple categories at the same time.
The result of such overlaps is that development concepts are harmonized in favour of the bigger territorial units (or the whole area) but they do not take into account the development opportunities of the smaller territorial units' (for example settlements) – even if theoretically all of the concept was based on detailed analyses. The development plans, strategies and operational programs planned for the presented, often overlapped territorial divisions do not take into account the settlement level features (conditions) of the districts which lead to the formulation of general goals.
The National Development and Territorial Development Concept (valid for 2014-2020) deals more in-depth with the issues of the location and determination of the functional regions – although it does not propose any exact suggestions about territorial division; furthermore, it does not emphasize the necessity of these territorial units. A new, special type of territorial division could help the effective implementation of future prospective development plans. The basis of this territorial system should be the smallest territorial units (which could be examined in merit) categorized along similar or equal features. This classification could provide the basis of the development plans aiming at these areas.

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SPLIT VAT, OPPORTUNITY OR PUNISHMENT

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Abstract

In October 2017, Romania introduced the so-called SPLIT VAT system holding out various tax advantages for companies that voluntarily apply the system. From 1 January 2018, the SPLIT VAT system became mandatory for many companies. The criteria also includes that companies that have accumulated debt to the state are obliged to enter the SPLIT VAT system, that is, the state uses a system as a penalty.

Another aspect to be taken into consideration is that a large cash balance is generated on the last day of every month in the state bank (treasury) because of the SPLIT VAT as many companies keep their money there. With these amounts in the bank more money can be made, which is again a benefit for the Romanian state.

This study examines the experiences of other countries with SPLIT VAT and draws the conclusion on whether this system is sustainable or not. Certainly, most companies have huge problems, both for cash flow and human resources allocation.

Keywords: VAT, SPLIT VAT, money making

Introduction

The commercial tax (VAT) was introduced on the basis of a French engineer's proposal to temporarily help French public finances at that time. The rate at that time was 4%. The "temporary" nature was so much appreciated both by the French government and later by others that it was widely introduced in Europe.

In Hungary, the Socialist-Communist Party leadership decided in 1988 that it was necessary to bail public finances, which was introduced from 1 January 1989. In Romania it was introduced from 1 July 1992, at which time the general VAT rate was 18%.

From 1 January 2007, Romania became a member of the European Union, which automatically called for tax and financial legislation to be harmonized with the legal system used in the EU.

As soon as Romania joined the EU, it immediately faced the problem of international VAT fraud, which it first attempted to control by internal means, and then by international assistance. This international help was about how and to what extent EU Member States can act effectively against both domestic and international VAT fraud.

1. EU law harmonization on VAT issues

The European Commission adopted a book on 1 December 2010 entitled "Future of VAT – Towards a simpler, more solid and efficient VAT system"[1]. This study was considered by the ministers of finance and economic affairs as a huge step forward, since the money not included in the VAT amounted to 12% of all VAT.

The Green Paper proposes 4 models for EU members, which can eliminate or reduce VAT scams and increase the amount of VAT payments. At the same time, full control could be given to companies, because taxation and accounting discipline would increase as companies are forced to (or will be forced) to do so.

These four basic models consist of:

- Shared VAT Payments (SPLIT VAT System)

- Real-time report of the turnover to Tax Authority

- Transparency growth from companies

- Certification of Companies - High Tax Credit Companies, Acceptable Tax Credit Companies and Low Tax Credit Companies

1.1 Shared VAT Payments (SPLIT VAT System)

Despite the fact that international literature has started to use this system as a test case in Italy since January 1, 2015, the reality is that in 2005 Bulgaria used a special version of this system[2]. The system was abolished as of 31 December 2005 because, besides the fact that Bulgarian VAT registration at that time was difficult, there was no other quantifiable benefit.

The essence of shared VAT payment is that the seller does not receive the entire invoice value, but the buyer will have two separate account balances. In one account the net value is recorded, the other invoice, which is a special SPLIT VAT invoice, only VAT is included. Only VAT payments can be made, received, etc. from this account and financial control can be done directly. Thus, VAT cannot become a fraudulent tool or its payment cannot be avoided because it's already been paid.

This system was used by Italy only in state-owned transactions involving VAT (public sector) and, despite its many opponents; it was proven to be effective. As a result, Poland also introduced it, for the time being, experimentally, from 1 January 2018.

1.2 Real-time report of the turnover to finance

[1] http://ec.europa.eu/taxation_customs/taxation/vat/key_documents/communications/index_en.htm
[2] Dr. Konstantin Pashev, Fighting VAT Fraud: The Bulgarian Experience

The main idea of this method is to force companies to use electronic (IT) methods to send instant reports to a general server. In reality, this means that cash registers are connected to a server that summarizes goods' turnover, or indicates and alerts in real time, if turnover is inappropriate according to a variable (e.g. day, hour, morning / afternoon, etc.). This system has already been used in Hungary with cash registers connected to the online system.

1.3 Transparency growth from companies

The essence of the system is that, according to predetermined criteria, companies are temporarily uploading their transactions to private persons as well as to legal entities. Tax authorities are trying to get these data in real time, but they are far from being realistic, since even in the most optimal cases, they only download data every month because they have monthly reporting obligations to taxpayers.

1.4 Company rating system – companies with high risk of taxation, companies with acceptable taxation risks and low taxation companies

Member States under a certain criterion system introduce a quality assurance system that monitors and randomly checks how taxpayers correctly record their transactions and look for correlations between the taxpayer's economic profile and tax behavior.

2. Romania – mixes models

Romania in 2015, according to Pricewaterhouse Coopers[3] estimation, lost € 8 billion due to VAT fraud or the lack of an IT system to track these economic events. Because of this and the unpredictability of the current government lead to a trial of all four models as specified in VAT Green Paper.

2.1 Shared VAT Payments (SPLIT VAT System)

The split VAT payment system, more commonly known as the SPLIT VAT system, was introduced by Romania on 1 October 2017 on a pilot basis. The companies tried this system on a strictly voluntary basis that a special VAT account was freely opened at the State Treasury for which the transactions and the account opening were free of charge. At the same time, a certain percentage (5%) of the profit tax (corporate tax) was dropped, called the micro tax.

The essence of the system is that everyone has a special VAT bank account (this is not free for commercial banks, neither the transactions nor the opening), which of course is also known by the tax authorities. Those who have entered the system are charged with the net bank account number and

[3] https://www.pwc.com/gx/en/paying-taxes/pdf/paying-taxes-2015-romania.pdf

separately the SPLIT VAT account number. The transactions are made in two steps, the VAT is charged separately, and the net is paid separately.

Only SPLIT transactions can be made from the SPLIT VAT bank account, no other payment should be made. This account can only be used with the permission of the tax authority and the funds on the account can be redeemed after the tax authorities' verification of the claim. If your customers pay with cash you have 7 days to deposit the VAT into the SPLIT VAT bank account. This is primarily the case of retailers who also have to deal with bureaucracy.

Since January 1 2018, the system has changed, and according to the modification, voluntary access to the system and discounts remain, but companies who file for bankruptcy will automatically become members of the system.

Similarly, companies who have accumulated debt by not paying VAT on time have also automatically entered the system. The permitted delays are as follow: large taxpayers 15,000 RON, middle taxpayers 10,000 RON, small taxpayers over 5000 RON, 60 days delay.

2.2 Real-time report of the turnover to finance

The Romanian authorities tried to enforce the use of online cash registers by companies with the Government Decree of 28/1999, so they can monitor transactions in real time. They were unable to achieve this, but they succeeded in the gaming industry. In reality, this allows 2 hours of data transmission.

Today (end of May 2018), companies are obliged to have and use online cash registers by 1 August, however there are still not enough online cash registers, so the whole process has been delayed for an additional two months.

2.3 Transparency growth from companies

For more than 7 years Romania has been using the so-called 394 form. The essence of this report is that transactions between VAT entities should be reported to the tax authorities. When the reporting obligation came into effect, reports had to be submitted every 6 months. Now there is a monthly reporting obligation, no later than the 30st day of the month the transactions of the previous month should be reported. This is done via a smart pdf form, which includes the account number, amount of transactions, and nature and type of goods by different codes. Despite the fact that this informative report exists, missing or non-reported transactions are automatically verified by the tax authority and in the majority of cases the financial authorities state that transactions are not real, and respective VAT is payable including penalty and interest.

2.4 Company Certification Scheme – companies with high risk of taxation, companies with acceptable taxation risks and low taxation risk companies

The Romanian authorities create profiles of companies based on their buying and selling habits. Of course, the CAEN code of the company is also very important, and it is a primary factor in calculating the

tax risk. For example, the CAEN Code 9200 (Gambling Companies) is automatically assigned to a high tax-based company, regardless of the company's profile.

Interestingly, when calculating the risk, quantifiable data only gives 50% of the risk rating. There are other non-quantifiable data categories, such as reporting, information submitted elsewhere, knowledge about the true wealth of the business owner, etc. These data are subject to tax secrecy, so companies are not evaluated based on information the tax authority does not possess.

Summary

From 1 January 2018 until the end of May 2018, companies who joined the SPLIT VAT system (either voluntarily or through punishment, because they were late for paying VAT) faced the following problems:

- It caused huge cash flow problems; since 19% of the working capital is in the treasury account

- There is no clear procedure for redeeming negative VAT

- Paying VAT after revenue was problematic because it was not clear which system was better

- Tax authorities needed to check when 7 days expired after cash payments and the payment to the VAT SPLIT account was due.

In fact, the state punishes this system, because companies that have not paid VAT immediately (after 60 days) lose most of their cash holdings, making them even more inclined to not pay taxes.

According to Deloitte's analysis[4], the VAT collection rate will increase by the end of 2018, but it has bureaucratic costs that everyone pays, but primarily micro and small entrepreneurs.

The PNL (National Liberal Party), promised less bureaucracy, and has already submitted a proposal (May 3, 2018) requesting the system to be changed.

Quoted[5] in May 2018, 18,000 companies use the SPLIT VAT system, of which 12,000 are under bankruptcy. The SPLIT VAT system is used by 12 companies in Harghita County, out of which 8 are under bankruptcy and 4 have been "punished".

All in all the system is mainly used as a punishment, because the government hoped for a 27% surplus VAT from the system, but until May 2018 only 7% of the surplus was collected, probably due to higher prices (estimated inflation 7%).

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COMPARISON OF HUNGARY AND THE EU-28 COUNTRIES IN TERMS OF HEALTH SITUATION, WITH SPECIAL REGARD TO CHRONIC MORBIDITY AND MORTALITY

Bálint, Csaba – Tóth, Tamás

Abstract

Health is our most important resource: the most significant factor in our quality of life, our work, productivity and creativity, and the primary condition for maximum utilization of our abilities. Its protection and maintenance must be a priority for our everyday lives. Along with the economic and social environment and the availability and quality of the care systems, our lifestyle, nutritional habits, physical activity and harmful vices all affect our health and thereby our quality of life. Due to the unfavourable development of these factors, chronic illness and mortality occurs in the developed world, including the European Union and Hungary in particular, the differences and trends of which we examined together with the general indicators of basic demographic trends, life expectancy, health status and mortality.

Today's health challenges

The slowly evolving, long-term, global and inescapable social, economic, political and technological changes are called megatrends. Today, one of the megatrends is health, which also influences consumer behaviour and changes health-related attitudes (Jakopánecz-Törőcsik, 2015). According to the 1946 definition of the World Health Organization (WHO), "Health is the state of complete physical, mental and social well-being, and not just a lack of disease or disability." As defined by Mihályi (2003), "health is the correspondence between the biological function, and the age and gender of the individual, and / or the biological function expected by the society." For individuals and communities, health in itself is a value, a major component of prosperity that is influenced by political-economic and social processes. Furthermore, health is a fundamental human right and a major dimension of democratic norms (Orosz-Kollányi, 2016).

According to the WHO Health Impact Assessment (HIA), the factors which influence health are the socio-economic environment, the physical environment and the individual characteristics and behaviours. The former can cause significant differences and inequalities between the regions of the world. According to the prognosis of the European Environment Agency, the persistence and growth of the health inequalities will continue to be expected between the countries and their groups, the different regions, possibly between the urban and rural areas, and social strata differentiated by education and income in the upcoming decades (EEA, 2014).

Table 1. Global health challenges

Developing countries	Developed Countries
Communicable diseases, pandemics	Non-communicable (chronic) diseases
Main reasons: low income levels, lack of proper education, insufficient healthcare	Main reasons: smoking, lack of physical activities, unhealthy diets, alcohol
HIV/AIDS, vector-borne diseases (malaria, dengue fever), bacterial diseases (i. e. tuberculosis, leprosy)	Cardiovascular diseases (stroke, heart attacks); cancer; chronic respiratory diseases (asthma, COPD); diabetes
Undernourishment in quantitative terms	'Qualitative' starvation, obesity, cardiovascular problems
Stagnating or decreasing life expectancy	Increasing life expectancy, higher risk of aging associated diseases (i.e. Alzheimer's, dementia)
Emigration to developed countries 'export' of infectious diseases, epidemics	Immigration from developing countries 'import' of infectious diseases, epidemics
Migration from urban to rural areas	Migration from urban to rural areas
Unsafe drinking water, limited access to sanitation	Air pollution, enhanced agricultural and industrial chemical use
Spreading alcohol and tobacco consumption	Depression, drug addiction
Innovation: medicines for 'neglected' tropical diseases	Innovation: medicines for non-communicable diseases, nanotechnology, stem cell research, medical application of artificial intelligence

Source: own editing based on EEA, 2014

Roots of regional health inequalities in Europe

Due to the different endowments, geopolitical situation and historical developmental features, significant social and economic inequalities have emerged in the spatial structure of Europe over the last decades. The dividing line between the former socialist countries (including Hungary) and the EU-15 states is very sharp. Of the economic factors, the following contributed to spatial differentiation the most: the collapse of the eastern markets; the dissolution of federal states; autonomy and market position of individual plants; reduction of subsidies; the position of military industry after the political change; foreign direct investment and trade; dynamic expansion of financial and business services (Illés, 2002).

Inequalities also leave traces on the European spatial structure through differences in health status. Zoltán Egri (2011) draws attention to a peculiar phenomenon, the so-called Central-Eastern European health paradox, which means, that, in the post-socialist European states the life expectancy and the premature deaths – especially in case of economically active people, in particular for males – produce much less favourable indicators than the economic and social development of these countries would justify. The psycho-social stress caused by changing circumstances along with political regime change, the economic transition, the everywhere emerging competition and the growing inequalities led to a major epidemiological crisis and surging mortality mainly among men. Especially the higher occurrence of chronic cardiovascular diseases and the civilization diseases (e.g. accidents, suicide) is conspicuous in Central-Eastern Europe.

Materials and methods

The fundamental demographic trends, births and deaths, age composition, longevity and quality of life expectancy, health status, morbidity and mortality, and the consequences of chronic health problems were the subject of our research based on the databases of Eurostat and Hungarian Central Statistical Office. Primarily we compared the Hungarian indicators with the EU-28 average, with the use of the most recent data or time series averages, mapping changes in time, especially – where available data allowed – considering the trends and fluctuations of the period since the 2004 accession.

Demographic processes

Since the accession period, the natural reproduction, i.e. the difference of live births and deaths per 1000 inhabitants, is much less favourable in Hungary than the EU average. Although the trend is deteriorating at community level (between 2008 and 2015 the value of the indicator fell from 1.15 to -0.23), in Hungary

it moved in the negative range (so the number of deaths exceeded the number of births) and fluctuated: from 2004 to 2008 it increased from -3.69 to -3.07, followed by falling to -4.08 at the same time with the years of the crisis, and then grew to -3.22 in until 2016 (right after the 2015 downhill outlying when the indicator had a value of -4.00).

The fertility rate, i.e. the number of live births per female population, was 1.57 in the EU average of 2004-2016 and 1.35 in Hungary. It is supposed to be the appearance of the years of the crisis in Hungary for the above-mentioned indicator, as the value of it decreased to the 1.23 value of 2011, after the increase from 1.28 to 1.35 between 2004-2008. As a result of the positive process of recovery from the crisis, Hungary's fertility rate was 1.53 in 2016; however, it was still below the EU's 1.60 average.

Comparing the age pyramids (Figure 1), it can be stated that both the EU-28 and the Hungarian population are aging, especially females, which we intend to specify later by the life expectancy indicators. According to 2016 data, the aging index (rate of the population 60 years of age or older to the population 0 14 years of age) is 1.86 for the EU's female population while it is 1.39 for men. The Hungarian women have an older age structure than the community, since the value of the index is 2.19, that is, twice more elderly women than minors. The age composition of Hungarian men is somewhat younger; the age index of 1.37 is below the 1.4 value of the EU. Women in Hungary belong to the 35-39, 40-44 and 60-64 age groups to the highest proportion, and, besides these, they are present with a higher percentage in the 20-24 and 55-79 years of age groups than the EU-28 female population. Until the 50-54 years of age, the number of Hungarian men exceeds, but after this age group it falls short of female population, and, going upwards in age groups, the decrease is more and more drastic.

Figure 1. Age pyramid of the EU-28 and Hungary, 2016
Source: own editing based on Eurostat, 2018

Life expectancy, healthy life years

The under-representation of Hungarian males in the elderly age group is due to their early mortality and lower life expectancy of birth. In 2015, the male population of the EU-28 had a life expectancy of 77.9 years, 2.7 years higher than in 2004. The indicator of the Hungarian male population for 2015 was 72.3 years, 3.6 years higher than in the year of accession, but 5.6 years less than the EU average, and 6.7 years lower than the 79.0 years value of the Hungarian female population. The latter has been a 1.8-year increase since 2004 and 4.3 years shorter than the EU-28 average of women (83.3 years in 2015 and which increased by 1.8 years in the examined time period). Among the EU-28 countries, Hungary is the 24th in case of men and 26th in case of women, considering life expectancy at birth.

A very important indicator of the overall health status is the expected healthy life years by gender. In case of the Hungarian female population its value is 60.1 years in 2015, which is 3.2 years less than the EU-28 average in 2015, by which Hungary is ranked 16th. With 58.2 years, the number of Hungarian men's healthy life years remained 4.4 years below the EU average in 2015 (and 1.9 years under the indicator of domestic women) which was enough for the 21st place in the ranking. The catching trend is noticeable, taking into account that the number of healthy years increased on average only by 0.8 years for men and 1.8 for women, between 2005 and 2015, while in Hungary, the increase was 6.0 years for men and 5.8 years for women in the same period.

Healthy life years as a percentage of life expectancy at birth (Figure 2) indicates how much of their lives the citizens live healthy: in Hungary, in case of men the value of the indicator increased from 76% to 80.6% between 2005 and 2015 (it was the highest in 2012 with a value of 82.6%), which is higher than the 80.3% value of the EU-28. In case of women, who have a longer life expectancy and higher average age, the indicator has a lower 76.0% value in 2015 (in line with the EU average), which is, however, 5.7 percentage points higher than in 2005 (and was also at the top in 2012 with 76.9%). At EU level, the value

of the indicator for both men and women has somewhat declined in the analysed decade, as the increased life expectancy means proportionally longer life period spent in illness or age-related health problems. In Hungary, the increased life expectancy may have been followed by the prolongation of age-related health problems, which is due to the slow but noticeable development of health awareness and healthcare.

Figure 2. Healthy life years as a percentage of life expectancy, 2016
Source: own editing based on Eurostat, 2018

Morbidity, chronic health problems

The proportion of people facing long-standing illness or health problems was 32.3% on average of the 2010-2016 period in the European Union, while 36.9% in Hungary, and the trend in both cases is increasing: the value of the indicator grew at community level by 2.8 and in Hungary by 3.4 percentage points between 2010 and 2016. The above described indicator was also analysed by gender and age group: in general, in the EU and in Hungary, taking into account the averages of the 2010-2016 time series, the share of permanently ill women in all age groups is higher than in case of men. It is definitely worth mentioning that the Hungarian indicators are more favourable than the EU average for both sexes in the 16-44 age group. However, in the age groups 45-64 and 65+, the presence of long-term health deficit is much higher among Hungarians: over the age of 65, males' indicator is 14.87, females' is 17.4 percentage points higher than the EU-28. (Figure 3)

Figure 3. Long standing illness or health problem by gender and age (%), average of 2010-2016 time series
Source: own editing based on Eurostat, 2018

In the developed world, the main limit of healthy years and the cause of death are most likely to be chronic illnesses. According to data from the compulsory national survey of 2014, the most common chronic health problem in the European Union and Hungary is high blood pressure, neck disorder and other chronic neck defect, low back disorder and other chronic back defect, and arthrosis (Figure 4). The risk of these is upwards in the age groups, and in all age groups – except neck problems – is higher in Hungary than at community level, and women are more affected than men. With age and sex disparities, the population is concerned to varying degrees by allergy, diabetes, chronic depression, asthma, urinary incontinence and bladder problems, lower respiratory diseases, coronary heart disease or angina pectoris, heart attack and chronic consequences, kidney and liver problems. The only chronic disease that does not predominantly affect the age group 65 or older is allergy which complicates the everyday life of age groups 15-44 and 45-64 in the EU more than in Hungary, and the latter (i.e. the higher prevalence in the EU) is characteristic of asthma, as well as lower respiratory diseases and chronic depression.

Figure 4. Prevalence of the most common chronic diseases by age groups
Source: own editing based on Eurostat, 2018

It may also be useful to examine the occurrence of chronic illnesses by residence, according to whether it is a Hungarian or an 'average' EU city, small town or rural settlement (as categorized by Eurostat). Although rurality cannot be regarded as synonymous with underdevelopment, rural areas are typically characterized by significant socio-economic lag behind urban areas both in the EU and in Hungary (Ritter, 2018). Outstanding chronic illnesses like low back disorder and chronic back defect, high blood pressure and arthrosis in all three settlement categories in Hungary have a higher incidence rate than in the EU as a whole, and for both 'subjects' of the comparison, the rate of incidence decreases gradually from the rural areas to the cities. The appearance of allergies is more pronounced in the cities and – in the EU – usually in small towns, while in rural areas and in Hungarian small towns it is less prevalent. Neck disorder and

chronic neck problems are more frequent at EU level than in Hungary, and it is the least common in large cities.

The trends of mortality

Based on the 2011-2014 average of the standard mortality rate indicators, the most common death causes in Hungary are higher in the proportion of malignant tumours, circulatory, digestive, endocrine, nutrition, metabolism, and mental illnesses than in the European Union, while diseases related to the respiratory, and to the nervous and sensory system have caused a higher rate of mortality on EU level. The chronic mortality rate, i.e. the death rate for 100 000 inhabitants under 65 years of age due to chronic illness or health problems is the highest in Hungary for men and for women in the whole European Union, calculating with the average of 2010-2014 period. The Hungarian female chronic mortality rate is 1.88 times, the male rate is 2.3 times the EU level, and the sex-based inequalities are wider in Hungary than at community level: while the EU-28 male ratio is 1.78 times the female indicator, in Hungary this multiplier is 2.19. (Figure 5)

Figure 5. Chronic mortality rate by gender (average of the 2010-2014 time series)
Source: own editing based on Eurostat, 2018

The indicator of early death is the so-called number of 'number of years of life lost' which shows the number of deaths occurred before the age of 70 years per 100 000 inhabitants. In Hungary, based on the available data, the value of the indicator changed from 6664 in 2011 to 5957 in 2014, which means a decrease of 10.61%. Compared to the EU-28, the rate of early mortality in Hungary is high, but the tendency to decline is stronger: at community level only 7.86% was the rate of decrease between 2011 and 2014. The gender gap is remarkable: the average of the 2011-2014 time series was more than double for Hungarian men (8699) than for women (4069), but almost twice as much in the EU as well. The value of the indicator is in case of males 1.7 times, in terms of females 1.56 times the EU average.

In relation with life expectancy, despite the provision of adequate quality and prevention, indicators of mortality from a preventable or curable disease occurring before a given age further tame the analysis of life chances and the functioning of care systems. Examining the average of the 2011-2014 time series, the amenable death rate of Hungarian men was 2.27 times the EU-28 average, and 1.9 times the Hungarian female rate. In terms of preventable mortality, the Hungarian males' rate is 2.06 times higher than the EU and 2.34 times the Hungarian women's rate. So, it can be concluded that many Hungarian men are dying of meaningless death, which, in our opinion, results from a lower level of health consciousness and 'inattention' of their own health status. In case of women the Hungarian situation is also worse than the EU average: the amenable death rate is 1.95 times, the preventable mortality is 1.88 times the EU-28 female value in the 2011-2014 period. We are delighted that the tendency of both sexes at both community and national level is decreasing: in Hungary, in the 4 years covered by available data, the rate of amenable and preventable deaths decreased by 9.51 and 8.93 per cent in case of men, and by 6.15 and 5.47 per cent in case of women.

We assume that the life chances of people who have not yet come to life or just have come to life are critically important for the future. The death rate of new-borns (i.e. the number of 1000 live births who did not reach the age of four weeks) was 3.1 in the average for 2011-2014 in Hungary, while the EU average was around 2.6. With this value, Hungary is ranked 8th in the ranking of the 28 member states. The rate of one-week old non-survivors was lower in the examined period in Hungary (1.6) than in the EU (1.9) and we are in the 10th place. However, the rate of late fetal mortality is higher in Hungary (7.3) than the 4.0 rate of the EU-28 in the average of the 2011-2014 time series, and this is the fourth highest in the EU. The number of dead births or deaths directly after birth per 1000 live births was 3.5 cases more in the above mentioned period in Hungary (9.3) than the European Union average (5.8), representing the 7th highest mortality rate in this comparison.

Conclusions

Nowadays, health is a megatrend which orientates consumer behaviour on a long-term. The main health challenges of the developed world – including Europe – are the control of chronic diseases and mortality, as well as the social, economic, environmental and lifestyle factors by appropriate policy instruments at the level of society and the individuals. The socio-economic and health inequalities between the EU-15 and the post-socialist countries are both causes and consequences of one another.

In general, Hungary is below the EU average for most of the demographic, morbidity and mortality indicators analysed, but there can be generally seen a significant improvement over the community average since starting from a low base. In the European Union and In Hungary it can be stated that females' life expectancy and number of healthy life years is higher in absolute value, but due to the fact that their premature deaths are less typical than males, they spend a larger proportion of their lives in protracted chronic illness, since the incidence frequency of all chronic diseases increases significantly. The latter, in view of the Hungarian society aging faster than the EU, is particularly worrisome for the future. The rate of chronic mortality is the highest in the European Union and affects men in much greater proportions, just as early deaths before the age of 70, and the amenable and preventable deaths.

Further research on this topic is planned in any case with more sophisticated methodology in the analysis of disparities between countries and regions, and to explore the interrelations between the used indicators and other factors (e.g. lifestyle, nutrition, healthcare system etc.) affecting the health status.

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THE SWISS FRANC-BASED LOANS BETWEEN 2015 AND 2018 IN ROMANIA

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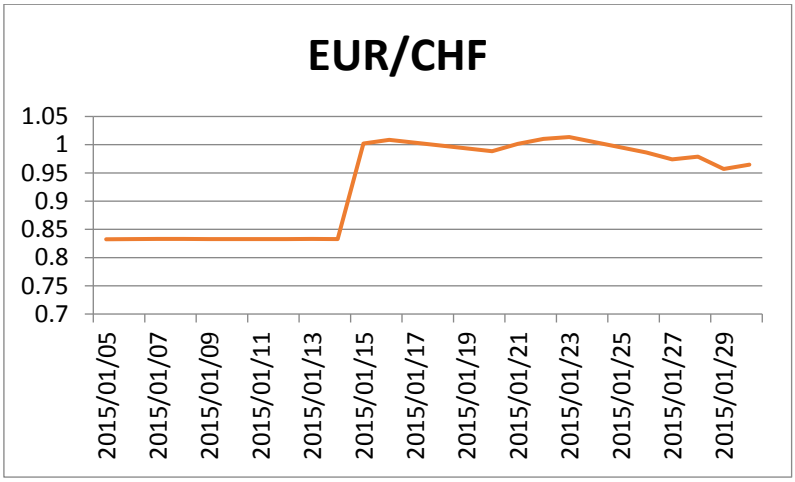
1. ABSTRACT

The decision of the Swiss National Bank in January 2015 abolished the fixed exchange rate target against the euro. Our study, in connection with the three-year anniversary, examines the impact of the CHF / RON exchange rate fluctuations of the Swiss franc-denominated loans in Romania, between January 2015 and January 2018. During the studied period, according to the data of the National Bank of Romania, the proportion of loans claimed in foreign currency as well as their structure has changed significantly. In our study, we give a brief overview of these changes. Borrowers, as consumers, have in many cases used their rights assured by legislation in order to enforce by lawsuits their requests againts the banks regarding the adjustment of the interest rates. With the help of a few representative cases we present the situation and the results of the lawsuits submitted by Romanian borrowers to the Court of Justice of the European Union, actions that are obviously related to loans claimed prior to the examined period, but certainly reflect the current European point of view of the issue.

2. INTRODUCTION

The CHF is considered one of the safest currencies in the world. The decision of the Swiss National Bank (SNB) in January 15, 2015, to unexpectedly abandon its EUR/CHF floor at €1.20, lead to an increasing volatility in all exchange rates, among them the CHF/RON exchange rate, as we see in Figure 1.



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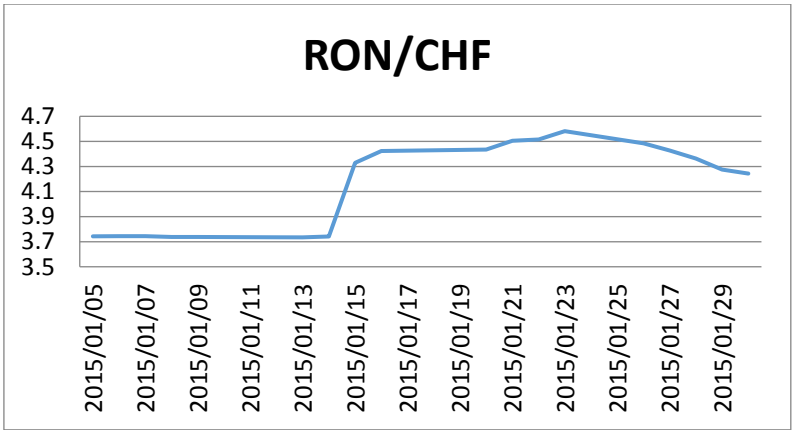

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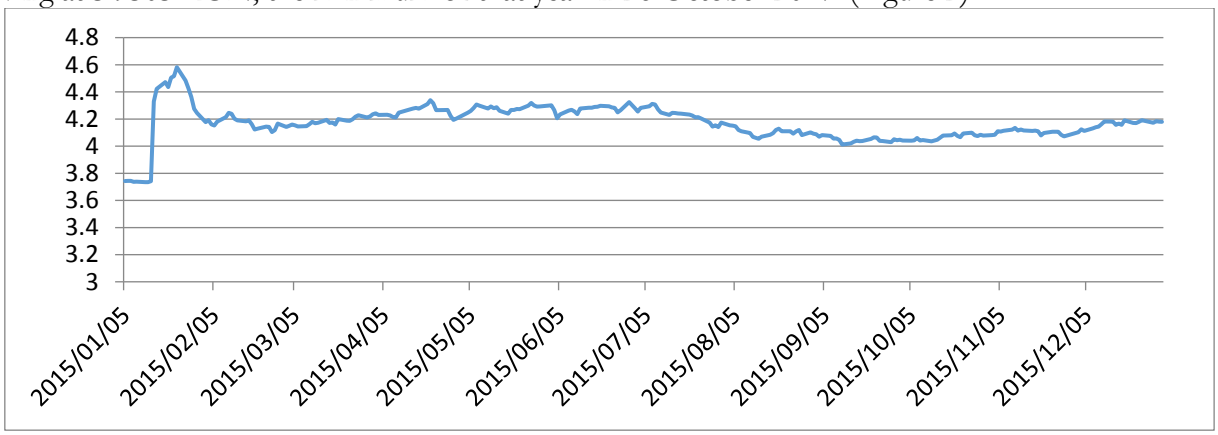
Figure 1. The EUR/CHF (a) and the CHF/RON (b) exchange rates in January 2015
Source: www.ecb.europa.eu, www.bnr.ro

3. THE EVOLUTION OF THE CHF/RON EXCHANGE RATE BETWEEN JANUARY 2015– JANUARY 2018

In the following we discuss the most important phases of the CHF/RON exchange rate evolution, for the January 2015 – January 2018 period. The maximum value of the CHF/RON exchange rate, (1 CHF = 4.5817 RON) was registered in 23 January 2015. The maximum of the period February – December 2015 was 4.3384 RON achieved in 2015.04.21. In 2016 the CHF/RON exchange rate was similarly high, with 4.0279 RON minimum, while starting from the second half of 2017, a declining tendecy could be observed, arriving at 3.9303 RON, the minimum of that year in 26 October 2017. (Figure 2)



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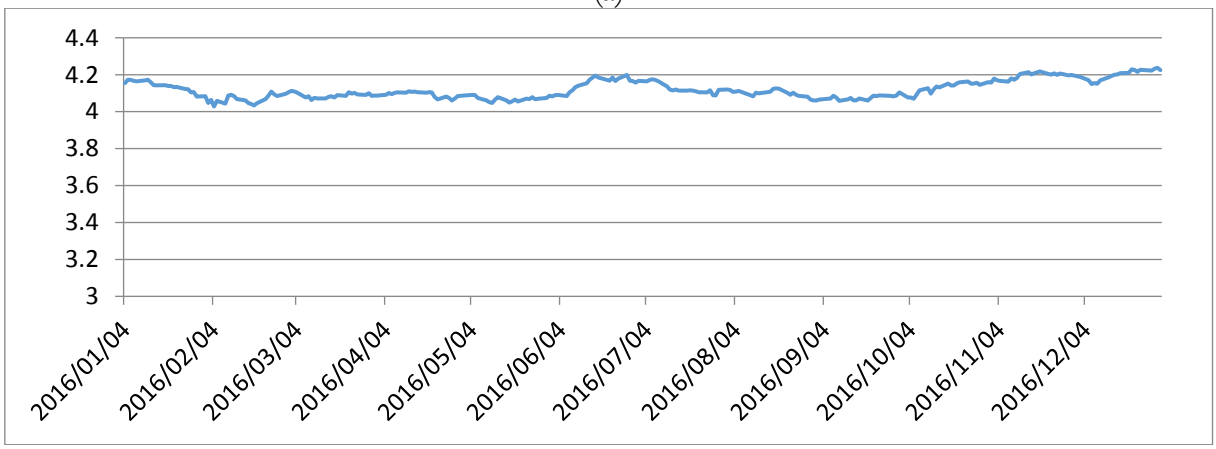

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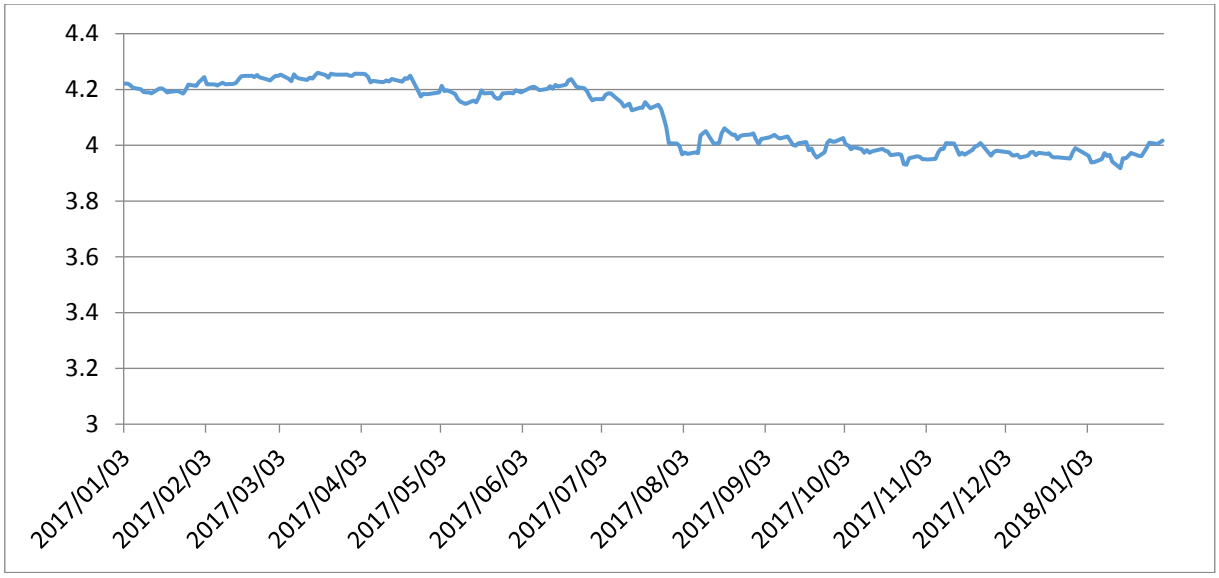

(c)

Figure 2. The CHF/RON exchange rate in 2015 (a) 2016 (b) and January 2017 – January 2018 (c)
Source: www.bnr.ro

4. THE SITUATION OF THE FOREIGN CURRENCY LOANS IN ROMANIA BETWEEN 2015-2018

In 2015 the CHF-denominated loans in Romania represented 1.4% of national GDP, 4.7% of the loans granted to the private sector and there were 75412 persons (2.1% of total borrowers) with these types of loans (Isărescu 2015). These dates above come from the comprehensive summary document, presented by Mugur Isărescu, the President of the National Bank of Romania, in a press conference on 30 January 2015, focusing on the CHF-based loans problem. Below we outline from this study the structural analysis of the 75412 persons with a Swiss franc-based private loan, which was divided into four equal groups:

• the first quarter included persons with a credit less than 4000 CHF, representing 1% of the total loan portfolio,

• the second quarter was formed by the borrowers, with loans between 4001 and 18 000 CHF, representing 7.1% from the total loan portfolio,

• the third quarter contained the borrowers, with loans between 18001 and 47000 CHF, representing 24.5% from the total loan portfolio, and

• the fourth quarter was formed by the borrowers, with loans above 47001 CHF, representing 67.5% of the total loan portfolio (Isărescu 2015).

In addition, the income distribution of borrowers showed that half of them had less than 1500 lei and 75% had less than 2500 lei net monthly income (Isărescu 2015). In this context, it should be noted that the gross minimum wage was 975 lei in Romania, in January 1 2015.

In January 2015 in Romania, the Swiss franc-based loans represented 7.7% of the Romanian mortgage loans, 35% of the total mortagage loans, while 58% of them were mortgage-backed consumer loans and 7% other consumer loans. The Swiss franc-based loans' maturities (maturity terms) were also extremely variable: 40% less than 5 years and 40% more than 15 years, while the average was 13.2 year (Isărescu 2015).

Date	(mil. RON)	RON	EUR	USD	Other	< 12 months	1-5 years	More than 5 years
Jan. 2018	368 844	57.40	39.01	1.95	1.64	12.35	32.37	55.29
Dec. 2017	368 682	57.26	39.13	1.96	1.65	12.46	32.33	55.21

Dec. 2016	346 012	52.11	43.44	2.27	2.18	11.23	31.80	56.97
Dec. 2015	330 813	46.95	47.68	2.24	3.13	11.88	31.22	56.91

Table 1. Loans granted and commitments assumed by credit institution between December 2015 and January 2018

Source: Own calculations, www.bnr.ro

During the period December 2015 – January 2018, the proportion of loans taken up in RON increased, so in January 2018 it represented 57.40 of total loans, while the share of loans in EUR, USD and other currencies, including CHF, fell to 1.64% at the end of period.

Date	Total debt	Private	No. of debtors *	No. of debtors with backlog*
	(mil. RON)	(%)	(Pers.)	(%)
2018 jan.	368 844	37.44	1 260 109	14.84
2017 dec.	368 682	37.26	1 254 662	14.72
2016 dec.	346 012	36.43	1 136 804	16.12
2015 dec.	330 813	35.41	1 044 451	19.02
2014 dec.	314 131	33.13	973 182	21.91

* individuals and businesses.

Table 2. Total debt, the proportion of the private debt, the total debt by currency and the number of debtors in Romania between December 2014 and January 2018

Source: Own calculations, www.bnr.ro

According to the National Bank of Romania's data from 2018, between December 2014 and January 2018, the total value of the debt had increased, including the share of private debts, which at the end of the period was 37.44% of the total. During the studied period, the total number of debtors (individuals and businesses) increased by 29.48%, compared to the situation in December 2014, while the ratio of backward debtors decreased by 7.07% at the end of the period.

5. LEGAL CASES

There are some representative legal cases referring to the borrowers' requests against the banks regarding the adjustment of the interest rates. These lawsuits were launched in front of the different levels of the Romanian national courts, institutions that turned to the Court of Justice of the European Union through preliminary ruling proceedings. This procedure is used in cases where the interpretation or validity of a EU law is in question.
(http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:l14552&from=HU downloaded: 09.04.2018)
As follows, we present two important cases regarding the topic that reflect the point of view of the European Union in connection with the situation and interpretation of the Swiss franc-based loans in Romania.

5.1. Case no. C-186/16 Ruxandra Paula Andriciuc and others against Banca Romaneasca SA

The judgment of the Court as Second Chamber in this case was issued on September 20, 2017. The request for a preliminary ruling under article 267 of the Treaty on the Functioning of the European Union was launched by Court of Appeal, Oradea, Romania on April 1, 2016. The aforementioned request for preliminary ruling concerns the interpretation of some important articles of the Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts, namely: Article 3(1) and Article 4(2). Regarding these two articles three questions are raised in the procedure.
(http://curia.europa.eu/juris/document/document.jsf?text=&docid=194645&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=300 downloaded: 09.04.2018)
The first question refers to the interpretation of Article 3(1) of the Directive, which says: *"contractual term which has not been individually negotiated shall be regarded as unfair if, contrary to the requirement of good faith, it causes a significant imbalance in the parties' rights and obligations arising under the contract, to the detriment of the consumer"*
(http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31993L0013&rid=1
downloaded: 09.04.2018)
The regulation therefore states that a contract term is considered to be unfair if there is a significant imbalance in the rights and obligations incurred by the parties and/or debts arising therefrom. The question that has been raised concerns the date of inequality in rights and obligations. Is it worth noting that, at the time the contract is concluded, there can be no significant inequality or implementation at any time when we are talking about a continuous contract (the loan contract is typically one of them).
The second and third questions require the interpretation of Article 4 (2) of the directive from two different perspectives. According to the article: *"Assessment of the unfair nature of the terms shall relate neither to the definition of the main subject matter of the contract nor to the adequacy of the price and remuneration, on the one hand, as against the services or goods supplies in exchange, on the other, in so far as these terms are in plain intelligible language."*
(http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31993L0013&rid=1
downloaded: 09.04.2018)
By the second question, the referring court asks whether Article 4(2) of Directive 93/13 must be interpreted as meaning that the requirement that a contractual term must be drafted in plain intelligible language means that the terms of a loan agreement, under which that loan must be repaid in the same foreign currency as that in which it was contracted, must only set out the reasons for its incorporation in the contract and the way in which it is implemented, or whether it must also specify all the consequences it may have for the price paid by the consumer, such as the exchange risk, and whether, in the light of that directive, the Bank's obligation to inform the borrower at the time the loan is issued is limited to the conditions of the loan, namely the interest rate, commission and the securities lodged by the borrower, without there being any obligation to mention the possibility of a rise or fall in the exchange rate of the foreign currency.
(http://curia.europa.eu/juris/document/document.jsf?text=&docid=194645&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=300downloaded: 09.04.2018)
By the third question the referring court asks essentially whether Article 4(2) of Directive 93/13 must be interpreted as meaning that the expressions 'main subject matter of the contract' and 'the adequacy of the price and remuneration on the one hand, as against the services or goods supplied in exchange, on the other', within the meaning of that provision, cover a term, incorporated into a loan agreement denominated in a foreign currency which is concluded between a seller or supplier and a consumer and not individually negotiated, such as that at issue in the main proceedings, pursuant to which the loan must be repaid in the same currency.
(http://curia.europa.eu/juris/document/document.jsf?text=&docid=194645&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=300downloaded: 09.04.2018)

5.2. Answers to the questions raised above

According to the judgment of the Court: "Article 4(2) of Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts must interpreted as meaning that the concept of 'main subject

matter of the contract' within the meaning of that provision, covers a contractual term, such as that at issue in the main proceedings, incorporated into a loan agreement denominated in a foreign currency which was not individually negotiated and according to which the loan must be repaid in the same foreign currency as that in which it was contracted, as that terms lays down an essential obligation characterizing that contract." (http://curia.europa.eu/juris/celex.jsf?celex=62016CJ0186&lang1=en&type=TXT&ancre= downloaded: 22.04.2017)This means, that the clause cannot be regarded as being unfair, provided that it is drafted in easily understandable language.

Article 4(2) of Directive 93/13 has to be interpreted as meaning that the requirement that a contractual term must be drafted in easily understandable language requires that, in the case of loan agreements, financial institutions have to provide borrowers with sufficient information to enable them to take prudent and well-informed decisions. This means that a term under which the loan must be repaid in the same foreign currency as that in which it was contracted has to be understood by the consumer both at the formal and grammatical level, and also in terms of its actual effects, so that the average consumer, who is reasonably well informed and reasonably observant and circumspect, would be aware both of the possibility of a rise or fall in the value of the foreign currency in which the loan was taken. What is more, the consumer has to be also able to assess the potentially significant economic consequences of such a term with regard to his financial obligations. The aforementioned ruling also says that it is for the national court to carry out the necessary checks related to the issue. So, here we see a situation where the whole responsibility is returned to the national court.

"Article 3(1) of Directive 93/13 must be interpreted as meaning that the assessment of the unfairness of a contractual term must be made by reference to the time of conclusion of the contract at issue, taking account all of the circumstances which could have been known to the seller or supplier at that time, and which were such as to affect the future performance of that contract." (http://curia.europa.eu/juris/celex.jsf?celex=62016CJ0186&lang1=en&type=TXT&ancre= downloaded: 22.04.2017)

Here we also see a return towards the national court as the ruling says that it is for the referring court to assess the existence of a possible imbalance within the meaning of the provision regarding the possible variations in the exchange rate and the risks inherent in taking out a loan in a foreign currency with regard to all the circumstances and taking into account the expertise of the supplier, in present case the bank.

5.3. Case No. C-119/17 Liviu Petru Lupean and Oana Andreea Lupean against SC OTP BANK Nyrt.

The order of the Court (Seventh Chamber) in this case was issued on 22 February 2018. The request for preliminary ruling was formulated by the Tribunal of Sibiu in December 2016. The request for preliminary ruling concerns also the interpretation of some articles of the Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts, namely: Article 4(1) and Article 5. (http://curia.europa.eu/juris/celex.jsf?celex=62017CO0119&lang1=en&lang2=RO&type=TXT&ancre = downloaded: 12.04.2018)

The Tribunal of Sibiu asks whether Article 4 (1) of the directive provides that the *in-dubio pro consumer* principle laid down in Article 5 (1) of the same directive may, in accordance with the case law of the European Union, be regarded as unfair by certain aspects of a credit agreement in a foreign currency. Exactly four of these conditions are asked as follows:

1. Does the condition that the amount lent to the borrower in the credit agreement expressed in foreign currency mean an unfair condition and obliges the borrower to repay in the same currency, but the circumstances of the performance of the contract reveal that the loan is made available in other currency and that the basic currency was used only as a reference, virtually and for computation?
2. Is it an unfair condition that the risk arising from the appreciation of the reference currency should be fully burden the consumer, even though it has been executed in a different currency?

3. Is it an unfair condition that the contract does not clearly indicate the effective functioning of the currency conversion mechanism in a way that the consumer can assess the economic consequences and burden of the contract on the basis of clear and comprehensible considerations?
4. Is it an unfair condition that the consumer is subject to the obligation to pay the difference between the repayments calculated in the virtually used currency and the repayments in the currency of payment actually used?

The four questions are supplemented with two further questions: in the case of affirmative answer to the first question what are the criteria to be used by the national court when examining any unfair character of the conditions, and whether the conditions referred to in the first question can be considered outside the main subject of the loan agreement?
(http://curia.europa.eu/juris/document/document.jsf?text=&docid=191270&pageIndex=0&doclang=hu&mode=req&dir=&occ=first&part=1&cid=461920 downloaded: 17.04.2018)
Although in the present case the Tribunal of Sibiu does not claim to interpret precisely those legal provisions discussed in the case of Andriciuc and Others v. Banca Romaneasca SA, there are a number of common points between the two cases. For example the ruling that answers the above-mentioned questions states that in order to be able to answer them it is important to make reference to the Article 4 (2) of the same directive.

5.4. Answers to the raised questions

The judgment of the analysed case states that Article 4 (2) of Council Directive 93/13 / EEC of 5 April 1993 on unfair terms in consumer contracts must be interpreted as falling within the scope of the concept of 'main subject of the contract' within the meaning of that provision, a clause inserted in a credit agreement given in foreign currency between a professional and a consumer without having been the subject of an individual negotiation, according to which the loan must be repaid in the same currency, the clause establishes an essential benefit that characterizes this contract. (http://curia.europa.eu/juris/celex.jsf?celex=62017CO0119&lang1=en&lang2=RO&type=TXT&ancre=downloaded: 12.04.2018)
Articles 3 to 5 of Directive 93/13 have to be interpreted as meaning that a clause of a credit agreement, under which the entire foreign exchange risk is transferred to the borrower and which is not drafted in a transparent way that the borrower can not assess, on the basis of clear and comprehensible criteria, the economic consequences of the conclusion of that contract, is likely to be regarded as abusive by the national court when examining that clause when it is found that, contrary to the requirement of bona fide, this creates a significant imbalance between the rights and obligations of the parties of the contract, to the detriment of the consumer. In this regard, it is for the referring court to assess, in the light of all the circumstances of the case in the main proceedings and having regard, in particular, to the expertise and knowledge of the professional in relation to the possible fluctuations in exchange rates and the risks inherent in the contracting of a loan in the currency first, the possible non-compliance with the requirement of good faith and, second, the existence of any significant imbalance within the meaning of Article 3 (1) of Directive 93/13. (http://curia.europa.eu/juris/celex.jsf?celex=62017CO0119&lang1=en&lang2=RO&type=TXT&ancre=downloaded: 12.04.2018)

6. CONCLUSIONS

In January 2015 the decision of the Swiss National Bank (SNB) was made to abandon its EUR/CHF floor at €1.20 due to the increasing volatility of CHF/RON exchange rate.
The CHF/RON exchange rate evolution, for the January 2015 – January 2018 period was analysed, as a daily time series. The maximum value, namely 1 CHF = 4.3384 RON was registered in 21 April 2015, followed by a long period of relatively high value of the CHF/RON exchange rate. Starting from the

second half of 2017, a declining tendecy could be observed, reaching 1 CHF = 3.9303 RON, (the minimum of the 2017) in 26 October 2017.
We presented the main characteristics of the CHF-denominated loan borrowers, based on the document, presented by Mugur Isărescu the President of the National Bank of Romania in a press conference on 30 January 2015, focusing on the CHF-based loan problem. According to this, in January 2015, 75412 persons from Romania had this type of loans, 25% of them had loans above 47001 CHF, representing 67.5% of the total loan portfolio and half of them had less than 1500 lei and 75% had less than 2500 lei net monthly income, when the gross minimum wage was 975 lei in Romania. A significant part of these loans were mortgage loans and mortgage-backed consumer loans (Isărescu 2015).
During the period December 2015 – January 2018, the proportion of loans taken up in RON increased, while the proportion of loans in other currencies, including CHF, decreased.
Despite the negative experiences with the Swiss franc, in the studied period the proportion of the private debt and the number of debtors increased considerably, while the number of backward debtors decreased.
Summarizing the judgments given in the analysed preliminary ruling proceedings presented below, it can be concluded:

- It is for the referring court to assess the nature, general scheme and the clauses of the loan contracts in question, taking into account their legal and factual context, and also to determine whether the obligation to repay the loan in a particular currency relates to the principal object of the contract. Where there is no national provision in this regard, it must be assessed that that condition falls within the concept of the main subject of the contract and cannot therefore be regarded as an examination of its unfair nature. It is quite certain that the mentioned condition is not to be understood in terms of price and remuneration.
- Clear and comprehensible contractual clauses in the case of a foreign currency-fixing loan should be understood not only in terms of formal and grammatical terms, but also in terms of specific economic content. As measured by the standard of a well-informed, attentive and prudent consumer, the consumer should not only realize that during the term of the loan agreement the exchange rate in which the subject of the contract is fixed may increase or decrease in the case of the appreciation or depreciation of the domestic currency, but also the extent to which any unfavorable exchange rate fluctuations affect the financial obligations of the borrower. However, this requirement cannot extend to the obligation of the provider to inform the consumer of an unforeseeable event or to bear the exchange rate risk.
- The existence of significant inequalities between the rights and obligations of the parties arising from the contract must be examined at the time the contract is concluded; it must be assessed in the light of all the circumstances, which the supplier could reasonably foresee at the moment when the contract was signed.

7. REFERENCES

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EMPLOYMENT INCENTIVE PROGRAMS FOR PERSONS WITH CHANGED WORKING ABILITY IN THE EUROPEAN UNION

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ABSTRACT

There are 80 million people (one in six people) in the EU, who are considered to be disabled, and who are unable to participate in social and economic life in different ways and extent.
The European Disability Strategy (2010-2020) and the current government's objectives coincide with the need to increase the participation of people with disabilities in the labour market. The European Union provides support to the member states, to enable them to accomplish those projects which realizes the inclusion of persons with disabilities into the labour market, and also develops active labour market policies and support structures.
In our study, we will first examine the specificities and possible ways of employing changed working ability persons. Through international good practices, we present typical and atypical forms of employing them. We describe the specificities of social enterprises' operation as a possible way of changed ability persons' inclusion into the labour market.
Finally, we map employment incentive policies and programs for changed working ability persons in the EU. We want to find out what programs and activities are supported by the European Union in order to increase the labour force participation of changed working ability persons.

Keywords: changed working ability persons, employment, EU, social enterprises

1. INTRODUCTION

Employment has always been an important question in our World. On the one hand, the widest possible range of employment is a middle and long term objective in many countries. On the other hand, with the oncoming 4th industrial revolution we may have to live together with unemployment (Kornai, 2012).
A special group of persons stand in the focus of our study: people living with disabilities and changed working abilities. The present paper first aims to introduce their internationally recognized rights on the labour market, followed by the presentation of solutions for labour market inclusion because we are convinced that this is one of the most important problems that have to be solved in the next decades. This problem has to be solved, not primarily to achieve the desired employment rate in the EU or in Hungary, but because we believe in the fact that societies have to offer equal opportunities for all citizens. Based on our empirical experiences persons with changed working abilities can be as valuable and effective labour force as anybody else.
A pretty good way to find the best solutions for a social problem is searching for international best practices and other successful methods. That's why we introduce social enterprises as a possible framework for the employment of the examined group of people. After that we found it important to write about the Austrian system because in this country we found two well operating social enterprises or networks. In addition, the Austrian system for the inclusion of people with changed working abilities into the labour market is a complex and well developed system where the different market players, the public and the private sector, cooperate effectively at the different levels of society.
At the end of our study we introduce the current Hungarian situation and formulate some recommendations for the future with special attention on the possible problems of the 4th industrial revolution.

2. INTERNATIONAL OUTLOOK

According to the UN Convention on the Rights of Persons with Disabilities *"[…] persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others."* (UN, 2006) Our study focuses on the question of employment among disabled and changed working ability persons. It's clear that these people may face high difficulties, physical and mental barriers and prejudices on the labour market and the possible unemployment exacerbates their unequal situation. This is expressed by the definition of the ILO as well. Based on this document disabled people are persons whose working and career perspectives has significantly deteriorated due to the officially established change in his or her physical or mental ability (Pécsi Tudományegyetem, 2017). According to the ILO definition social inclusion of disabled persons "*[…] refers to promoting and ensuring the participation of people with disabilities in education, training and employment and all aspects of society and providing the necessary support and reasonable accommodation so that they can fully participate." (*ILO, 2014. p. 1)

In the European Union not only the founding treaties but also the Charter on Fundamental Rights and other secondary legal acts declare the rights of disabled persons. Based on Article 10 of the Treaty on Functioning of the European Union the EU combats against all type of discrimination, including disabilities. There is a framework directive, the famous 78/2000/EC on the equal treatment in employment and occupation. This directive states that all direct or indirect discrimination based on religion, disability, age, sexual orientation are prohibited in the EU. '[…] *employers shall take appropriate measures, where needed in a particular case, to enable a person with a disability to have access to, participate in, or advance in employment, or to undergo training, unless such measures would impose a disproportionate burden on the employer'* (Council, 2000). According to Article 26 of the Charter on Fundamental Rights *"the EU recognises and respects the right of persons with disabilities to benefit from measures designed to ensure their independence, social and occupational integration and participation in the life of the community."*

As in the European Union there is a goal, on the one hand, for broader employment and, on the other hand, every sixth person lives with some kind of disabilities, there was a strict need for a strategy in the given question. That is why the European institutions adopted a communication about the European Disability Strategy 2010-2020 in 2010 (further Strategy). It states that the inclusion of disabled persons into the labour market is a main focus point to reach the goals of the Europe 2020 Strategy about creating smart, sustainable and inclusive growth. The overall aim of the Strategy is to empower the position of people with disabilities. It focuses on eliminating barriers and in order to reach its aim it identifies eight main topics. These are the following:

1. Accessibility
2. Participation
3. Equality
4. Employment
5. Education and training
6. Social protection
7. Health
8. External action (European Commission, 2010)

Employment stands in the main focus of our study. According to the Strategy the employment rate of disabled people is about 50% and this level means an inadequate protection against poverty among the affected people. The EU wants to provide analysis, political guidance, information exchange and other support for the Member States. It will pay particular attention to young people with disabilities in their transition from education to employment. It plans to involve the social partners in order to pay special attention on the question of self-employment and quality jobs. The Commission plans to support voluntary initiatives like the Social Business Initiative. According to the Strategy the EU will support and supplement the Member States activities in the following areas *"analysis of the labour market situation of people with disabilities; fight those disability benefit cultures and traps that discourage them from entering the labour market; help their integration in the labour market making use of the European Social Fund (ESF); develop active labour market policies;*

make workplaces more accessible; develop services for job placement, support structures and on-the-job training;" (European Commission, 2010)

3. OPPORTUNITIES IN THE EUROPEAN UNION'S SUPPORTING SYSTEM

As the social policy of the European Union belongs to the shared competences of the inclusion, the European Union defines the mid- and long term targets and principles of the given policy area, provides financial tools to help the countries to reach the objectives of the whole inclusion but the implementation of the social policy is mainly the task of the Member States. But it is very important that the EU support its members.

When we talk about EU supports and subsidies first and foremost we think about the economic, social and territorial cohesion of the EU and about the structural and regional policy of the integration. In the regional policy there are so called programming periods in line with the existing multiannual financial frameworks of the EU budgets. Nowadays the current MFF lasts from 2014 until 2020. It means the regional policy of the EU is adjusted to this period. This phase's regional policy has 11 thematic objectives which supports growth until 2020. For the purpose of the present study objectives 8 and 9 are interesting: on the one hand, promoting sustainable and quality employment and supporting labour mobility (8) and on the other hand, promoting social inclusion, combating poverty and any discrimination (9). (Council, 2013) Both of them are supported mainly by the European Social Fund and on the other hand by the European Regional Development Fund (ERDF).

The actual implementation happens according to the Member States' different operational programs. It's not easy to compare the 28 different solutions for one common problem because the structure of the OPs is completely different in the Member States. Based on the fast search of the European Commission there are three countries, Finland, Latvia and Slovakia which have OP focusing on the topic disabilities in the 8th and 9th thematic objective but we can state that almost all of the countries have priorities for disabled persons indirectly in one or more of their OPs. In the 2014-2020 programming period in Hungary the topic can be supported in the framework of the GINOP (Operational Program for Economic Development and Innovation).

4. SOCIAL ENTERPRISES AS POSSIBLE SOLUTION

Social enterprises have the characteristics of both extremely different business models, namely the profit-oriented companies and the non-profit organizations. Although they are identified as a player of the non-profit sector they stand closer to profit-oriented enterprises. There is no uniform definition in the international literature regarding social enterprises. The international organization NESsT, which has dealt with the development of social enterprises since 1997, uses the following definition: "social enterprise is an enterprise which was established to solve social problems in a financially sustainable way" (Varga, 2014, 9. p.). Tóth et al. (2011) present social enterprises as an intersection of the business sector and the non-profit sector. While the primary purpose of the non-profit sector is to achieve certain social goals while profit is just a secondary goal; contrary, the main objective of the business sector is creating profit and corporate social responsibility is only a secondary objective. Social enterprises as an intersection of the two sectors seek the fulfilment of both social and financial objectives and the balance of the two goals at the same time. Yunus et al. (2010) also place social enterprises between the two extremely different business models, namely the profit-oriented companies and the non-profit organisations. As the first was established to create shareholder value, the second was established to satisfy the needs of the society. Social enterprises differ from both, because as a result of their operation they are able to cover total operating costs, thus they are able to recover the invested capital to the owners. However, they are motivated much more by social than financial profit.

Although they are identified as a player of the non-profit sector, they stand closer to the profit-oriented enterprises. While non-profit organizations are mainly financed by donations and subsidies, the social enterprises create resources for their operation on the financial markets and as a result of their economic

activity. They sell their manufactured products and services on the same market as the for-profit competitors. Accordingly, setting up and running such a social enterprise requires the same managerial skills as for-profit businesses, but during decision making social interests are in a primary position and not the owner's interests.
The players of the economic sector are categorized, on the one hand, according to their objectives, namely seeking social or financial profit maximization, and on the other hand, according to whether the invested capital is recovered or not. Examining social enterprises based on the above mentioned criteria we can say, that they are primarily interested in maximizing the social benefits, but also characterized by the recovery of the invested capital (ability to become self-sustainable). Distinction applied by Yunus et al. (2010) is illustrated in Figure 1.
Therefore social business owners are not expecting to pay the profit, the payment of the dividend or the division of the assets are not possible in this mode of operation. While investors can benefit from the generated surplus; social enterprises can reinvest that into their activities. Thus, the end consumers become the usufructurary of the social enterprise, because as a result of reinvestment of profit they can access lower prices, better product or service quality, or even wider opportunities for access.
The self-sustainability requirement for social enterprises also means that they cannot be unprofitable. While non-profit organizations could finance their operating spending through collection of donations and funds, social enterprises must ensure their operation from the profit.

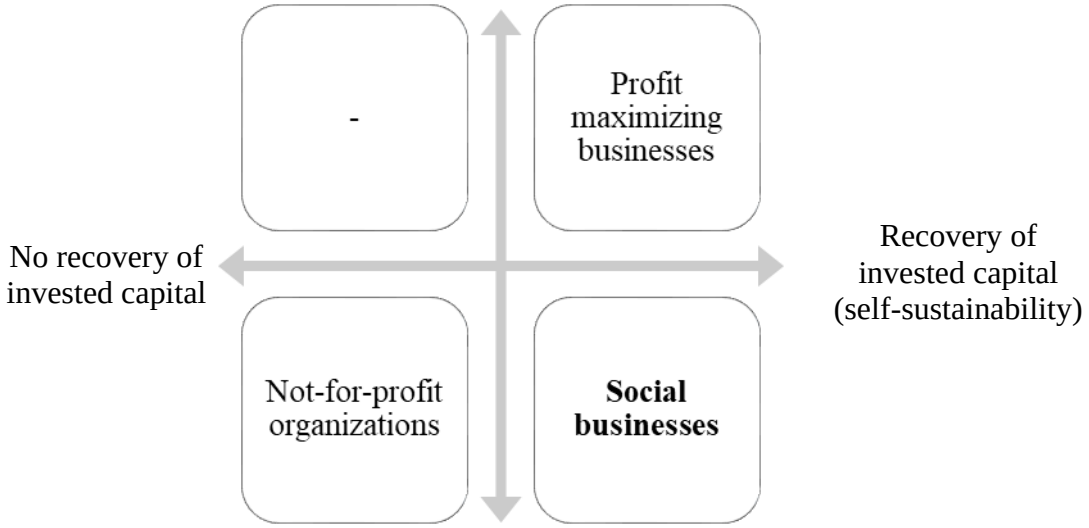

Figure 1: Social enterprises, profit-oriented businesses and non-profit organizations
Source: Yunus et al., 2010, 310. p.

The lack of a uniform, general definition of social enterprises hinders carrying out multi-country, unified, comparative analyses. The European Commission launched a research under the Social Business Initiative (SBI) in April 2013. The objective was to map the activities of the social enterprises and their ecosystem in 29 European countries (EU-28 and Switzerland). To do this, standard definitions and methodologies are needed. The European Commission therefore developed an operational definition of social enterprises. The SBI definition includes the three key dimensions of a social enterprise:

1. An entrepreneurial dimension, i.e. engagement in continuous economic activity, which distinguishes social enterprises from traditional non-profit organizations/social economy entities (pursuing a social aim and generating some form of self-financing, but not necessarily engaged in regular trading activity);
2. A social dimension, i.e. a primary and explicit social purpose, which distinguishes social enterprises from mainstream (for-profit) enterprises; and,

3. A governance dimension, i.e. the existence of mechanisms to 'lock in' the social goals of the organization. The governance dimension, thus, distinguishes social enterprises even more sharply from mainstream enterprises and traditional non-profit organizations/ social economy entities.
Each of the dimensions were operationalized by developing a set of core criteria – reflecting the minimum a priori conditions that an organization must meet in order to be categorized as a social enterprise under the EU definition. The following core criteria were established:

- The organization must engage in economic activity: this means that it must engage in a continuous activity of production and/or exchange of goods and/or services;
- It must pursue an explicit and primary social aim: a social aim is one that benefits society;
- It must have limits on distribution of profits and/or assets: the purpose of such limits is to priorities the social aim over profit making;
- It must be independent i.e. organizational autonomy from the State and other traditional for-profit organizations; and,
- It must have inclusive governance i.e. characterized by participatory and/ or democratic decision-making processes. (Wilkinson et al., 2014, 2. p.)

5. BEST PRACTICE IN AN EU MEMBER STATE – AUSTRIA

The present study presents Austria as a model country. In the given Member State two of the four examined topics, the labour market inclusion of disabled persons and the social enterprises works well together. So we believe that many elements of the Austrian practice can serve as a best practice for Hungary.
According to the statistics of the Austrian Federal Ministry of Labour, Social Affairs and Consumer Protection (Bundesministerium für Arbeit, Soziales und Konsumentenschutz – BMASK) there were 95.247 beneficiary disabled persons in the country, 58.7% of them males and 41.3% females in 2013. 65.6% of the beneficiary men were employed but this number was only 60.3% in the case of women. We can say that stands pretty far from the EU's 75% activity rate target. The number of the beneficiary persons concerning the different age groups can be seen in Table 1.

Table 1: Number of the beneficiary persons in the different categories in Austria

Age groups	Employed beneficiaries		Unemployed beneficiaries	
	Female	Male	Female	Male
-17	22	57	7	14
18-65	23 619	36 385	15 259	18 743
66-	89	241	348	463
Total	**23 730**	**36 681**	**15 614**	**19 220**

Source: based on BMASK, 2013

The Austrian employment and rehabilitation tools have two main foci: disabled people may keep their jobs or they are helped to return on the primary labour market. Austria pays special attention to young employees and according to the experts its main advantage is its individually oriented feature. The complex employment tools are organically integrated into the regulatory system. The public and private players work in close cooperation. The accession to the European Union was a great advantage in financing the Austrian programs; the ESF has played a significant role in them. In the first ten years of the membership the EU supported the integration of disabled people by more than 200 million euros (Komádi et al., 2008).

The main elements of the active care (financial and service as well) in Austria are summed up in the following figure

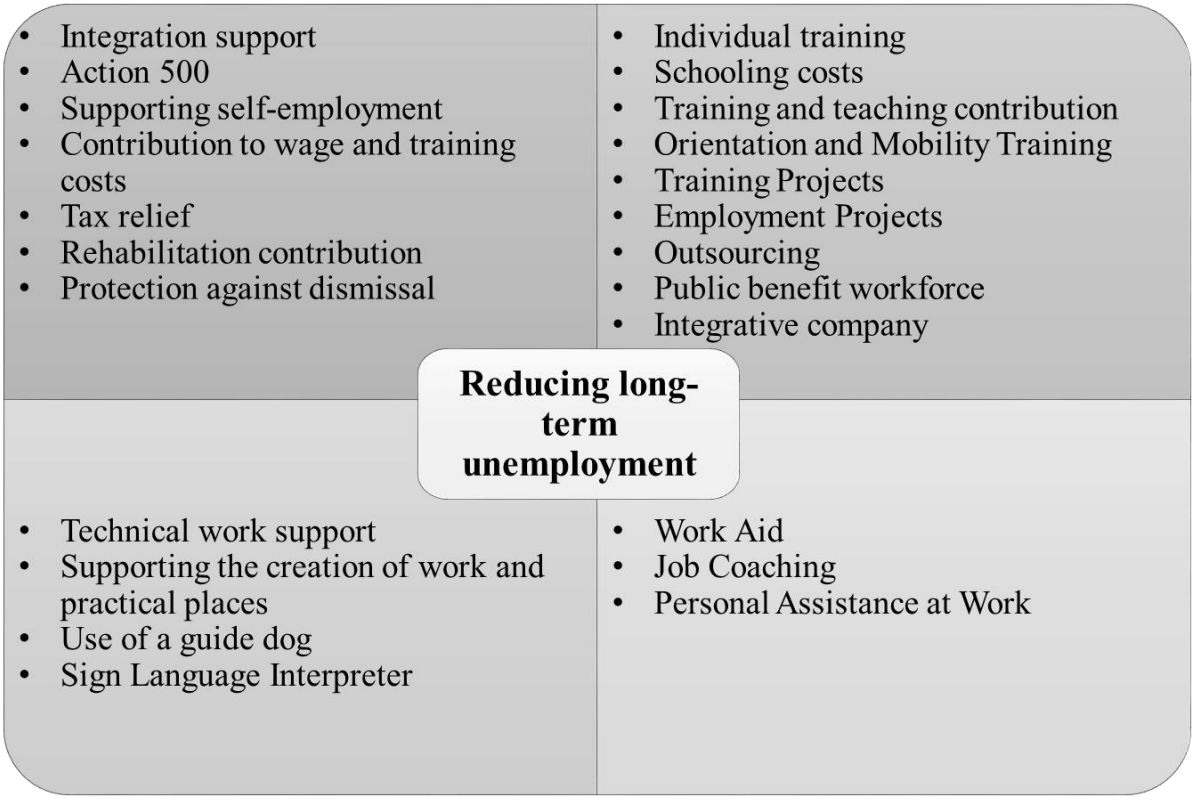

Figure 2: Active care tools in Austria

Source: based on Komádi et al., 2008

Another special area of the Austrian system is the method which follows and supports the children with special needs from primary/secondary education until they reach the age when they can enter the labour market. This system is introduced briefly in Figure 3.

Figure 3: Training and integration of youths in Austria
Source: Bundesweites arbeitsmarktpolitisches Behindertenprogramm, 2005

The present study pays special attention to two types of companies: the so-called integrative company (*IBÖ – Integrative Betriebe Österreich*) and the Socio-economic enterprises (SÖB - *Sozialökonomische Betriebe*). SÖBs were established as pilot projects already in the 1980's. They provide special employment opportunities for all people with changed working abilities. The different disabled people participate in different types of supporting programs which include employment, social pedagogical care and counselling, career guidance and job search training as well. The products and services of the SÖB are marketed on market prices. These companies operate with a co-financing structure, the different levels of government work in close cooperation with the SÖB. The public sector can involve the socio-economic enterprises into carrying out their duties (Frey, 2005).
The integrative companies are typical social enterprises. They are similar to the above mentioned SÖB, but while SÖBs provide temporary employment, the integrate companies mean a longer, temporary protection for people with disabilities. They operate in free market circumstances, but their main objective is preparation and training for the primary labour market. IBÖ's activities can be divided into three main areas:

- Employment module
- Labour market preparation and job brokerage module
- Services module (http://www.integrative-betriebe.at)

There are strict requirements to the establishment of an IBÖ, e.g. minimum gross 20 m^2/employee, minimum 30 disabled employees, which is minimum 60% of the total staff, a psychological mentor for every 12 employees etc. (Komádi et. al., 2008). No wonder that there are only eight IBÖs in Austria in 21 different locations.

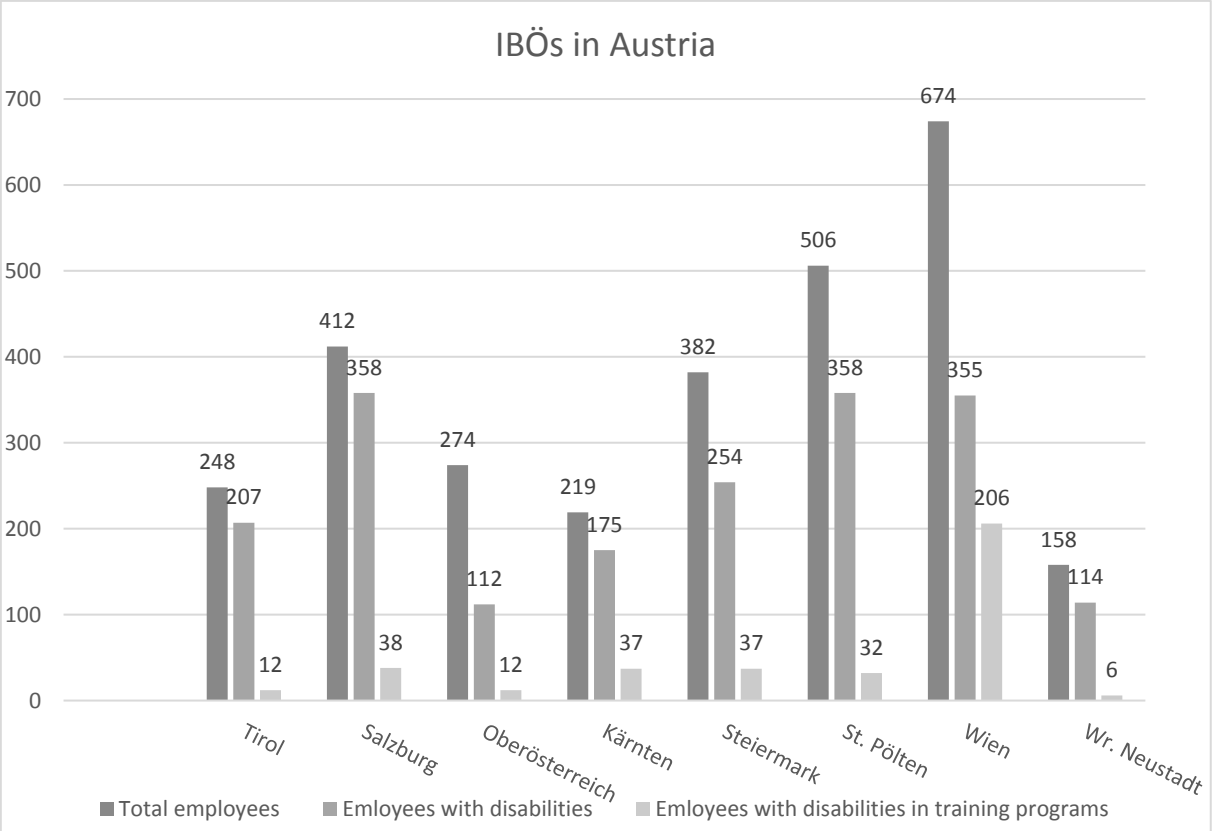

Figure 4: The number of the employees in the IBÖs
Source: http://www.integrative-betriebe.at (date of download 24.04.2018.)

6. THE CURRENT SITUATION IN HUNGARY

6.1. The Hungarian labour market of peoples with disabilities

The Hungarian system for the inclusion of disabled people into the labour market is not less complex than the Austrian one and there are many elements of the system of Austria which is used in our country as well. One of the main differences of the two states is unfortunately the results of the systems.

According to Nemeskéri-Szellő (2018) there are three main hindering factors which influence these people's labour supply: the amount of work, the nature of the work and the way how they can reach their working place. This proves us that it is not enough to solve only one or two problems of people with changed working abilities but a comprehensive system has to be worked out.

According to the definitions of the EU a disabled person is who has a permanent health problem at least for 6 month which impedes him or her in the above mentioned three factors. In 2015 11.3% of the active population (aged between 19-64) of Hungary had some disabilities. 4/5 of them were over 45. The total employment rate of these persons was 20.8% which is very low compared with the Austrian 60% or with the desired 75% of the EU. We can say that the atypical way of employment is high among the examined group. But what is more interesting is the fact that if somebody gets some kind of financial state aid it influences the employment rate of people with changed working abilities very much. 73% of these people get some kind of benefit: pension or allowance. Their employment rate is only 12%, compared to the employment rate of 53% in case of people who don't receive any benefits (KSH, 2016).

On the one hand it is understandable: if somebody doesn't get a benefit, then he/she has to work if get some income. However, there are many state aid beneficiaries who have the ability to work. This is one of the most important and interesting question of our study and it needs further in-depth analysis. Based on our first analysis we can say that it comes from the features of the Hungarian system. Benefits are stable incomes, but beneficiaries can lose this if their total income (if they work and get salary as well) reaches a defined level. That is why most of these people who are able to work don't risk losing the permanent benefit because of a possible temporary salary. Namely, in the Hungarian bureaucracy it takes a lot of time to get back the benefits after losing the job. This hypothesis is partly proved by data of Table 2 as well.

Table 2. Labour market indicators of the people with disabilities aged 19-64

Benefits	**People with changed working abilities**		
	Employment rate (%)	**Unemployment rate (%)**	**Inactivity rate (%)**
Gets benefit	10,4	7,7	88,7
from this pension	10,6	6,3	88,7
Doesn't get benefit	53	23,1	31,1

Source: based on KSH, 2016

6.2: A case-study as best practice – Kék Madár Foundation and its "Ízlelő" restaurant

During the research a very good Hungarian example for social enterprises was found: the Ízlelő ("Taster") restaurant and its operator the Kék Madár ("Blue Bird") Foundation.

The Kék Madár Foundation was founded by a Hungarian person, in 1997, in order to create an organization which helps families with small children and especially the integration of disadvantaged children into society. They provide special labour market services for people with disabilities in order to find a job they want. The Foundation's staff was concerned about the question of adult disabled persons' prosperity among others. In 2002, based on a Dutch model they started to build a supported employment

system. Within this framework, they are looking for various companies in order that they also employ changed working ability workers. In practice, they assess the jobs in various companies and map the tasks that can be performed by changed working ability workers. In a successful case usually 4-6 hour jobs are created, which usually facilitates the work of other employees as well.
As a first step of supported employment the Foundation's staff assesses for several weeks the candidates' motivation, and the type of work they would like to do; they explore their strengths, their limitations and identify areas that may need to be developed for a successful employment. Finally, according to the abilities of the disabled persons they select an ideal job for them and then a company. It is also important to note that those changed working ability persons, who obtained a job with the help of the Foundation, are further monitored and supported by the organization monitors. Their basic principle is the lifelong support. The Kék Madár Foundation maintains stable relationships and connections with approx. 300-400 people, in Szekszárd, Paks and Baja, and their catchment area.
In the early period they faced continued liquidity difficulties because of special features in application system. Nearly 40 million HUF deficits accumulated because of post-financing of projects. That is why they decided to start a profit earning activity, which may create a reserve for the Foundation, because the projects did not allow it. In 2004, in the first cycle of the EU tenders they submitted their projects and by their own admission they were surprised that already 5 of their tenders have also won. With these EU tenders they had the opportunity for the first time to implement their ideas, with Hungary's accession to the EU there appeared tenders which met the needs of the founders.
The source from tenders was at that time the 90% of the budgets, so as soon as possible they wanted to get their own revenue to reduce dependence from tenders. Thus, the idea emerged to open a restaurant unique in Hungary, based on the managing director's experiences from the Netherlands. In 2006 they opened the first restaurant which employs only changed working ability workers supported by NESsT. It is the „Ízlelő" in Szekszárd. NESsT was sceptical at the beginning as well, about how can such a business be successful, not in Budapest, but in a small town. Contrary to their expectations, the restaurant had become self-sustaining in the eighth month, and continued to be profitable ever since.
The special feature of the restaurant is that the restaurant employs a variety of people with changed working abilities in jobs corresponding to their capabilities. It operates as a family-friendly restaurant with children's corner and with an extremely friendly atmosphere.
To open the restaurant for the first time they received a building free from the town. But they slowly began to grow out the 24-seat room thanks to the ever-expanding circle of guests. Already in the first year they had to expand the room, they rebuilt the kitchen and converted the restaurant to serve up to 110 guests. At the same time financial difficulties have occurred after the extension of the kitchen, which was solved again thanks to the NESsT. They received repayable grant from the NESsT, so they transformed the guest area as well.
After opening the restaurant, the Kék Madár Foundation could win a growing number of EU tenders. However, they did not have much experience neither in the catering nor in the management fields. Thanks to incubation activities of NESsT, through their system of relations they could acquire the necessary knowledge and compensate the deficiencies. The success of the Ízlelő restaurant stabilized the Foundation's financial situation; they were able to create reserves and profit even under constant development. Initially they applied the principle that the profit produced by Ízlelő would be used only for the Ízlelő, but changes in recent years in support priorities meant that they had to give up this approach. They do not receive funds for some time for several activities, which they gained at the beginnings, for example supported employment. Thus, by now they have run out of their accumulated resources.

CONCLUSION, RECOMMENDATIONS

Based on the introduced study and our empirical experiences we can state that the labour supply and the labour market inclusion of people with changed working abilities is a very complex problem which cannot be solved with simple political decisions. The government has to work out comprehensive and complex systems to raise the activity and employment rate of these people. The higher employment rate of disabled

people is an advantage not only for those people but for the whole society as well; it contributes to the economic growth of the country as well.
If we have to choose one problem that should be solved, then it would be the low employment rate of beneficiaries. We suggest working out a system in which all beneficiaries get benefits independently from the level of their total income. This benefit could be a flat rate or a basic income. This fix income does not mean a positive discrimination or unfair competitive advantage because disabled people's expenditures are higher as well compared to a healthy worker. This basic income can be a solution for one of the biggest problems of the future, for the 4th industrial revolution where labour demand will change dramatically. Based on the technical development, on the one hand, lots of the nowadays working supply will become unnecessary, but on the other hand, a wide range of disabled people will be able to work thanks to the IT development. To sum it up the entire labour market stands before a total transformation and our suggested basic income for disabled people can be (as a part of a complex system) a safe point.

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SPATIAL DISTRIBUTION OF THE DEMAND FOR CAP-MEASURES TO PROMOTE AGROFORESTRY: THE HUNGARIAN CASE

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ABSTRACT

KEYWORDS:
agroforestry, CAP, cluster analysis, nonparametric tests.

INTRODUCTION

Agroforestry is a land management practice which intentionally integrates woody vegetation with crop and/or animal systems to benefit from the resulting ecological and economic interactions (Burgess et al, 2015).

The environmental services provided by agroforestry systems can be divided into four categories: (i) carbon sequestration, (ii) biodiversity improvements, (iii) enhanced soil productivity and conservation, (iv) water and air conservation (Jose, 2009). Based on these services, agroforestry offers compelling synergies between adaptation and mitigation solutions to climate change (Lasco et al, 2014). Agroforestry systems can also improve livelihoods, provide food security, and clean energy, contributing to sustainable rural development (Sharma et al, 2016). It is widely known that the development of rural areas has become a key point of Common Agricultural Policy (CAP) in the European Union. Agroforestry systems are supported by the EU's rural development policies (RDP's) since they play a relevant role in producing positive social, economic and environmental externalities (Gaspar et al, 2016). Mosquera-Losada et al. (2016) highlight five existing types of support for agroforestry on farms: (i) measures promoting silvoarable practices on farms, (ii) support for silvopasture farms, (iii) support for farms with high value trees, (iv) support for high nature value farms, (v) forest farming activities. In Hungary, there are two measures which are the most related with agroforestry and have the highest relevance on agroforestry in period 2007-2013: first afforestation of agricultural land (measure code: 221); first establishment of agroforestry systems on agricultural land (measure code: 222).

The aim of the research is to explore the spatial pattern of the demand for agroforestry supports, and identify its environmental and socio-economic drivers. More specifically, we investigate (i) the spatial cluster structure of Hungarian settlements based on agroforestry potential factors, (ii) whether these clusters differ in the tendency to run agroforestry or other agri-environmental projects significantly.

The spatial analysis of demand for agroforestry support at regional or settlement level is virtually non-existent in the international literature. Our research is the first step to fill this gap.

THEORETICAL BACKGROUND

The distribution of new agricultural technologies is strongly differentiated in space (Berger, 2001; Minten and Barrett, 2007; Genius et al, 2013). As mentioned in the introduction, the spread of agroforestry is motivated by the CAP subsidies. However, there are some additional incentives which influence the implementation of agroforestry technologies in a given area. Such influencing factors are the natural and ecological conditions. Reisner et al. (2007) employed data on soil, climate, topography, and land cover to identify potential agroforestry target regions in Europe. Their results show that silvoarable agroforestry could be implemented efficiently throughout the continent. Furthermore, due to its wide variety, agroforestry technologies can be adopted both in tropical and temperate areas of Earth (den Herder et al, 2017). To sum up, the spread of agroforestry systems is not limited by natural conditions in Europe. Despite this fact, the spatial distribution of agroforestry is quite unequal across Europe. The highest frequency of agroforestry systems can be found in the southern countries whilst there is a very low density of agroforestry in other regions of Europe (den Herder et al, 2016; den Herder et al, 2015a, 2015b). Since this spatial inequality cannot be explained by the variety of natural conditions, other factors should be explored to explain it.

Neupane et al (2002) developed a complex framework of agroforestry adoption at household level. According to the framework, the factors influencing agroforestry adoption can be divided into four main categories:

- community characteristics (access to market, infrastructure, technology, education, local knowledge, extension and employment opportunities, natural environment);
- household characteristics (socioeconomic factors, resources, extension contracts, membership in farmers' groups, needs);
- activity of local NGOs and farmers' groups (coordination, local level participation, awareness campaigns, meetings, local resource mobilization, moral support);
- activity of external agroforestry organization (design and dissemination of appropriate agroforestry technology, design of farmers' visits, demonstration farms and on-farm trials, provision of material support, training, technical know-how, and extension).

The four influencing pillars above impact awareness related to agroforestry, then the attitude towards agroforestry and finally the adoption of agroforestry. As it can be seen on the list, the natural environment forms only a small part of the model. Most of the factors are related to social and/or economic dimensions.

Zerihun et al. (2014) based on Kant and Lehrer (2004) provide a similar complex framework for analysis factors in the adoption of natural resources management, especially in adoption of agroforestry systems. According to this concept the sustainable adoption of agroforestry is affected by

- contemporary global changes and macro policies;
- institutional factors e.g. operational rules, collective choice rules and constitutional rules;
- physical and technical attributes of resources;
- external agents (users, resource users and stakeholders);
- other factors like risk, household preferences, resource endowments, incentives (e.g. subsidies, prices and expectations), biophysical factors.

Cooper and Denning (2000) allege that the scaling up of agroforestry innovations is influenced by ten different factors like learning-by-doing practices, technology options, knowledge sharing and extension approaches, institutional capacity, policy and market options, strategic partnerships and available germplasms.

Recent research (Louah et al, 2017) highlights the importance of path dependency and cognitive lock-in as barriers to the development of temperate agroforestry. Usually, farmers accept common old technologies as established and unquestionable, so they react to new technologies negatively. Path dependency and cognitive lock-in effects can be reduced by ecological education and learning within innovation networks. Based on a semi-quantitative questionnaire, Sereke et al (2016) conclude that payments for ecosystem services (e.g. agroforestry systems) cannot change the lock-in attitude as long as the expectations and knowledge of farmers are not appropriately addressed. It therefore appears that

agroforestry related CAP subsidies should be supported by well-designed training systems and innovation networks to motivate agroforestry adoption efficiently.

Although we accept this concept, it should be noted that there is a spontaneous factor which has a positive effect on the diffusion of innovative agricultural technologies. This so-called agglomeration effect (or agglomeration externality) can only be exposed by extending the research to territorial (spatial) level. Recent studies highlight the relevance of agglomeration economies in agriculture (Allaire et al. 2015; Nyblom et al., 2003 Schmidtner et al. 2012). The other strand of research analyses spatial differences in the diffusion of alternative agriculture technologies (e.g. organic farming), based on concentration indices, at different levels and for different countries (Ilbery et al., 1999; Frederiksen and Langer, 2004; Risgaard et al., 2007; Ilbery and Maye, 2011). In short, the agglomeration effect is identified as an important driver shaping the spatial diffusion of agricultural technologies.

Based on the literature review, the impact factors of agroforestry adoption are summarized in Table 1.

Table 1: The main impact factors of agroforestry adoption

Factor categories	**Source**
Natural resources and ecological factors	Reisner et al (2007), den Herder et al (2017)
Agricultural demography and resources	Neupane et al (2002), Kant and Lehrer (2004), Zerihun et al (2014)
Markets, institutions and policies	Cooper and Denning (2000), Neupane et al (2002), Kant and Lehrer (2004), Zerihun et al (2014)
Networks and partnerships	Cooper and Denning (2000), Neupane et al (2002), Louah et al (2017)
Expectations and technological knowledge	Sereke et al (2016)
Path dependency and cognitive lock-in	Louah et al (2017)
Agglomeration effects	Nyblometal. (2003),Schmidtner et al (2012), Allaire et al (2015)

Source: own elaboration

The final aim of our research is to analyse each factor and evaluate their impact using spatial econometric models. However, at the current and early stage of the research, only very preliminary results can be provided. The very simple conceptual framework of this paper is shown in Figure 1. The framework, shown in the figure, is limited to the natural and agricultural resources, ignoring the other five factors which will be investigated in the later stages of research.

According to this model, the agroforestry (adoption) potential of a spatial unit depends on the presence of small-scale farms, intensive (conventional) agriculture, extensive agriculture and forestry. Therefore, spatial units can be classified based on these factors. It is assumed in our framework that differences in agroforestry potential lead to differences in tendency to adopt agroforestry systems between the spatial groupings (or clusters).

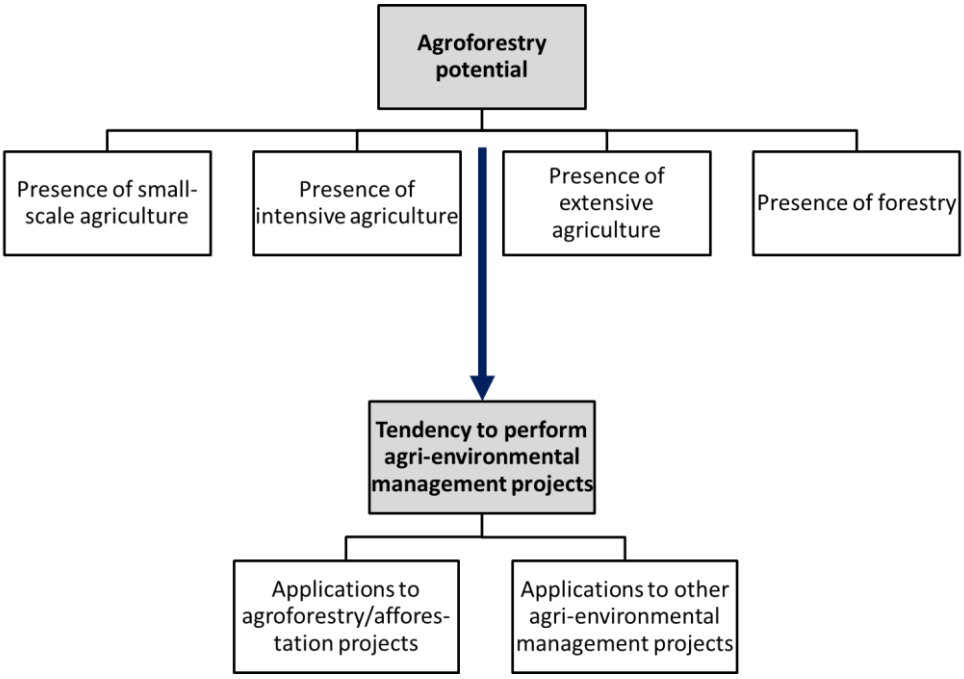

Figure 1: Conceptual framework of the preliminary research
Source: own elaboration

MATERIAL AND METHODS

Empirical methodology

We used a three-stage empirical methodology to map the spatial groupings of Hungarian settlements (LAU-2 level spatial units) based on agroforestry potential factors and test whether there are significant differences in tendency to adopt agroforestry among the spatial clusters.

In the first stage, TwoStep Cluster Analysis procedure was employed to reveal natural clusters within the dataset consisting four continuous agroforestry potential variables of 3155 Hungarian settlements. Virtually, our spatial 'sample' completely overlaps the whole area of Hungary at LAU-2 level. The similarity between clusters was computed by log-likelihood measure which places a probability distribution on the variables. The number of clusters was determined by Schwarz's Bayesian Information Criterion (BIC). Before running cluster analysis, each variable had been standardized to the same scale (with a mean of 0 and a standard deviation of 1) using z-score transformation. Four variables were involved in cluster analysis: R_SMALL, R_INTAG, R_EXTAG, R_FOR (details can be seen below, in Table 2).

In stage two, the revealed cluster structure was validated by two different nonparametric tests. More specifically, the cluster structure was validated by Kruskal-Wallis H test and Median test. The Kruskal-Wallis H test, an extension of the Mann-Whitney U test, is the nonparametric analogue of one-way analysis of variance and detects differences in distribution location. The median test, which is a more general test (but not as powerful), detects distributional differences in location and shape. The Kruskal-Wallis H test and the median test assume that there is no a priori ordering of the k populations from which the samples are drawn. The validation was based on two variables: P_AGFOR, P_OTHER (details can also be seen below, in Table 2).

The final stage dealt with mapping and visualization of clusters revealed and validated in the first two stages. Using QGIS geographical information software, a cluster map was created where the LAU-2 (settlement) spatial units were marked with different colours representing cluster membership. Due to this visualization approach, it became possible to reveal the geographical shape and context of clusters.

Proxy variables and data

The empirical analysis is based on data provided by TEIR (Hungarian Information System of Regional Development and Spatial Planning). Variables used as proxies for measuring different factors can be seen in Table 2.

Table 2: Description of variables

Role	Variable code	Variable name (year)	Proxy for factor	Dimension
Clustering variables	***R_SMALL***	Ratio of small-scale farm income (2012)	Presence of small-scale agriculture	(HUF/HUF)
	R_INTAG	Ratio of arable lands and orchards (2012)	Presence of intensive agriculture	(ha/ha)
	R_EXTAG	Ratio of meadows, pasture lands and natural grasslands (2012)	Presence of extensive agriculture	(ha/ha)
	R_FOR	Ratio of Forests (2012)	Presence of forestry	(ha/ha)
Validation variables	***P_AGFOR***	Amount of aid applications to run agroforestry projects (2009-2015)	Tendency to perform agroforestry projects	HUF/ha
	P_OTHER	Amount of aid applications to run other agri-environmental projects (2009-2015)	Tendency to perform other agri-environmental projects	HUF/ha

Source: own elaboration

The upper part of the table consists of clustering variables. Although the period of validation data begins in 2009, the oldest clustering data overlapping each variable is only accessible from 2012. R_SMALL is originally provided by National Tax and Customs Administration to TEIR system and represents the share of small-scale farms income to the whole income of a given settlement. The next three variables are calculated from the land use data of CORINE 2012 database and show the agricultural and forested area to the whole administrative area of a given settlement.
Validation variables can be found at the lower end of the table. The tendency to perform agroforestry or other agri-environmental projects is estimated by the amount of aid applications aiming these projects per hectare. We used proxies aggregated in the whole investigation period.

RESULTS AND DISCUSSION

Agroforestry potential clusters in Hungary

The TwoStep Cluster Analysis based on BIC determined that the ideal number of clusters is five. The characteristics of clusters can be seen in Table 3, including both clustering and validation variables. Percentage of cluster settlements with values above the sample median is used to overview the differences and similarities between the groupings. Settlements are unequally distributed between the clusters. Cluster names are based on the values of clustering variables.

Table 3: Main characteristics of agroforestry potential clusters

Proxy variables	**Proportion (%) of settlements with values above the sample median**				
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
R_SMALL	11%	30%	59%	100%	57%
R_INTAG	36%	95%	60%	40%	0%
R_EXTAG	68%	1%	29%	66%	90%
R_FOR	43%	35%	100%	49%	69%
P_AGFOR	26%	13%	9%	7%	17%
P_OTHER	60%	48%	44%	37%	66%
n	887	777	267	903	321
Cluster name	Extensive large-scale farming	Conventional agriculture	Unused agroforestry potential	Balanced small-scale farming	Extensive land use

Source: own elaboration

Based on the relative differences in clustering variables, the clusters have quite diverse characteristics.

Cluster 1 represents settlements with low proportion of low-scale farming and forested areas where the amount of extensive agricultural areas exceeds the volume of intensive agricultural land use. The tendency to run agroforestry projects is the highest in this group and the activity in the field of other agri-environmental projects is also very high.

Cluster 2 is characterized by the pure dominance of intensive agriculture. The proportions of extensive agricultural lands and forests are far the lowest in this cluster. The demand for agroforestry and agri-environmental subsidies is average in the cluster.

Both intensive agricultural land use and forestry is dominant in Cluster 3. The presence of small-scale farming is average. These three attributes might create and ideal environment for agroforestry adoption, however the moderately low rate of extensive agriculture limits the tendency to establish agri-environmental and agroforestry projects.

Cluster 4 is theoretically the most suitable for agroforestry. The land use profile is very balanced, and the small-scale farming ratio is the highest of all clusters. Despite this, the demand for agroforestry and agri-environmental projects is very low in this group.

Cluster 5 is clearly dominated by extensive agricultural and forested areas. Small-scale farming has a solid presence while the proportion of intensive agricultural land use is the lowest. This combination of clustering variables seems to be ideal for agroforestry and agri-environmental projects. It appears that the presence of intensive agricultural land use hinders the agroforestry adoption as it is assumed by the theories of cognitive lock-in and path dependency (Sereke et al, 2016; Louah et al, 2017).

Our results suggest that settlements with a high ratio of small-scale farming have lower tendency to agroforestry adoption, contrary to Neupane et al (2002), Kant and Lehrer (2004), Zerihun et al (2014). The impact of cognitive lock-in and path dependency appears to be higher in these settlements.

Validation of the cluster structure

The differences in validation variables among the clusters were tested by nonparametric tests to decide whether the different combination of clustering attributes affects the tendency to adoption of agroforestry and agri-environmental technologies significantly. Table 4 shows the results of nonparametric tests.

Table 4: Nonparametric test statistics for validation variables

	Kruskal-Wallis H test		**Median test**	
	P_AGFOR	P_OTHER	P_AGFOR	P_OTHER
Chi-Square	137.49	141.19	141.73	132.98
df	4	4	4	4
Asymp. Sig.	**.000**	**.000**	**.000**	**.000**

Source: own constructions

Both Kruskall-Wallis H test and Median test demonstrate that the cluster structure is valid. The differences in agroforestry potential characteristics lead to differences in tendency to run agroforestry or other agri-environmental projects significantly. The validation supports the impact of agroforestry potential factors according to the literature seen in Table 1.

The cluster map of Hungarian agroforestry potential

The geographic shape of the clusters can be seen in Figure 2. There are three quite agglomerated clusters: C1 (Extensive large-scale farming) and C2 (Conventional agriculture) and C5 (Extensive land use). These groups represent a high or at least average level of tendency to agroforestry adoption. In addition, the much more fragmented C3 (Unused agroforestry potential) and C4 (Balanced small-scale farming) clusters show a quite low tendency to adopt agroforestry or agri-environmental technologies. These results confirm the relevance of agglomeration and spill over effects (Nyblom et al., 2003; Schmidtner et al, 2012; Allaire et al, 2015) in the diffusion of new agricultural technologies.

The geographic fragmentation of C3 and C4 and the small size of their settlements mean that the adoption of new technologies cannot be supported by spontaneous agglomeration effects. Therefore, the role of ecological education and innovation networks (Sereka et al, 2016; Louah et al, 2017) is very important in these groups.

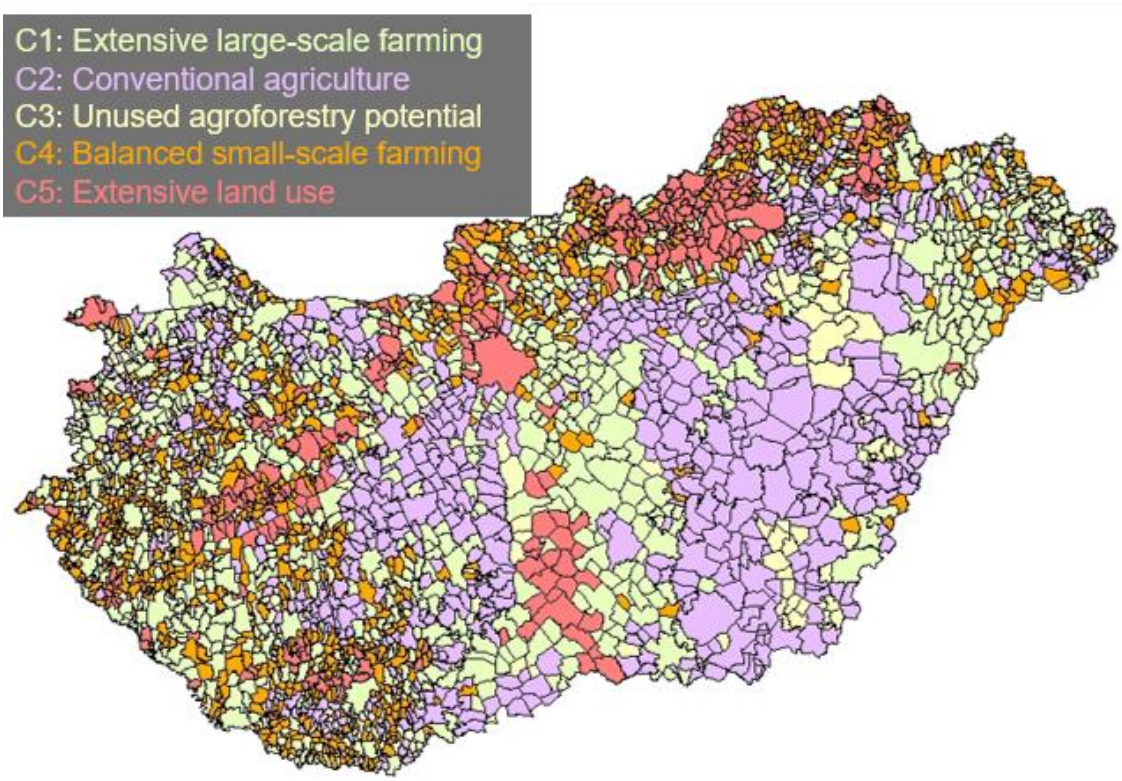

Figure 2: Cluster map of Hungarian agroforestry potential at LAU-2 level
Source: own elaboration

CONCLUSIONS

As far we know, this research is the first which investigates the agroforestry potential factors and their impact on tendency to adopt agroforestry technologies at settlement (LAU-2) level. Our results provide an additional knowledge about the spatial differences of demand for agroforestry related CAP subsidies in a country which has a relevant unused agroforestry potential.

The revealed cluster structure and characteristics may help develop strategies to improve the efficient implementation of budgeted agroforestry and agri-environmental CAP measures. It is recommended to identify target areas where agroforestry adoption cannot be supported spontaneously by agglomeration effects and therefore need to be supported by education and innovation networks. Our three-stage approach can be repeated in any location and time at a low cost if the appropriate spatial data are available at settlement level.

From a theoretical point of view, our results confirm, that the relevance of impact factors in agroforestry adoption can be extended from farm level to spatial level. The main theories of agroforestry adoption are still valid at spatial level.

AKNOWLEDGEMENT

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PROFIT PERSISTENCE EXAMINATION IN THE HUNGARIAN AGRICULTURE

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ABSTRACT

Our study examines the long run abnormal profit. In the Hungarian agricultural sector there are a lot of small farms, some medium sized farms and very few large agricultural enterprises. In similar market structure – according to the theory – significant abnormal yield cannot be available. For testing our hypothesis we used the database of the Agricultural Research Institute's (AKI) Test Farm System (FADN) which monitors more than 1900 farmers. Data are available for the period 2010 - 2015. The database is representative for regional location, type of activity and legal form. To examine the profit persistence we used a dynamic panel model with Arellano and Bond GMM estimator. The abnormal profit is influenced among others by farm size, activity diversity and market share.

Keywords: profit persistence, agriculture, competition

INTRODUCTION

One of the indicators of market competition is profit persistence. According to theoretical economics, competition reduces abnormal profit, and in case of perfect competition it is not possible to gain extra profit. In the short term, abnormal profits can be expected, but in the long run, due to the competition, prices are adjusted to market price. This process can be seen in Figure 1. Profit persistence measures the speed of correction, how fast the profit reaches the equilibrium level. In reality, however, its practical implementation is rarely seen. The only exceptions are the financial markets where the conditions of the perfect competition are the best, but temporary imperfections are also found here, yet correction is fast.

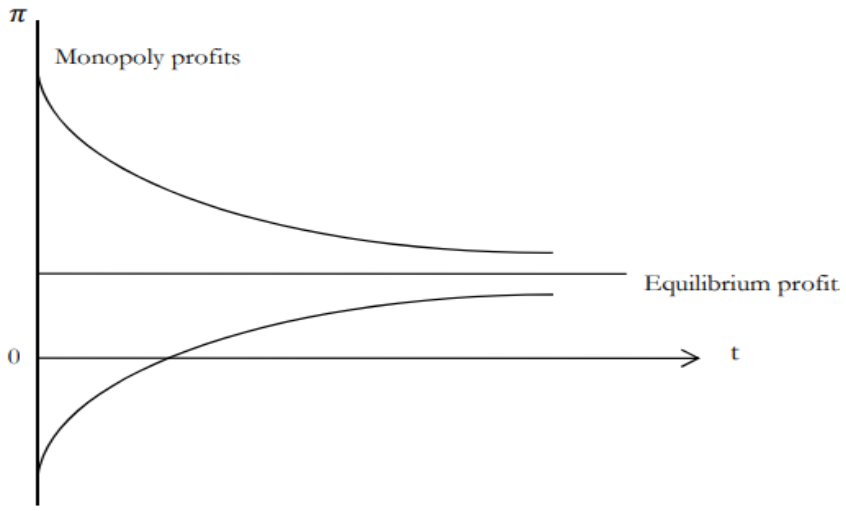

Figure 1: Profit convergence
Source: Schwalbach et al. (1989)

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In Hungary agriculture represents about 4% of the GDP (Hungarian Central Statistical Office – hereinafter KSH, 2017). This is the double of the value of the European Union average and roughly the same as the world average. 79% of Hungary's total area is production area, a significant part of which is good quality land. In addition to the regional characteristics, climatic conditions also make the country suitable for agricultural activities (Szűcs, 2017). The European Union and the current government policy pay particular attention to agriculture. The amount of subsidies is outstanding in agriculture compared to other industries. The subsidies received under the Common Agricultural Policy (CAP) have had a strong influence on the profitability of agricultural holdings and on the production structure as well (Rajczi and Wickert, 2018).

The speciality of the study is that profit persistence study regarding Hungarian agriculture has not been conducted yet. In such an industry where the amount of subsidies is outstanding, it is an important question how competition is evolving. Do grants increase or decrease competition? Is the profit of farms more influenced by industry or company-specific factors?

Following the introduction, an overview of the literature is given in section 2, then the following sections of the study (3 and 4) present the data and methods used, part 5 discusses the variables used and the results of the model, finally, in section 6 the conclusions are presented.

LITERATURE REVIEW

Nowadays, profit persistence is tested with AR or dynamic panel models. Mueller's article (1977) was the first to examine abnormal profit. Mueller did not work with an AR model but with a so-called PCM model. The first use of profit persistence with the AR model is also related to Mueller (1986).

Schumacher and Boland wrote one of the first studies (2005) to investigate the profit persistence of the food industry. The data range was between 1980 and 2001, in terms of the methodology of the study, the authors used the sequential-weighted least square method. Their main result is that profit is influenced more by industry variables than corporate influences.

Hirsch and Gschwandtner (2013) examined the profit persistence of the food industry in five European countries based on data from 1996 to 2008. Short-term abnormal returns are present in all five countries. The highest one can be found in the UK, while the lowest short-run persistence is in Belgium. However, these values are lower than in other industries (Hirsch and Gschwandtner, 2013). Based on the results of these five European countries, there is a competition on the basis of the profit persistence of the European food industry, but past abnormal yields have an impact on current yields (Hirsch and Gschwandtner, 2013). High profit persistence can be observed in case of young and large companies.

Gschwandtner (2012) investigated the profit persistent of US companies between 1950 and 1999, and he divided it into three periods. Profit persistence decreased in the period under review, which the author explained with international competition and lower market entry barriers (Gschwandtner, 2012). The effect of increasing competition can also be seen on the abnormal profits.

McMillan and Wohar (2011) investigated profit persistence in the United Kingdom. In their research, data from 57 companies were analysed between 1980 and 2007. A high entry barrier was observed in the markets of companies with high profit persistence, in case of low profit persistence, the entry barrier is low (McMillan and Wohar, 2011).

Hirsch and Hartmann (2014) examined the companies of the European dairy industry. A total of 590 companies have been studied in five Western European countries. The period covered is from 1996 to 2008. There is no exceptionally high profit persistence in the dairy sector, compared to the manufacturing

industry; it is lower in the whole food industry (Hirsch and Hartmann, 2014). The low profit persistence is due to the high rate of state interventions and the high rate of co-operatives compared to other industries.

DATA

During the research we used data from the Farm Accountancy Data Network (FADN) of the Agricultural Research Institute (ARI). The FADN system operates in European Union countries, and it collects data about more than 80,000 agricultural holdings, while the entire EU-wide database represents a population around 6.4 million (Keszthelyi, 2017). The database is representative of the region, size and activity. Individual and social farms with at least 4,000 SOs may be included in the database. The Hungarian Farm Accountancy Data Network covers 2% of the population, and the observed plants provide more than 5,000 data annually. The data provided include labour, balance sheet, profit and loss statement, and land area data. The unbalanced panel database contains a total of 3,350 farm data for the period of 2006 to 2016. The average observation time of a plant is 7.24 years.

According to the 2015 data, 63% of the Hungarian agriculture is medium in size (EUR 25,000-500,000 SO), this size category is the most characteristic in the sector. In addition, the most popular form of activity is plant production.

Table 1: Data structure of the database (2015)

Sectors	Small size (pcs)	Medium size (pcs)	Large size (pcs)	Total
Poultry	28	112	20	160
Fruit	50	96	1	147
Cattle and sheep	47	86	1	134
Cereals oilseeds protein	192	685	68	945
Pigs	17	28	15	60
Wine	41	22	0	63
Milk	26	78	35	139
Mixed farming	88	48	29	165
Horticulture	16	28	0	44
Other field crop	31	62	13	106
Total	536	1245	182	1963

Source: ARI FADN database

METHODOLOGY

For testing profit persistence, the generally accepted profitability index is the Return On Assets: ROA. When examining abnormal returns, the difference in the ROA value of the given year is examined from the average profitability level. Due to normalization, we can filter the impact of macroeconomic cycles, and interpret profit as deviation from market price (Gschwandtner, 2012).

$$\pi_{i,t} = ROA_{i,t} - \overline{ROA_t} \quad (1)$$

$$\pi_{i,t} = \frac{ROA_{i,t} - \overline{ROA_t}}{\overline{ROA_t}} \quad (2)$$

$\pi_{t,i}$ denotes abnormal return. There is no difference in content between the abnormal profit measuring methods (1) and (2), and the correlation between them is 1. Among others, Gschwandtner (2005) and McMillan et. al. (2011) used method (2), Hirsch at. al. (2014) and Resende (2016) conducted their research

according to method (1). In our study, we measure abnormal profit according to method (2). The normal profit ($\overline{ROA_t}$) was calculated per sectors separately for each year.

The methodology used to measure profit persistence in the literature is the auto-regression process 1, AR(1). The profits of companies are explained by the profit of the previous period.

$$\pi_{i,t} = \alpha_i + \lambda_i \pi_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

The $\varepsilon_{i,t}$ error term is white noise with zero expected value and a constant variance.

The parameter $\hat{\lambda}_i$ specifies the short-run persistence, the stickiness of the profit (Hirsch and Gschwandtner, 2013). The AR(1) process is stationary if $|\hat{\lambda}_i| < 1$.The closer parameter $\hat{\lambda}_i$ is to one, the higher the profit persistence is. In case of high profit persistence, the company's profit is approaching slowly the normal profit on the market, so the market is characterized by weak competition. In case of low lambda, the market is approaching the perfect competition.

Long-run profit persistence is defined by the expected value of the AR(1) process.

$$\widehat{p_i} = \frac{\widehat{\alpha_i}}{1-\widehat{\lambda_i}} \quad (4)$$

If $\widehat{p_i}$ does not differ significantly from zero, the companies examined are in perfect competition. The $\widehat{p_i}$ is also known as long-term profit rate. If every company achieves normal profit, $\widehat{p_i}$ is equal at all companies (Gschwandtner, 2005).

Due to the limitations of OLS estimations, the dynamic panel model is the most suitable for examining profit persistence with Arellano-Bond GMM estimator (Hirsch et al. 2013, 2014). The estimation is the most applicable if the study period is short but there are several companies under investigation (small T, large N).

$$\pi_{i,t} = \sum_j \alpha_j (X_{j,i,t)} + \lambda \pi_{i,t-1} + \varepsilon_{i,t} \quad (5)$$

Where $\varepsilon_{i,t} = \eta_i + \nu_{i,t}$. The Arellano-Bond GMM estimator takes the first difference in the equation, which results in the release of time-independent company-specific (η_i) effects (Hirsch and Gschwandtner, 2013, Kozlenko, 2015). The model has included company and industry-specific variables (X_j) that can explain the profit persistence of companies. The delayed dependent is a variable endogenous; all the others are exogenous variables in the model (Hirsch and Gschwandtner, 2013).

The upper and lower one percent of the distribution of variables was treated by winsorization due to the outliers. The database almost certainly contains human error, uploading data to the database is done through several steps, and there may also be problems during searches. For this reason, the one percent data management is justified.

RESULTS

The chapter of results is divided into two parts, on the one hand we present the variables included in the model, on the other hand the empirical results.
Company Size (**lnTA**)

The difference between the profit persistence and the company size (the logarithm of all devices) is unclear; it can be both positive and negative. In case of large size, the principle of economies of scale can work but

there are several studies that were written on the inefficiencies of large companies. Enterprise size plays a significant role in food industry (Hirsch and Gschwandtner, 2013; Hirsch and Hartmann, 2014).

Company Size Growth (**GrTA**)

From a theoretical point of view – similarly to the company's assets – the growth of the company size (the growth rate of all the assets) should have a positive impact on profit persistence. According to Dorey and Boland (2009) if the motive of the food company growth is not the expansion of its core business (but rather diversification), it may have a negative impact on profit.

Diversification of activities (**pdiff; percrop**)

The pdiff measures the diversification of the activity. The higher the value of the indicator is, the less business the economy does. In its calculation, the output rate per actuation was taken from the total output, and then they were raised to square and added. According to Dorey and Boland (2009), a positive coefficient should be obtained in regression. The percrop shows the output of crop production from total output. Crop production accounts for 60% of the total output of Hungarian agriculture (KSH, 2017).

Risk measurement (**1/curr; gear; SDROA**)

The 1/curr is the reciprocal of the quotient of current assets and short-term liabilities, a means of short-term risk measurement. The long-term proxy for risk is the gear and SDROA indicators. The gear ratio is the long-term liabilities and the loan received from the owners divided by the equity. The SDROA shows the deviation of the given company's profit. It is expected that high risk will result in high profit (e.g. CAPM model). Browman (1980) found a negative correlation between risk and profit, as evidenced by the practice of profit smoothing.

Subsidy Dependence (**persubs**)

The persubs variable defines the proportion of grants compared to the grant plus the net sales revenue. On the one hand, the relative size of grants is expected to affect positively the profit persistence, help with smoothing the annual profit. On the other hand, subsidies complement the revenue and eliminate the difference among farmers.

Form of entrepreneurship (**legal**)

The form of the enterprise is a dummy variable whether the plant operates in an individual or a corporate form. Almost eighty percent of the farmers on the Hungarian agricultural sector prefer the individual form because of the small farm size and the more favourable taxation conditions. In Hungarian agriculture individual farms predominate.

Live Work (**EME**)

The live work variable specifies the number of full-time employees at work. My assumption is that live work is more costly than using machines but there are activities that cannot be performed by machines, or in case of small farm size they are not cost-effective.

Market Saturation (**C10**)

Market Saturation specifies the ratio of the top ten companies with the highest revenue in a given business activity compared to the total sales revenue of the activity. The more saturated the market is, the more difficult it is to gain abnormal profit.

The descriptive statistics for variables can be found in Table 2. Its ROA indicator is defined as zero, so on average, none of the economies can realize abnormal profit. The deviation of the abnormal profit rate, however, is very high. Half of the farms' revenue comes from plant production (percrop), with diversification index (pdiv) 0.747, that is, on the basis of the sample, farmers deal with few activities.

Table 2: Descriptive Statistics for Variables

Variables	Mean	Median	Std. Dev.
aROA	-0,057	-0,140	6,364
lnTA	10,962	10,906	1,352
GrTA	1,006	1,004	0,017
pdiv	0,747	0,848	0,281
percrop	0,502	0,513	0,413
_curr	0,426	0,166	0,862
gear	0,182	0,000	0,568
SD	2,942	0,801	6,667
persubs	0,235	0,210	0,163
EME	4,743	1,659	10,138
legal	0,198	0,000	0,398
MS10	0,322	0,295	0,222

Source: own editing (ARI FADN database)

The value of the variable measuring long-term risk (gear) is low, the median value is zero, that is, more than half of the farms have no long-term foreign source. The reciprocal of the liquidity ratio (1/curr) is high, the average amount of short-term liabilities exceeds its current assets, but the median value refers to excessive security. On average, farms have fewer than five full-time employees. The top ten farms cover up to 30% of the market per sectors on average, but the deviation is also significant here.

Table 3 shows the estimated results of the dynamic panel. The model has a total of 19 instruments, no secondary autocorrelation, and based on the Sargan and Hansen test, the model is robust and the number of instruments is adequate.

Abnormal profit persistence is significant at one percent, but the value of the coefficient is very close to zero. Based on the model, the abnormal profit disappears in a year's time, with no stickiness. According to the literature, profit persistence is lower in agriculture than in the processing industry, but persistence around zero is surprising but not impossible. Hirsch and Gschwandtner (2013) measured abnormal profit persistence between 0.1 and 0.3 in their research in five European countries.

Table 3: Results in Dynamic Panel Estimator

Variables	Coef.	Prob.
$aROA_{i,t-1}$	0,029	0,001***
$lnTA_{i,t}$	0,031	0,498
$GrTA_{i,t}$	1,610	0,006***
$pdiff_{i,t}$	0,444	0,076*
$percrop_{i,t}$	-0,612	0,045**
$1/curr_{i,t}$	-0,651	0,003**
$gear_{i,t}$	-0,643	0,031**
$SD_{i,t}$	0,026	0,602
persubsi,t	-4,859	0,000***
$EME_{i,t}$	0,007	0,005***
$legal_{i,t}$	-0,739	0,000***
$MS10_{i,t}$	-1,358	0,000***
Tests		
AR(2)	z=-0,27	0,786
Sargan	Chi2(7)=5,72	0,573
Hansen	Chi2(7)=12,66	0,081

Source: own editing

***, **, *Significant at the 1, 5, 10 per cent level, respectively.

The size of the company (lnTA) has no effect on abnormal yield. Hirsch and Gschwandtner (2013) as well as Hirsch and Hartmann (2014) found a negative or neutral relationship between size and abnormal profit. Goddard et al. (2005) found a negative relationship between profitability and large enterprise size. In case of Hungarian agriculture – as it can be seen from the database – we cannot talk about exceptionally large economies. Presumably, this is the reason why there is no negative relationship, but the neutral connection itself partially contradicts the hypothesis of economics of scale. Contrary to the effect of the size, the company's growth rate (GrTA) increases abnormal yields significantly. In the international literature the growth rate has a neutral or negative relationship with the profit. According to Dorey and Boland (2009) growth will reduce profit when it is combined with diversification, but if the company's main profile is expanded, growth has a positive effect. This is supported by Rajczi and Wickert (2018), who believe that the support system affects the activity and profitability of the companies.

The diversification of the activity (pdiff) has a significant relationship with abnormal return, but this relationship is negative. The higher the value of the pdiff indicator means the lesser degree of diversification, so if a farm performs few activities (specializes), it can expect a higher abnormal return. Of course, at the same time, it can also face a higher risk. Diversification also includes the percentage of crop production (percrop) variable. According to the KSH data, 60%, according to the database, 50% is the ratio of crop production of total output, which is the ratio of a report. However, there is a negative relationship between the abnormal return and crop production. The primary reason for this is exactly the competition; the support system directs farmers towards plant production. In the multiplayer market, the farmer's price maker role is lost and the prices have to be adjusted. In such a competitive environment it is much more difficult to achieve abnormal profit.

Table 4: ROA values per sectors

	Mean	Median	SD	RSD
Poultry	0,055	0,049	0,346	6,32292
Fruit	0,027	0,039	1,262	46,43894
Cattle and sheep	0,093	0,083	0,134	1,438635
Cereals oilseeds protein	0,134	0,115	0,154	1,148578
Pigs	0,088	0,073	0,194	2,202169
Wine	0,053	0,039	0,131	2,480707
Milk	0,118	0,108	0,127	1,071665
Mixed farming	0,097	0,088	0,134	1,384377
Horticulture	0,130	0,103	0,477	3,667078
Other field crop	0,160	0,134	0,436	2,733271
Total	0,110	0,099	0,411	3,751135

Source: own editing

It is also important to point out that plant production is one of the most profitable activities. Table 4 shows ROA values per sectors. In case of crop production, the second largest is the profitability and the second lowest is the relative standard deviation. The goal is not necessarily the abnormal return.

I studied the relationship between risk and abnormal return with three different variables. Short-term risk is measured by the 1/curr variable; long-term risk is measured by the gear variable, and the ROA deviation (SDROA) is the third variable. The latter variable does not show a significant relationship, but the short- and long-term risk proxies clearly indicate a negative relationship. Farms financed from foreign sources are less able to gain abnormal profits. The debt service is likely to erode the extra profit. In the international literature, negative or neutral relationships were found the most frequently (e.g. Gschwandtner (2005), Andersen et al. (2007)).

In agriculture subsidies have always played an important role, and this is not different nowadays. Subsidies compared to outputs (persubs) reduce abnormal returns. Among the control variables the greatest effect can be found here. The support system promotes competition and reduces abnormal profits significantly. It is important to note that "normal profit" is an average profit per sectors of the given year, which may differ from a general agricultural average profit significantly. This can be linked to plant production (percrop) variable, subsidies direct farmers towards plant production, which also reduces abnormal returns. The two effects reinforce each other.

The impact of live work (EME) is significant, but its impact is negligible and can be considered as zero. The Hungarian agricultural sector is characterized by micro and small size farms, where family and family members work in most cases. These working hours are also included in the database, but their reliability is questionable. If there were employees instead of family members, and they would get the minimum wage, a significant negative relationship would probably be experienced.

The form of enterprises (legal) has a significant negative relationship. If the enterprise is a business company, abnormal profit-making opportunities are reduced. The current Hungarian tax system strongly supports small companies and primary producers, so farmers do not want to get out of this preferential tax treatment. It is the easiest way to increase their results.

The relationship between market saturation (MS10) and abnormal return is negative, the more saturated the market is (per sectors), the more difficult it is to gain abnormal return. In case of perfect market competition, many small farms are assumed, so low market saturation is desirable. In case of high market

saturation, the market resembles an oligopoly, where competition is already violated and abnormal profit is possible. However, based on the data, the abnormal profit decreases in the market structure similar to the oligopoly. On the other hand, entering such a market structure is very costly, making it difficult to gain extra profit. In the hope of abnormal profit, it is preferable to choose an activity where large economies are less dominant in the market.

CONCLUSION

In the study we examined the profit persistence of Hungarian agricultural holdings with the dynamic panel model from 2006 to 2016. Based on the study, abnormal profit persistence is significant, but very low, almost zero. Hirsch and Gschwandtner (2013) found the lowest profit persistence in Belgium at 0.11. The Hungarian profit level is close to the equilibrium profit per sector. Based on the market structure of the Hungarian agricultural economy, low profit persistence is not really surprising. Agriculture is a traditional industry that can be done in small sizes as well. Hirsch and Hartmann (2014) point out that the profit persistence is lower in the food industry than in the manufacturing industry, where companies are much larger due to the economies of scale, so companies have more power on the market.

The only instrument to grow the abnormal return is growth rate; fast-growing companies regardless of their size can skim off the market to the highest possible degree. Persistence is mostly reduced by the share of subsidies received, i.e. non-repayable subsidies compensate for market competition, and they direct the economy towards profit of equilibrium. This is followed by market saturation, which also negatively affects profit persistence. The legal form of the company also influences abnormal profit persistence significantly, while companies operating as individual companies are in a better position due to the more favourable taxation conditions. Taking short- and long-term risks has a negative impact on profit persistence.

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THE IMPACT OF SOCIAL INNOVATION ON THE SOCIAL AND ECONOMIC SITUATION OF AN AREA[8]

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Abstract
Social innovation is a complex activity that targets innovative solutions to a resolve a local social problem. This can be a one-time or long-term sustainable intervention that can be even an initiative, a process, but a technology, product, or principle as well. Our daily activity is rationalized with innumerable innovations, making our work more efficient and managing our problems more easily. The computer, the phone, the various means of transport, the innovations that have a significant impact on our society, have an impact on our lives, a novel, creative solution to our problems.
Much of the social problems cannot be solved with one-off technology or business innovation, and often not even with central government tools. The aim of social innovation is to change the status quo and require an innovative approach, a sort of problem-solving thinking.
In our paper, we examined case studies of how social innovation can help the social problems of individual regions. During the research we examined the background of each problem and the answers given by social innovation. We have found that despite of the problems and the specific answers are unique in each case, there are elements that provide comparability, to draw general conclusions. As a result of generalization, we tried to draw conclusions that can later provide comprehensive answers to emerging problems. We believe that a knowledge-based social innovation is faster and more successful, so we consider knowledge-sharing as important factor of social innovation process.

Key words: social innovation, local problems, knowledge-sharing

1. INTRODUCTION

The appearance of social cooperatives in Hungary has a relatively short history, and at the beginning of our paper we try to find the most general definition.
The statutory framework for the social cooperative as a new organizational form was introduced in Hungary by Act X of 2006 on Cooperatives and by Law No. 141/2006 on Social Cooperatives.
According to the definition in Act X of 2006: "The cooperative is a body with legal personality, based on the share capital set out in the statutes, based on the principles of open membership and variable capital, whose purpose is to provide economic and social (cultural, education, social, health) needs to be met."
In addition to the definition in the law, we looked at the concept of social cooperatives over the years. "A social cooperative is a specialized, public benefit organization that combines the benefits of business organizations and social organizations by helping disadvantaged people find employment and meet the needs that an economic company cannot undertake. The primary task of the cooperative is to create jobs, but it also seeks to meet the social and cultural needs of members and, in some cases, their relatives."(Feik, 2017)
A social cooperative is an association of persons who emphasize the interests of the community in relation to individual interests. They consider it important to be able to develop individually and support the sustainability of local communities. They want to create a local/small community, inclusive and integrating society. Their activities are built on solidarity between people, with the development of shaping citizen behaviour and the democratic governance of operations as a priority (Németh, 2013).
Social cooperatives have grown into an autonomous association of people who voluntarily merge with the economic, social, community, educational and cultural goals that are implemented democratically. At the same time, they apply the fundamental principles of business associations and social organizations: they

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strive to unite their profit-and-social and cultural goals by fostering their employment-creating, community-organizing role. With their innovative ideas they strive to meet the unsatisfied local needs, but their role plays a particularly important role in improving the situation of people at the periphery of society and promoting the development of community personality (Simkó and Tarjányi 2011).
A social cooperative is basically a voluntary and open company, anyone who wants to work for social and community interests can join. They provide education and training to help disadvantaged people and engage in community interests. Members are democratically governed by equal voting rights and equal liability. In the cooperative, you may be engaged for an indefinite period as a member or employee for remuneration (G. Fekete-Lipták, 2014). In each of these definitions, volunteering, community interest, local value creation and fostering social inclusion are presented.
On the basis of the above it can be said that a social cooperative is a voluntary community association that aims to carry out value-creating work in a democratic framework, based on local opportunities, and to help the elimination of local social and unemployment problems by embracing the excluded people.
In the initial period, the widespread distribution of cooperatives was supported by the TÁMOP-2.4.3.B support scheme for the 2007 and 2009 support programs of the National Employment Public Foundation (OFA) and the social cooperatives announced in 2010.
With the support of the OFA program, 36 supported social cooperatives were finally developed. For the TÁMOP-2.4.3.B program announced in 2010, only those who had an officially registered social cooperative could apply. As a result, 57 out of 206 applicants received funding. In these applications, the production activities were already in the forefront, but the activities related to local government tasks appeared less predominantly.
Behind some of the winning applications, there were relatively successful entrepreneurs and managers with creative and financial reserves who saw an opportunity in this support and operation form. It could also be observed that cooperatives, whose leaders and members had the ability to complement each other, had different competencies and were better able to adapt to different market and environmental changes were more successful. Nevertheless, surveys also revealed that in most cases cooperatives were motivated by the funding sources, not by the social interest.
The next major stage of the process of the expansion and development of social cooperatives is the start-up work program, which started in 2012 with the involvement of many disadvantaged micro-regions. Within this framework, development started in several settlements and the community approach was beginning to form. According to governmental plans, in public agricultural employment programs, public sector workers receive proportionally decreasing government aid in addition to their own income. If the program is self-sustaining, applicants can develop social cooperatives.
The formation of social cooperatives is justified mainly in settlements with severe unemployment, as their work plays a significant role in employing disadvantaged workers. Nevertheless, they contribute to local economic and social development, the establishment of stabilization processes and the strengthening of community cohesion. A 2014 research confirms the above that social cooperatives helped achieve the highest public employment rate in most counties.
The sample programs of disadvantaged micro-regions and disadvantaged settlements play a decisive role among the public employment programs and subsidies. The realization of these projects has become an example of the functioning of self-sustaining settlements. The main goals within the program are not related to the tasks of the local government, but to value creation.
There are eight pillars in the sample work programs of the micro-region:
1) Agricultural project
2) Excess water drainage
3) Build agricultural roads
4) Bio and renewable energy use
5) Improvement of the public road network in the settlements
6) Elimination of illegal landfill sites
7) Winter and other value-creating public employment
8) Public employment based on local characteristics

Agricultural projects have a prominent role, and the successful implementation of these projects is reflected in the feedback. Participants have established social businesses and plan to establish a similar institution in several settlements. In the course of implementation, secure income and regular work changed the lives of the families participating in the program. The community itself has also undergone positive changes. All of this can contribute to the economic recovery of underdeveloped areas, something that is needed to catch up on disadvantaged settlements.

In the implementation, effective sharing of assets and cooperation between local governments is a top priority. The involvement of local minority self-governments is an important part of helping Roma people to become a part of the start-up programs.

In 2012, a public employment model program was launched in 94 micro-regions in disadvantaged areas, 5 settlements in the Gyöngyös micro-region and 3 micro-regions based on 3 individual decisions. Training of participants in the agricultural project is a priority for the applicants, the source of which is provided by the TÁMOP 2.1.6 "Re-learn" program. The success of the start-up sample program is confirmed by the fact that it is being advertised annually, which can be submitted by the relevant settlements by November 15 each year.

The settlement we examined, Ukk, is one of the keys to the success of the pilot program. The agricultural project here was the basis of the processes that now lead to a well-functioning social cooperative.

The local government has successfully applied the principle of the program, which is value creation itself. The participants of the project create jobs that serve the community in the long run. By engaging in production, beneficiaries can see the results of their work and become part of a community that helps their own development.

Building on local characteristics, Ukk found a way to development in agriculture, so the local government acquired undeveloped land and turned it into farming. The members of the cooperative cultivate these areas where the vegetables and fruits needed for the production are grown. These raw materials are used by Ukk's social cooperative, Bebic. Members take part in the production process applying labels to the final product (as we learned from the mayor of the settlement), thus gaining work experience. The sense of usefulness and active participation in community work are also important factors in the process of social inclusion and reintegration.

The conditions for the establishment of social cooperatives are governed by Act X. of 2006.

According to the law, a social cooperative may be established by at least seven founding members, subject to the payment of a financial contribution. In addition to its natural persons, at least one local government or national minority self-government (or an association of legal persons or an organization with public benefit status providing charity) must be included as a member. One of the reasons for this is that with the inclusion of the local government, it can provide significant support to the social cooperative, as it has a significant set of assets beyond contact capital. In addition, it has a greater insight into application opportunities, which may also be used by the cooperative. It is important to note that staff members of the cooperative have a binding obligation.

It has also been determined that in case of social cooperatives legal entities may not exceed 25% of the total members and the financial contribution of each member may not exceed fifteen per cent of the capital, and the sum of the non-natural assets contribution may not exceed one third of the capital.

A cooperative is established at a general meeting on which the presence of the founding members is mandatory. Here, the articles of incorporation will be adopted and signed by each founding member.

The operation is based on democratic principles; irrespective of financial contribution (each member has one vote). In the case of social cooperatives, the minimum amount of founding capital is not specified; however, the founding members are obliged to pay social contribution only if the cooperative has profit.

The social cooperative is a community foundation from which members and/or relatives benefit. Benefits from this fund may include social benefits and other subsidies, meal allowance, retirement allowance, holiday allowance, education, training grants, scholarships, language courses, support for public cultural, cultural and sporting activities.

In the case of social cooperatives, natural persons can be involved in the production process based on membership. Members may not work for another employer in the course of work. Members can benefit from the jointly produced goods, as a reward for their personal contribution to the production or processing.
Within the framework of the cooperative, self-employment is also possible. For a period of four years the social cooperative is exempted from the payment of social and health insurance contribution for its members.
Despite all the positive aspects, unfortunately, problems have also emerged within cooperatives. The selection of disadvantaged people, their disciplined, quality work and their strong attachment to the cooperative, and the development of their community, membership and ownership approach have often been difficult. It was also a problem that a large part of the social cooperatives formed was not really good at establishing partnerships with the local government. From a different point of view, it is also worth considering that the relationship with the local government may become a barrier in the long run, as the means or relationships they provide play an important role in the life of cooperatives. Obstacles were also caused by the problems arising from inappropriate management or members' ownership.

2. MATERIAL AND METHOD

Primary and secondary data were analysed. Our secondary data were collected from the database of the Central Statistical Office and the primary data were obtained through structured interviews.
Ukk settlement is located in the Central Transdanubian region, within Veszprém County. As part of the Sümeg micro-region, it lies within 10 kilometres of Sümeg, it has approximately 350 inhabitants. The village has an area of 1387 hectares, and its history dates back to the XII century.
Within the Sümeg micro-region, Sümeg alone has the city rank, which plays a central role, the other settlements are villages. In 2002, a large number of companies were registered in Sümeg. In the Sümeg region, a large number of private entrepreneurs are represented, which reflects the strength of the region's capital. Most companies do not employ any workforce, and statistics show that all businesses in the district are classified as small and medium-sized enterprises. (Except for annual turnover, we look only at the number of employees.) There is no clear sign of an outstanding sector, but Gógánfa and Sümeg have a built-up industrial area.
Its main road is the road no. 84, which touches Sümeg beside Ukk. There are train stations in Sümeg, Ukk, Gógánfa, Dabronc, so they can be easily reached by train. Although, the bus transport has been solved, it needs further improvements, in order to connect the two settlements. In terms of public transport Sümeg and Gógánfa are the two settlements with the best infrastructure. According to data from 2002, there are only a few modern agricultural machinery and farm buildings for agricultural infrastructure.
According to a 2002 survey population was constantly declining; however between 2009 and 2015 a population growth could be traced.
In the micro-region, agriculture is the primary source of income (29.6%), which is very low, though far above the county average (based on data from 2002). The proportion of private farms is extremely high, they own almost half of the land (49.8%) but it can be observed that the number of people employed in the agricultural sector on the regional level is decreasing over the years. Among the main plant species grown in the area are autumn wheat, spring barley, corn, rape and sunflower.
Since 2009, the unemployment rate has declined; while in 2009 33 people were looking for jobs, in 2015 this number dropped to 11. One of the reasons is that traditional crafts have been reintroduced, such as basket weaving, wood carving and pottery.
In 2002 unemployment was high and as a consequence the region became even more disadvantaged, the standard of living declined further, and the socio-economic tensions became more and more intensified. In the absence of a tenderer, and in view of the lack of information flow, it seemed almost impossible to exploit the opportunities offered.

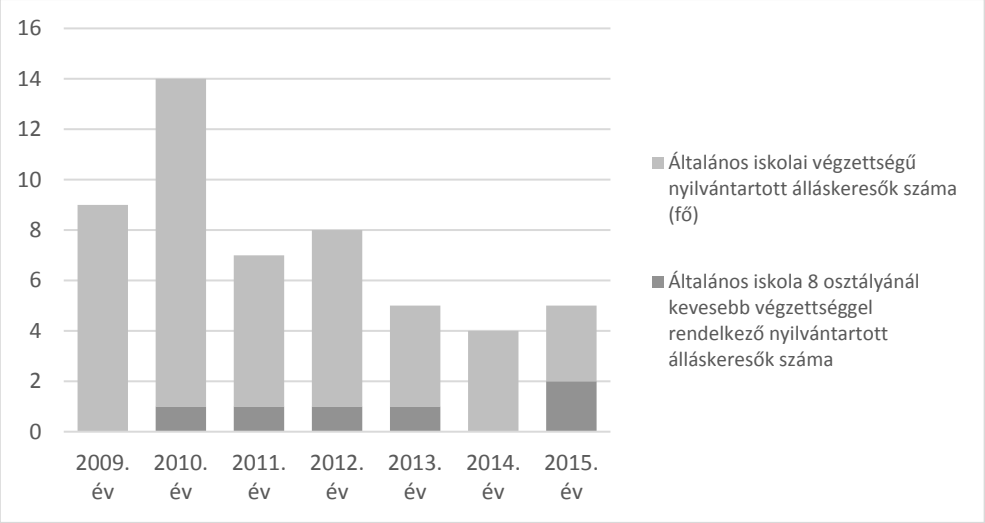

Figure 1: Number of registered jobseekers with up to primary school qualifications

Source: own editing based on KSH

As a result of the crisis in 2009, the number of unemployed people increased in Ukk, so in 2010 there were fourteen job seekers, most of them with primary education. In 2011, 2012 and 2013, this ratio fell considerably, so only 5-8 people were looking for jobs. In 2014, there was no one without at least primary education and the number of unemployed people also declined. In 2015, however, new people without primary school education appeared among job seekers.

From 2009, the population of the settlement increased by 10%. Population growth could be seen already in 2009 but the highest number was reached in 2011 and 2013, 358 people. This figure showed a very slight change in the years 2014-2015.

Domestic migration shows a positive tendency in Ukk, as an increasing trend has evolved over the years, and the number of migrants is decreasing. Thus, while 11 people left the village in 2009, only 5 people moved out in 2013. Unfortunately, this figure grew nearly three times in 2014, but fortunately, this situation lasted only for a year, which means that the number of the migrant population fell again by 2015.

The number of job-seekers doing manual labour was extremely high in the 2009-2010 years, reaching 31 people, which is a very high rate for a 350-person settlement. Fortunately, this number decreased to nearly half by 2011-2012, and in the following years it was even smaller.

Based on the analysis of the statistics for the period between 2009 and 2015, we found the following:

In 2015 a relatively small number of people living in the village received basic social services and day care, nearly 3.5 per cent of the population, which was even smaller before, 0.2 per cent. At the beginning of the examined years there were 30 people who received family aid, the highest number was 45, but this amount fell to only 5 by 2015. The proportion of men and women with disabilities (who receive care) is nearly equal; in 2015 there were 14 men and 15 women who could be assisted by the Bébic cooperative, offering them work in production.

The number of registered primary producers is almost constant each year, so the cooperative can rely on their help and vice versa. The number of cultural events has declined over the years, almost half as much, and the number of participants has dropped dramatically. While more than 2,200 people participated in the 50 events in 2009, only 159 of them participated in the 2015 programs.

Even though the number of unemployed people in the municipality decreased by one third in 2015, job vacancy is still a problem. This can be solved by the cooperative's job creation program with the involvement of local youth. As residents close to retirement age find it difficult to find a suitable job, it would be beneficial for them to participate actively in the work of the cooperative.

The above data also show that, in view of Veszprém County, the micro-region is on the periphery and Ukk is in a difficult position to be accessed along the main road and the main railway line.

3. RESULTS AND DISCUSSION

The election of the new mayor was central to the development of Ukk, who sought to reduce the high unemployment rate with his charismatic personality. The solution was found within the Start-up Model Program. With the involvement of local government resources and the support of the community, it has focused on agricultural areas and the full exploitation of the local conditions. The further development of the program was the Bébic Social Cooperative established in 2013, which started with the support of 3 members and the local government (which is still active).
The settlement initially cooperated with Ukk Development, which was later merged with the Bébic Social Cooperative in May 2015. This is because the previously established cooperative did not meet certain operating and foundation criteria (e.g. the municipality was not a founding member, the number of employees did not reach the specified minimum number). Since then, the two cooperatives have been mentioned as one, Bébic Social Cooperative.
Within the framework of this cooperative, initially, 15-20 people started farming on plantations. The social cooperative deals with high quality marmalades and drinks from raw materials made from sea buckthorn, raspberry, strawberry, beetroot and other vegetable plantations created in local government areas. In addition, it produces cold pressed oils (pumpkin seed, walnut).
The quality of their products is justified by the compliance with the provisions of the Trademark Code for the Quality of the Country - Vital Balaton Uplands. Thanks to the use of the trademark, market access opportunities have increased.
Among their products include:
• beetroot, raspberry, raspberry juice, apple juice, strawberry juice
• sunflower oil, peach seed oil, pumpkin oil, walnut oil, poppy oil and seed creams made from these
• pumpkins, carrot juice
• berry herbs (elderberry, sea buckthorn etc.)
• dried fruits
They can now be purchased at Ukk, local markets and at Balatonakali in a shop. Subsequently, they are planning to open stores in major cities, mainly focusing on expansion in Budapest.
Other activities of the cooperative include camping for young people, organizing various events, holding lectures and presentations for those interested.
It is also a good example of how to deal with young people, in the spring of 2017, as a partner in the project "Healthy Tapolca, Healthy Economy". In the framework of the project, the Batsányi Gimnázium teams in Tapolca worked with one producer to develop their own products, calculate their own costs, develop a sales strategy and sell products on the Tapolca market. The Bébic Social Cooperative teamed up with the Future Generation team and launched "fresh fruit juices" (2.5 dl) that fit the taste of young people with. The race was won by the Future Generation team; fruit juices have been overwhelmingly successful. Thanks to the successful cooperation, these juices have been part of Bébic's product range ever since.
The main goal of Bébic was to produce good quality products at affordable prices. For example, a seven decilitres jar of marmalade costs 1000 forints. Only local ingredients are used for their products, produced by local residents, thus preserving a homely atmosphere suitable for the village.
In their work, special attention is paid to environmental awareness, selective waste collection, chemical-free spraying and composting to protect our environment.
The process of production is freely accessible to those interested, as they operate as an open economy.
They regularly participate in programs that take place every year:
• Budapest public work exhibition
• Tapolca expo (the raspberry jam won the title of the best jam of the Tapolca area)
• Thanks to the Living Trademark, you will see all the forums where the Association for Vital Balaton Uplands is represented.
The Cooperative maintains a good relationship with two small settlements in Borsod-Abaúj-Zemplén county, thus creating an information channel between the two regions.

The successful career of Bébic was further strengthened by the acquisition of the Countryside Quality Trademark, which, in addition to being a major acknowledgment, justifies the quality of their products.
The trademark was established by the Association for Living Lakes Upper Families during 2013-2014 with its partners, with the aim of promoting the hidden quality local products and services of the countryside. The Regional Trademark Council decided on the award of the trademark after an in-depth interview with representatives of the trade group on the spot. This decision process gave them the right to use the trademark.
In 2016, in cooperation with the professional and commercial partners of the Association for Growing Balaton Uplands, it established the LOCATION Point network in the Balaton Uplands. In the network's stores, trademarked products can be viewed or purchased by those interested. The new store opening in Budapest also contains the products of Bébic.
Other projects of Bébic include the creation and distribution of a product catalogue, as well as the implementation of an online store. Among their long-term plans, we can find the building of a warehouse and delivery of their products to the restaurants in Budapest.
During our visit to the Cooperative, the mayor's large-scale plan, which is still under construction, is mentioned, linking the similarly functioning social cooperatives of the countryside. This would actually create a network that would positively affect the lives of all cooperatives by sharing resources, knowledge and experience among them.

4. OPERATING MODEL

The Bébic Social Cooperative produces raw materials (vegetables and fruits) on local plantations in order to produce local products in a local government-run plant. In the course of farming, the planting of relatively rare plants is also encouraged, making it even easier to draw attention to the end products, as customers are expected to be motivated to try out sea buckthorn syrup consisting exclusively of natural ingredients. Oil is also a great specialty, large quantities of oil is extracted from seeds and they are extremely rich in proteins and vitamin E. Pumpkin seed oil is now an extremely widespread product, because its value and quality are of the highest quality among edible or cooking oils. The residual natural waste is used for the composting, so the plant promotes the importance of environmental awareness and provides fertile soil for the plantations, thus creating healthier plants. In the neighbouring settlements, private holdings also have large quantities of fruit and vegetable plantations, so in 2015 there was a high demand to start large-scale production in Ukk from the fruits brought by people. Therefore, during the winter time raw materials were brought from the neighbouring villages and they were processed in Ukk, the end products, the juices were packed in Bag in Boxes. These are usually 3 litre bags to store the juice. It is also a huge advantage that this type of packaging is cheap, environmentally friendly and the product is prevented from oxidizing, so its taste and quality does not change. During the two and a half years of processing, it can be concluded that people who have already used the fruit juice processing service have now become returning guests. One of the most effective advertising is the mouthpiece, of course, with the Bébic case, with positive feedback, as new customers from the distant parts of the country are now beginning to be interested in this fruit juice processing service of Ukk. This kind of activity has become an important part in the life of the Cooperative that this is the major part of its revenue. For this reason, of course, it is not just a creative idea, but a profitable one; the size of the plant has become too small to satisfy the customers' demand. Though the room is relatively small, the operator, the local government and the local mayor do not want to expand. The already mentioned municipality, which is also the founding member of the Cooperative, highly supports the work of Bébic, i.e. the full cost of the equipment and the plant itself.
Processing is carried out by three people originally from the Public Employment Program. Even though this number is being expanded, this is not possible now. One of the reasons for this is that the current income does not produce more labour force wages, and on the other hand Ukk has significantly reduced the number of unemployed, so increasing labour force can be a serious problem. Thanks to the operation of the Cooperative, the public employees returned to the labour market and successfully found a job. Many of the tasks of current staff include a variety of activities such as processing, packing, bottling, packaging, as well as composting.

Building a sales channel is a huge task, because it is not enough to make the products, but they need to be promoted and distributed. In Ukk, the products are sold in the local shop, while the Cooperative participates on several exhibitions where the products are available to the interested persons. They also take part on conferences where they attract the attention of a number of prospective buyers. In terms of design they use retro style glass jars with the caps covered by white and blue fabric. As far as packaging is concerned, the fruit juice can be found in any size from three-litre bags up to small 2.5 decilitres.
Future development includes the recruitment of a sales person and a breakfast buffet will be opened in Budapest within the framework of the Living Trademark. Local food and handicraft products are placed on the store shelves, and there is also a plan to build a warehouse in Budapest in order to be able to deliver the products to restaurants in Budapest as well.

5. PROBLEMS, DIFFICULTIES

In 2012, the Start-Up model program was launched in Ukk, where the mayor had the opportunity to increase employment. He saw potential in agricultural production because he believed that all members of the community could find a possibility to work there. Its purpose was to employ as many local and neighbourhood residents as possible. At the beginning, there were some difficulties in starting this employment process, as most of the people did not go to work and disregarded and kind of obligations. Many of them have not worked for more than 20 years, and there were some who were completely isolated from the outside world. The further development of the program was the establishment of the Bébic Social Cooperative in 2013, as the cooperative needed workforce. The cooperative also focused on agricultural production so that local people could be involved. The mayor did not have an easy job, he went personally to call people to work, and monitored them in order not to leave work. Even during work the mayor constantly pushed people to work harder and do better job, regularly motivated them. He has organized a lot of social programs for the members of the cooperative, aiming to learn what the concept of community means, how they can work effectively together and help each other. By 2014, workers from neighbouring settlements were also welcomed. It can be said that this program was extremely successful both for the local government and the participants of the program as well, but it also led to the inhibition of Bébic's operation. Today, the remaining 20 are still active members of the Cooperative, and because of the above-mentioned reasons, it is very difficult to find new workforce that hampers production growth. Actually, they were so successful in implementing their program that this was at the expense of their own operation and expansion.

6. CONCLUSIONS, SUGGESTIONS

Based on our visit to the social cooperatives and our visit to the Bébic Social Cooperative, our comments and suggestions can be summarized as follows:
The operational plan to ensure a value-creating job for those who do not find employment on the labour market is successful, but it is important to point out that all such programs are successful because they have a charismatic leader. The experience and perseverance of this leader is necessary for the successful implementation of the program, as it is not enough to have a good idea, it needs to be properly planned. The launch of a similar program is usually due to a well-written application, but in most cases, the application can only give the starting boost, while its sustainability depends on the beneficiaries and its members. To do this, however, the program has to be market-based, the operation and sales must be designed so that the revenue can cover the costs and expenses. Programs will therefore work successfully where the leader (s) can respond adequately to emerging problems and market challenges.
For example, they strive to get more revenue (see Paid Jobs at Bébic) and to expand sales channels (trademark software, webshop) and expanding product range (new flavours). Economic performance of the village can be improved, on the one hand, sales success allows higher wages, and on the other hand, the employment of active seniors may rise.
In short, we would like to point out that the adaptability of successful programs is possible, but it is important to consider the fact that success highly depends on the experience and the persistence of the leadership. However, some of the leadership skills can be learned and practiced. For this reason, knowledge

sharing and collaboration are of utmost importance, it is recommended to research good examples and discuss them on conferences and workshops.

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QUESTIONNAIRE EXAMINATION OF ECONOMIC PSYCHOLOGICAL FACTORS AFFECTING UNETHICAL BUSINESS BEHAVIOUR

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Abstract: There are several economic models in the literature that seek to correlate human behaviour patterns, attitudes and tax evasion, its risks and their institutional background. Unethical business behavior and the causes of the hidden economy are examined extensively by the means of multiple research methods. The aim of the investigations is to complement the classical economics statements - according to which the tax avoidance depends on the number of checks, the extent of punishment, the income levels of the individuals and the measure of the tax rates - with sociology and behavioural fields. Both the cultural environment and the demographic factors (gender, age, and marital status) may have an impact on tax morals, also national pride and higher levels of confidence among citizens towards the government, the tax authorities and other legal institutions may also have a beneficial effect. In addition, friendly and respectful treatment with taxpayers, their treatment as partners can also improve the willingness to pay taxes, respectively, the direct political participation of citizens, involvement in political decisions, and the democracy can have a significant impact on tax morals as well. The purpose of the research is to compile a questionnaire based on the literature, which examines unethical business behaviour, the reasons for the development of the black economy from economic psychological point of view, extended with the Rosenberg's self-esteem scale which is used to measure self-esteem – applied in international research – trying to find the answer to the question whether the self-esteem volume of the individual could affect the engagement with hidden economy.

Keywords: self-esteem, pilot-survey, Rosenberg Self-Esteem Scale, shadow economy, fiscal fraud

1. INTRODUCTION

Most often, one of the leading causes of the development of the black economy is attributed to high tax burdens, but in many research studies it has been shown that tax reduction is not necessarily accompanied by an increase in the income from taxation. The existence of taxation dates back to the emergence of states. Different and varied forms of tax evasion existed in various historical periods and cultures. Taxation is a very complicated and complex system of tools, so there are often very complicated, tangible phenomena behind tax evasion, tax avoidance and tax denial. In the fast-paced, rapidly changing economic environment of today, tax-related abuses are hard to track because human ingenuity knows no boundaries. „The hidden economy is one of the phenomena that can be found in all market economies, but varying from country to country, and this difference is important information about the state of the economy, the behavior of economic operators, and the acceptance of government and government measures" (Szántó – Tóth, 2001). In order to reduce, eliminate abuses, it is important for organizations and authorities assigned to taxation to be prepared and have the most efficient instruments possible. In order to increase preparedness, this research and the feedback of the experiences gained may also be important.

Figure 1 shows the number of major crimes committed against the budget in Hungary in the years 2014-2016. The value of known crimes in 2014 was HUF 148.8 billion, in 2015 HUF 136.6 billion, of which the value of fraud in the area of fiscal fraud was nearly HUF 139 billion in 2015 and nearly HUF 131 billion in 2014. In 2016 these two figures amounted to HUF 109.5 billion and HUF 98.1 billion. The value of crimes falling within the scope of fiscal fraud amounts to 93.4%, to 95.9%, and to 89.6% of the aggregate value of crimes, which can be considered to be significantly high. Because of these high values it is also

important that the Criminal Department of the Tax Authority and the investigative bodies under its control focus their resources on the prevention of the damages caused by the perpetrators of financial crimes and the activities of organized crime groups in order to protect the Hungarian budget.

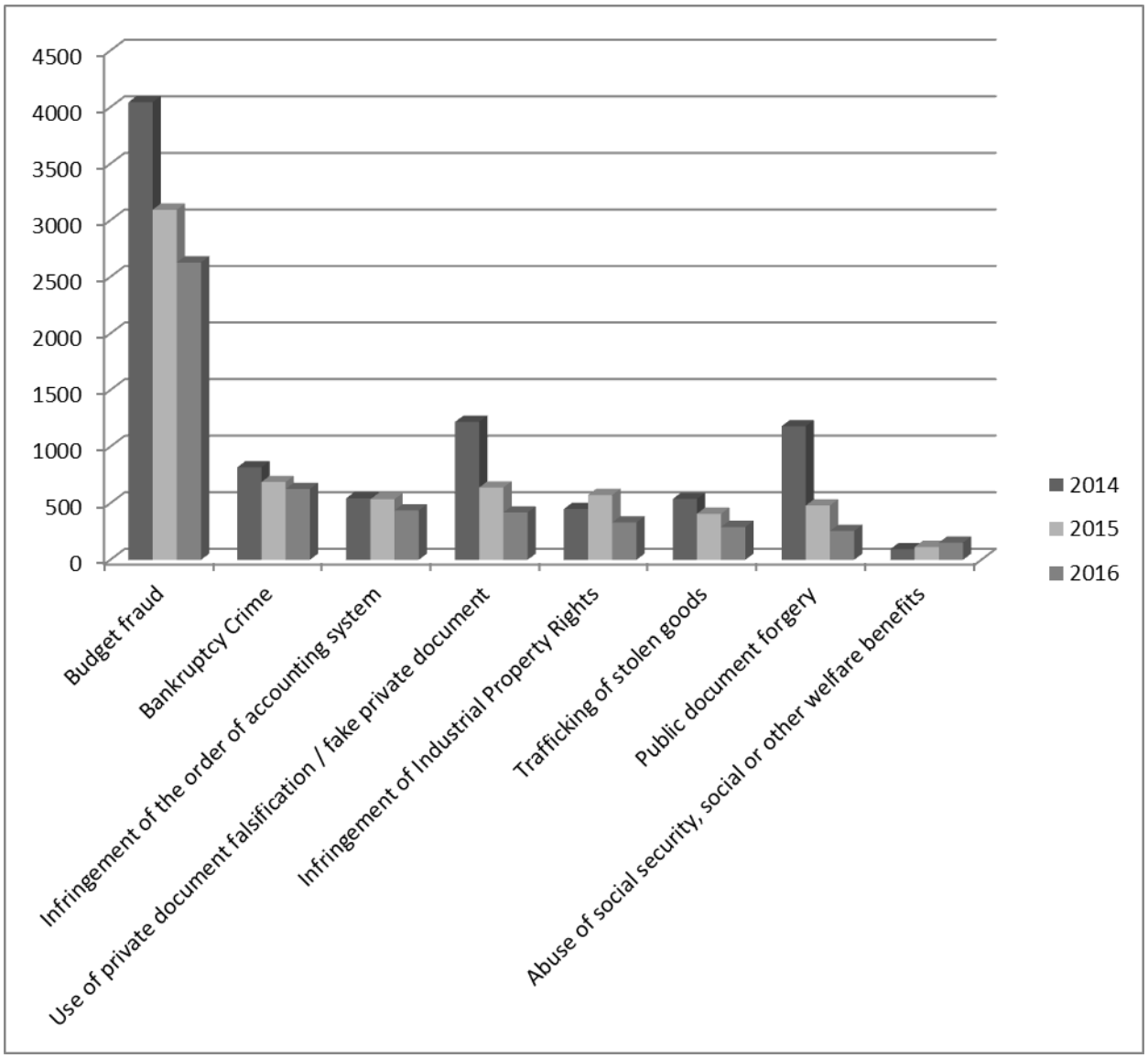

Figure 1: The number of major crimes committed against the budget in Hungary in the years 2014-2016

In the life of the National Tax and Customs Office (NAV), a turning point was the year 2016. In 2016, the process started to make NAV a non-tax office, but a provider of services acting in a way that supports taxpayers' affairs. The aim of the transformation is to create a tax office that cooperates with customers to effectively meet the social and government expectations, by transforming the culture of administration and by creating the availability of services, taxpayers are encouraged to pay fair tax payments. For this reason, a supportive procedure was formed that helps to correct mistakes instead of immediate punishment. The rating of taxpayers – also in 2016 - provided the opportunity to get profitable taxpayers, within the limits provided by the law. The so called 'company gate system' (in Hungarian Cégkapu), introduced on 1 January 2018, aimed at providing the most efficient, accurate and correct information. The main goal is to operate a credible, client-centred National Taxation and Customs Administration, which is accepted by the society and at the same time improves voluntary observance and tax moral (NAV

Évkönyv 2014-15-16). The choice of topic - the factors influencing the tax morals and the examination of these - therefore, also because of the reform of the tax authority, is very timely and necessary.

2. HISTORY, SPECIAL LITERATURE REVIEW

Compliance with tax liability is different in each country and culture. There is a significant special literature available in which we can find that compliance with the rules is influenced by social norms (Elster, 1989). In order to develop policies to help tax-evasion reduction, it is essential to understand the behavioral attitudes behind the decision-making of tax compliance. It is desirable to develop tax policies that encourage tax compliance within the existing tax system. If the individual attitudes of compliance are dependent on social and cultural norms, then the improvement of these norms may be a desirable political option.

Based on the analysis of the microeconomic models of tax evasion we can assume that tax evasion shows a decreasing tendency with the increase in the number of controls, also, with the rise of the rate of punishment, and the spread of tax evasion depends on individuals' incomes and the level of tax rates as well. In the special literature, there are several economic models that seek to correlate human behavior patterns, attitudes and tax evasion and risk. The Allingham-Sandmo model (1972), which further develops the model of Becker (1968), is a pioneer among the theoretical models of tax behavior. Among the game theory models, it is worth mentioning Corchòn's model (1992), which describes the coexistence norms of the economic operators by the game of the robber and police of a citizen trying to escape from the taxing state and obligations. Similarly, Ehrlich's model (1973) shows the possibility of choosing between legal and illegal activities. According to these classic models, the individual decision determining the tax attitude dependens on the income level of the taxpayer, the rates of taxes, and the probability of getting caught and the extent of the penalty.

According to the classical models of tax evasion, their decision on tax behavior is assessed rationally by the expected impacts of the above variables. According to classical models, control probability has a positive effect on taxpayers' compliance, and the degree of punishment has a considerable deterrent effect. The positive impact of control probabilities is supported by empirical studies, while the degree of punishment is less clear. There are also significant contradictions in connection with the impacts of income and tax rates. According to Kirchgässner (2010) the motivations behind economic-investment decisions are far from being rational, classical economics models identify important factors but cannot explain the behavior of taxpayers. Tax compliance depends on a number of factors ranging from the deterrence popular in most countries within the economies, the level of fines and the rate of controls. The deterrence models forecast however too much leniency and only a small amount of tax evasion (Alm - Torgler, 2005). Because of these contradictions, it is expedient to extend investigations in sociology and fields of behavior science as well.

Despite the fact that tax policy is the most obvious means of enforcing and regulating tax payments, the policy of deterrence, that is the prospect of higher penalties and fines, or compulsory or counterproductive effects, can be offset by taxpayers because of the loss of trust in state institutions. There are numerous international studies that go beyond the tools of classical economics models, and examine the factors affecting taxpayers' willingness to pay tax on economic psychological, behavioral and sociological aspects, among other things the impact of cultural norms on willingness to pay tax. Compliance with the tax liability is a complex behavioral problem and its examination requires the use of different methods and data sources, as each utility has its advantages and shortcomings. Both empirical and laboratory data show that cultural norms (Cummings et al., 2004) and religious behavior (Kirchler, 1999; Kirchgässner, 2010) have an impact on willingness to pay tax. In addition to the cultural factors, the positive effect of national pride on the tax morale can also be established (Schneider-Torgler, 2006). There are several studies on demographic factors that have a significant impact on willingness to pay taxes (Schneider-Torgler, 2006; Kirchler, 1997, 1999; Kirchgässner, 2010). The age (Kirchler, 1996, 1997, 1999, Schmölders, 1960,

Strümpel, 1969, Kirchgässner, 2010), the gender (Kirchler, 1999; Kirchgässner, 2010; Schneider-Torgler, 2006) and marital status (Kirchgässner, 2010; Schneider-Torgler, 2006) is related to general tax attitudes, that is, taxation mentality and tax moral depend on the respondents' demographic characteristics. Investigations in demographic factors have shown that women and married people have higher tax morale, and widows' tax payment willingness is higher (Schneider-Torgler, 2006).

In addition to cultural and demographic factors, several studies are also exploring the impact of the relationship between state, state institutions, control bodies and taxpayers on tax moral. Studies show that a higher level of confidence among citizens in the government, tax authorities and other legal institutions is favorably influenced tax moral (Alm et al., 2005; Frey-Torgler, 2006; Cummings et al., 2004). The stability of the tax system, the effect of regulations, the complexity and transparency of the tax system also has an impact on tax moral (Schneider, 2000; Schneider et al., 2012). In addition, the friendly and respectful treatment of taxpayers, as a partner, can also improve the willingness to pay taxes (Strümpel 1969; Frey-Feld 2002; Kirchler et al., 2010) and the direct political involvement of citizens political decisions, democracy has a significant positive impact on the tax moral (Frey - Torgler, 2006). Recently, we can see that governments are increasingly adopting behavioral techniques to change individual behaviour in order to achieve policy goals. So called "nudge interventions" adopted by governments can, without coercion or change of economic decisions, modify the decisions of the people. The calculations show that the cost of these interventions - such as tax incentives or other financial incentives - may often be even more favorable than the cost of interventions with traditional political tools. For this reason, it is worth investing behavioral policies to complement traditional policies both inside and outside the government (Thaler et al., 2017).

In addition, a number of studies explore the relationship between money and self-esteem, two factors that people generally desires. The relationship between money and self-esteem can be: increase, substitution and competition. The augmentation effect shows that excellent salary opportunities increase the level of self-esteem. The substitution effect means that money and self-esteem can partially compensate each other. The symbolic meaning of money, the individual differences and the extent of the need for money affect how money and self-esteem can substitute each other. Competition effect emphasizes people's choice between money and self-esteem. Money and self-esteem compete when decision makers have to choose between them. Since these theories can help to bridge the gap between psychology and economics and provide an integrative perspective on understanding human decision-making (Zhang, 2009), I find it practical to expand investigations by revealing the relationships between self-esteem and engagement with a hidden economy.

The concept of self and its component of evaluation, self-assessment, one of the most researched phenomena of personality and social psychology, the health-psychological aspects of which are also significant. It is generally assumed that people are strongly motivated to maintain and protect their high self-esteem (V. Komlósi, 2007). Self-evaluation is a relatively stable, feature-like characteristic that can be related, for example, to age or gender, but is also associated with many health indicators. In other longitudinal studies, the low level of self-assessment by Rosenberg Self-Esteem Scale predicted some aspects of adult health and behavior in adolescence, such as worse financial outcomes, weaker physical and mental health, and higher risk of crime commitment (Trzesniewski, 2006).

Since we can find studies to explore the relationship between money and self-esteem, a low self-esteem and greater risk of crime commitment, I would like to take a look at the direct relationship between self-esteem and tax evasion, tax avoidance, tax denial – and whether the individuals' self-esteem can affect the engagement with a hidden economy.

The research questionnaire utilized had been developed by Rosenberg (1965, 1989) measuring "global" self-esteem (Rosenberg Self-Esteem Scale). Nowadays, this is the most commonly used appraisal questionnaire. It contains ten (5 positive and 5 negative) statements about the value of self and self-

acceptance. With the help of the four-stage Likert-scale (1 - strongly disagree, 2 - disagree, 3 - agree, 4 - strongly agree) it can indicate how much the respondent agrees with each statement. The reliability and validity of the scale is justified by a number of test samples (e.g. adolescents, elderly people, and psychiatric patient groups) and research results obtained in different cultures. There are several translated versions in Hungary. The Hungarian translation has a more simple language but it can be stated that the scale has always been reliable and valid regardless of translation differences. The factor structure of the measuring instrument has also been studied in a number of domestic and international studies, and the results mostly support the validity of the one-dimensional factor structure, but also indicate that positively and negatively-defined items are separate. The two-dimensional structure derives from the methodological distortion that the positive and negative content formulas result in systematic variance, which is more due to the response to the stylistic distortion of the response rather than the construct (V. Komlósi et al., 2017). In my questionnaire, which is currently being tested in Hungarian, I use the translated version of Sallay et al. (2014).

3. MATERIAL AND METHODS

Measurement of the shadow economy is possible through micro-level surveys, questionnaires, interviews or indirect methods such as demand for currency and hidden variables, using macroeconomic indicators. The direct estimation of the hidden economy is mostly based on the composition of the Multiple Indicators Multiple Causes (MIMIC) and the currency demand method. MIMIC means that there are more indicators, more reasons, that is to say, the shadow economy, taking into account more aspects. The MIMIC procedure assumes that the hidden economy is an observable phenomenon (a hidden variable) that can be used to estimate the measurable causes of illegal employment such as tax burden and regulatory intensity, indicators of illegal activity, demand for currency, and official working hours. The disadvantage of this method is that it is only a relative estimate of the development and size of the hidden economy. In addition, there are a large number of World Values Survey (WVS) and European Values Survey (EVS) data sets that enable the conduct of empirical studies within the subject. It contains factors on a personal level that may affect citizens' attitudes towards paying taxes. The WVS is a set of data on the world-wide survey of socio-cultural and political attitudes that contains the value of comparative data and belief systems across the world. The EVS data set is a similar survey focusing solely on EU countries. Both surveys have been widely used by political scientists and economists. Using the World Values Survey (WVS) and the European Values Survey (EVS) data series, we can analyze the impact of social norms and government institutions by controlling the personal factors in a multiple regression analysis where tax morals are subordinated variables. Although each of the methods has weaknesses and strengths that will certainly prevail in the estimates of the hidden economy, it is obvious that the shadow economy cannot be measured accurately. Macro estimates from the MIMIC model and demand for currency are considered to be the upper limit of estimates, while microphone estimates are considered to be the lower limit of estimates. Among the listed methods, I selected the method of questionnaire surveys for the first time to measure the attitudes that motivated the entry into the black economy, with the aim of supporting the relationships revealed on the basis of the previously published international literature, but I do not neglect to compare the results of the measurements with the other listed methods.

Questionnaire testing and pilot reserach were made among competent executives of taxation decisions of small and medium-sized enterprises of various sizes and activities in Hungary. The survey covers the following factors:

- the income rate of taxpayers', the tax rates, the probability of control/getting caught and the extent of punishment on the willingness to pay tax
- the impact of demographic factors (gender, age, marital status, qualifications, number of children) on tax moral
- the impact of national pride on willingness to pay taxes

- the friendly and respectful treatment of taxpayers, its impact on tax moral
- the direct involvement of citizens in political decisions, the impact of democracy on tax moral

In addition to the factors studied so far, I would like to extend the survey with the effect of self-esteem on tax moral, using the Rosenberg Self-Esteem Scale used in international research to measure self-esteem. Several studies deal with the relationship between money and self-esteem and the relationship between low self-esteem and criminal behavior. The aim of the research is therefore to compile a questionnaire that examines non ethical business behavior, focusing on the causes of the development of the black economy from the point of view of economics and psychology. Test queries in step 1 involved 7 people, and then, based on their experience, they were re-tested with 10 participants after repair and fine-tuning. The test results of the improved version of the questionnaire are presented in this study.

4. RESULTS AND DISCUSSION

The questionnaire was compiled on the basis of the results of the above-mentioned international literature, complemented by self-constructed questions and Rosenberg's Self-Esteem Scale questions. The purpose of the present study was to summarize the literature needed for the compilation of the questionnaire and to test the questionnaire, also to summarize the results obtained.

In the first part of the questionnaire, questions about the weight and components of the hidden economy are given by Semjén and Tóth (2004) and Balogh et al. (2014). The questions asked participants whether they believed that the number of unpaid sales, the employment of undeclared employees, the purchase of fictitious cost accounts or the recording of personal consumption as a cost between the business partners and the competitors, and in the Hungarian economy - and how they are judged by these phenomena.

In the second part, I examined the relationship of the taxpayer with the government, legal institutions and control bodies and their impact on the willingness to pay tax. The questions were compiled from the study of Semjén and Tóth (2004), supplemented by self-constructed questions. In this section, I also share the influence of national pride on the tax moral.

The third part contains the questions of Rosenberg's Self-Esteem Scale in a questionnaire constructed in the Hungarian language in the translation used by Sallay et al. (2014).

In the fourth part, demographic data are included, such as gender, age, and marital status, number of children living in common households, residence, highest education, average monthly net income per capita, nationality and status of the respondent (position).

While I administered the questionnaires I asked the respondents to indicate the complexity of the questions, their difficulty in understanding or the deficiencies. At the time of questionnaire 1 testing, one of the shortcomings was mentioned that the business sector is not among the issues, as they believe that the black economy and the extent of tax evasion also depend on the scope of activity. There are some sectors that are more widespread than others. Questions on demographic factors have therefore been considered useful in addition to this issue. The business activities were classified according to a single sectoral classification system (TEÁOR) and the content of activities defined by the economic activities valid from 1 January 2008.

Questions in the questionnaire are closed questions, I offer pre-defined responses, and the participants should choose the appropriate answer. Questionanires were paper-based and administered individually, monitored by the researcher. After testing the questionnaire and making the necessary changes, I was planning to use an online questionnaire to reach a larger sample.

The questionnaire was conducted with the participation of 10 people - small and medium-sized enterprises in Hungary, competent executives in tax decisions. In terms of demographic data, 3 men and 7 women were among the respondents. Regarding their age, 1 person is aged 18-26, 4 persons between 26-35, 4 persons between 36-45 years and 1 person between 46-55 years. Of the respondents, 2 are married, 3 are single, 1 is divorced and 4 are cohabiting. Considering the children living in common households 6 have no children, 2 have 1 child, 1 has 2 children and 1 has three children. 1 lives in a city and 9 in the capital. From the point of view of education, 4 persons have higher education and 6 have secondary education. Their net earnings per person are between HUF 50-100 thousand, for 7 it is between HUF 100-200 thousand, for 1 between HUF 200-300 thousand and 1 over HUF 300 thousand. From the point of view of their responsibilities in the business, 2 are owners and managers at the same time, and 8 people are managers competent in financial decisions.

In the section on the weight and components of the hidden economy, I was interested in how often respondents think of unpaid sales, employment of undeclared employees, buying a fictitious cost account, and accounting for personal consumption in the business - both business partners and competitors and generally in the Hungarian economy. In addition, to what extent their competition is threatened if their competitors are in contact with the black economy, how are they entitled to pay less than the prescribed tax and who believes that the tax fraud will be detrimental to them. I also asked them (by evaluating a scale of 1-6) to what extent tax increases, rigor, correct information, tax culture, simplification of the tax system and tax reduction are tools to increase the willingness to pay tax. Based on the questions, it is not surprising, but very worrying answers have been received. In the case of unpublished sales, the responses were similar for both questionnaires. Respondents responded much more cautiously to questions about business partners and competitors. There was a "rare", "common" and "none at all" response, while in the case of the entire Hungarian economy, mainly "common" and "normal economic processes". The phenomenon was attributed to only three people as "tax evasion", with the other responses mixed with "some accepted", "cleansing" and "exploiting loopholes". The number of undeclared employees was judged by taxpayers of 5, the others were "scam", but in the case of a major "response to normal economic processes". Regarding whoever incurs the tax evasion, opinions were very different. Many have chosen the "state" and "society" options, but they also have a "no one" answer.

Among the instruments used to increase the willingness to pay tax, the tax increase was almost unanimously classified as "not at all suitable", otherwise two main "unsuitable" answers. Compared to the previous test question, where rigorous, correct information was generally considered "not at all suitable", "inappropriate" for respondents, at present only 1 person rated "not at all suitable". The rest of the respondents have already qualified as "fit enough" and "fit". Most of the information was "suitable" and even more "fully fit". Surprisingly, in terms of improving tax culture, a large number of respondents were uncertain and did not understand the term, so some people could not answer this question, the other respondents considered it "fit" or "fully fit" - the former "slightly fit" responses to the survey. As this question is surrounded by such a great uncertainty, it is worth considering whether to leave it in the final questionnaire, or rather take it out. However, it may be an interesting result from the point of view of the research, that such concept as 'tax culture' is impossible to understand. In the case of other issues, however, almost all respondents considered the simplification of the tax system and the tax cuts to be "fit" or "considerably fit" as in the previous test questionnaire.

With a few exceptions, the complexity of the tax laws and the difficulty of compiling the forms of taxation are "true to full" or "partly true" responses. With regard to the fact that the tax authorities are timely and well informed about the taxation business and they are treated with friendly and respectful opinions. There were some "partially true" and true "answers, but most of all the" not true "answers were in the vast majority. Here, I would refer to the supportive reform of the tax authorities starting in 2016, whose impact on certain areas seems to be verifiable after such a short period of time, but this process obviously requires a much longer lead time in order to deliver spectacular results to taxpayers. A long-term fluctuation must be rewritten by replacing a rogue-dagger game mentioned in classical economics models instead of a

customer-service approach. However, regarding direct participation of citizens in political decision-making in the country, all respondents except 3 marked "not quite right", while the remaining three claim that it is "just partially true". In the previous trial question, for all 7 people, the answer was "absolutely not true".

In the first part, that is the weight and components of the hidden economy, four responses were considered low by the respondents, searching the middle path somewhere between rare and common responses. However, it is not advisable to introduce another category because it is an easy option for averaging. With regard to the acceptance of various tax evasion variants, it was common to have liked to "have some degree accepted" and "exploit loopholes" at the same time. It seems that the responses are separated by a very narrow boundary. The term "somehow accepted" appeared in a "somewhat acceptable" form in the case of the first version of the questionnaire, but I thought it was useful to replace it, because it seemed less harsh as a statement for participants. It seemed that such a form would be preferable to reflect the opinion of the respondents. In the question of the "who harms the tax evasion" issue, it was difficult to decide between the ethically acceptable response and giving of their own feelings.

In questions about the measurement of the hidden economy, I have been given the confirmation that the questions are sensitive to subject - which are not specifically related to the respondent but the business environment - are reflected in their own feelings and their own entrepreneurial activity. This opinion may be very important when evaluating subsequent questionnaires. Employing an undeclared employee would also need fine-tuning because respondents indicated that this category may not be sufficient to reveal the area. It may be necessary to add to the employees who are reported but not fully employed, as this is a widespread phenomenon. This would, however, extend the number of questions to such an extent that it could even be at the expense of the results. In their own opinion on the size of the hidden economy, the participants wanted to have more answers. This raises the solution to ask these questions as a combination of closed and open questions, to ask participants to provide indiviudal response so that the topic can be explored as deeply as possible. This method may also be used as an intermediate solution for a more in-depth exploration of non-declared employees.

The third section of the questionnaire includes different questions from the previous one; the respondents have stopped for a moment, as this includes a series of questions that measure self-esteem. Nonetheless, I got the feedback that the order of the questions is good and they should not be changed. On the basis of the feedback, it is necessary to indicate that in this section questions require personal answers and respondents need to concentrate because of the Rosenberg Self-Esteem Scale. The 5 positive and 5 negative statements alternate and easily confuse the respondent. There were also responses in the pilot questionnaire that were completely contradictory. Most of the respondents feel that they are a valuable person with many good qualities and usually satisfied with him/herself. Some questionnaires reflected the respodents' uncertainty with respect to their self-esteem.

Finally, I would like to share some interesting comments that were made during the questionnaire, because in my opinion they reflect a great deal of respect for the taxation system and taxation. Respondents would be very happy to pay a tax rate of 10 to 15% higher than the amount of tax actually paid if it is less likely to have a risk than the actual tax paid because it is considered realistic. That is, the amount of the contributions payable on the current minimum wage with a three times as much payload. According to their wording, everyone knows the moral side of the subject, but small businesses are forced to choose a certain degree of tax evasion for their livelihoods and family livelihoods. In addition, it is generally recognized as a fact that if a person is starting to engage in business in Hungary today, tax evasion is being coded for him to a lesser extent, but this also depends on which sector he or she is active in. In relation to the tax culture, it is said that everyone knows what is right, but the Hungarian tax system overrides this. On the basis of all this, I think the topic is very important and timely.

5. CONCLUSION

The pilot questionnaire can be considered successful. From the answers to questions on the measurement of the hidden economy it can be clearly stated that the phenomenon exists and is significantly present in the Hungarian economy, so it is worth considering it. The topic is very sensitive, but based on the feedback; it seems that the issues surrounding hidden economy do not scare the respondents. Questionanires were administered individually, with the researcher's presence, which gave me the opportunity to gain a deeper and more detailed understanding of the participants' views on the topic, and also raised the question of incorporating further issues. Based on the questionnaire, I find that, besides the online questionnaires, it is worth considering the topic in the form of personal interviews as well, because personal opinions also allow for a deeper exploration of the causes of the phenomenon. Extending the topic to examining the relationship between self-esteem and tax evasion will hopefully further contribute to understanding the phenomenon in order to create a more acceptable tax culture. The reform of the tax administration in 2016, in which the tax office participates as a service provider in a tax-oriented manner, is perhaps exactly the right starting point for developing this tax culture. In cooperation with clients, it complies with social and government expectations instead of strictness, punishment and coercion, encouraging taxpayers to pay fair tax through the transformation of the culture of administration and the availability of services. Hopefully, with the help of these methods – rather with the examination of attitudes, forms of behaviors – the human decisions can be changed, and the attitude towards paying taxes.

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CLIMATE CHANGE IN THE CONTEXT OF REGIONAL COMPETITIVENESS

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The objective of regional competitiveness is to improve and stabilize the economic performance of individual territorial units, for which purpose the tools of increasing the level of employment and productivity of enterprises are used. Competitiveness research typically focuses on economic and social factors, mechanisms of action and correlations. This article focuses on environmental aspects, aiming at demonstrating the impact of global climate change on Hungary's regional competitiveness. The working mechanism of global climate change is basically due to two factors, on the one hand, the climate exposure of the individual regions and their adaptive capacity. The differences between the competitiveness of each region can be further deepened by climate change when areas with basic supply and socio-economic problems are faced with new environmental challenges.

ABSTRACT

Keywords: Climate change, Climate vulnerability, Regional competitiveness, Climate Exposure,

JEL code: R11

1. INTRODUCTION

During the history Earth climate is showing a continuous, periodic change. This natural process has been fundamentally transformed by the increasing concentrations of greenhouse gases (GHG) emitted during technological development since the industrial revolution. Changes in the parameters of our natural environment – changes in monthly and annual average temperatures, distribution of rainfalls, and increasing frequency of weather extremities – are showing an accelerating speed, which challenges all elements of the Earth's biosphere, including humans (Lakatos et al., 2012).

From a regional developer view, it is crucial to understand the working mechanism of global climate change in order to assess its impacts on the socio-economic and environmental condition, thus regional competitiveness of a given area. The goal of this paper is to highlight the relationship between climate change and regional competitiveness.

2. REGIONAL COMPETITIVENESS IN THE LIGHT OF THE GLOBAL CLIMATE CHANGE

Before discussing the effects of climate change on regional competitiveness we should describe what competitiveness is and why it is important for enterprises, settlements and regions. The concept of competitiveness is understood in the present paper as based on Lengyel's definition: "*[competitiveness] is the ability of enterprises, industrial sectors, nations and supranational regions to permanently establish a relatively high income and employment rate while they are exposed to global competition*" (Lengyel 2000). Therefore, the place of a region in the national/international competition is determined by the *income generated*, the *productivity of labour* and

employment rate. In the light of the anthropogenic environment degradation and its consequences which result in global climate change, it is obvious that the definition has serious shortcomings.

Regional competitiveness and its theoretic models – like Lengyel's pyramid model (Figure 1.) –often understand environment as:

1. The place where people are living – the municipal infrastructure which serves every need of the population (houses, workplace, transportation, etc.)
2. Natural environment – the surrounding environment which represents the aesthetical, recreational needs of the population (Lengyel 2000, Somogyi 2009, Lengyel 2012).

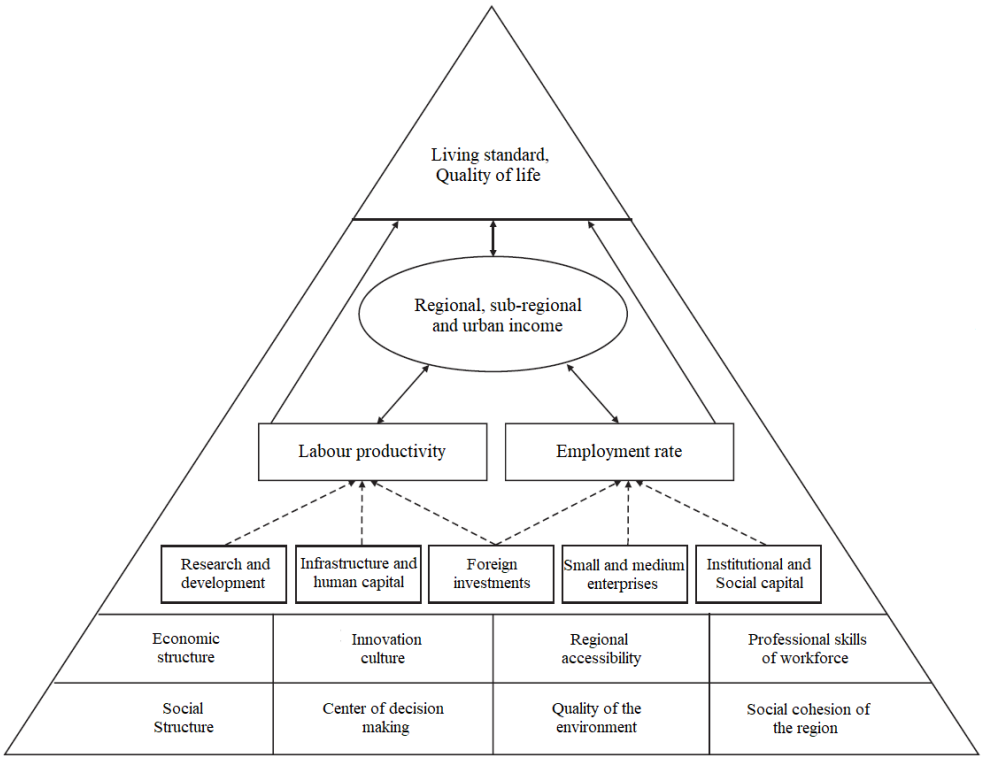

Figure 1: Lengyel's pyramid model of the competitiveness of regions and cities

Source: Lengyel 2000, pp. 979

As shown in Figure 1, the complex relation system of global climate change – which challenges the quality of life, infrastructural background, condition of economic production – cannot be identified.

In order to describe the relation between climate change and competitiveness, the working mechanism of global climate change should be comprehended. This paper is based on the Climate Impact and Vulnerability Assessment Scheme (CIVAS) methodology, which visualises the basic parameters of the climate systems – exposure, sensitivity, adaptive capacity, vulnerability – which brings about negative consequences in a given area. CIVAS is also used by the National Geo-Information Systems – which collects, stores and visualises the available raw climate data, which are crucial for sophisticated analyses and climatic models.

The following sections of the paper focus on the complexity of climate change in Hungary and its regional aspects.

3. CIVAS MODEL AND NAGiS DATA

NAGiS – which was created by the National Climate Change Strategy – is a geographic information system that relies on the information content of multiple databases, contains crude data, and derived metrics. It uses the CIVAS model (see Figure 2.) for assessing the effects of climate change (NFM 2017).

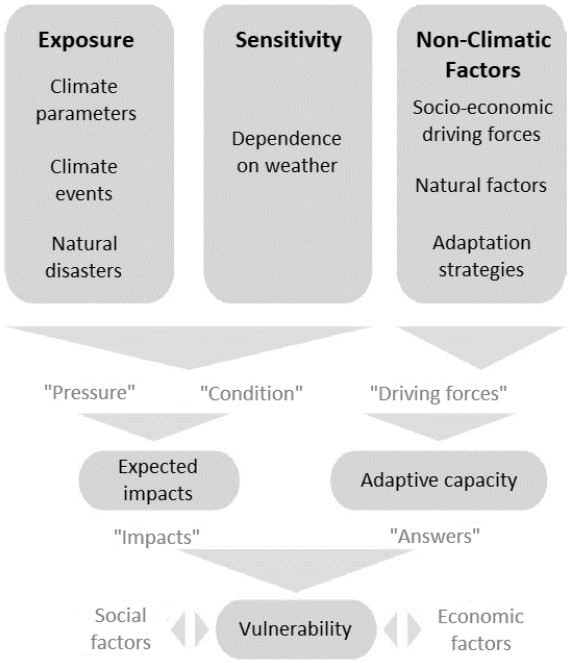

Figure 2*:* The concept of the CIVAS model

Source: Sütő 2016. pp. 11

The main definitions used by the model are:

Exposure: the presence of people; livelihoods; environmental services and resources; infrastructure; or economic, social, or cultural assets in places that could be adversely affected. Unlike sensitivity (which characterizes the effector), the exposure is characteristic only of a geographical location.

Sensitivity: weather-dependent behaviour (e.g. drought, flood risk) of the affected party (e.g. agriculture, human health). It is the attribute of the affected system, which is independent from climate change.

Vulnerability: complex indicator, combines expected effects with adaptive ability, considering that the expected impact may be more severe in a region with less adaptability.

The model should be considered in the following logical sequence:

1. The anthropogenic greenhouse gas emissions contribute to the rise in global average temperature, thereby contribute to climate change;
2. Changing global climate parameters affect local climate parameters (temperature, precipitation, and wind), weather extremities such as heat waves (three consecutive days above the daily average temperature of 26.6ºC[9]), causing storms and floods. The appearance of these characteristics in the local geographic space is called the exposure of the given area;
3. *The effects* of the changing climatic parameters, the more frequent weather extremities, are basically due to two factors, *exposure* and *sensitivity*. In other words, the nature and volume of the climate effect affecting the affected party (such as a crop plant, a human organism or an industry) depend to a large extent on its relationship with the natural environment - in the case of a closer, more indirect relationship the effects are more frequent, stronger and thus more sensitive;
4. The result of climate impacts - which can be *positive* (e.g. widening the growing season) and *negative* (e.g. increasing number of drought days) – depends to a large extent on the so-called *not climatic factors*. These factors together form the adaptive ability of the affected party to adapt to the negative climate impacts.
5. To sum up, the affected party and the (changing) weather together makes a system with stronger or weaker relations. The vulnerability of this system, the damage caused by the climate impacts is determined by the potential climate impact and the adaptability to it.
6. The affected party and the weather system also strives to reach balance (equilibrium), which can be achieved by changing the agricultural structure of areas that are unsustainable due to climate impacts (e.g. the use of heat-tolerant, genetically modified plants) or even depopulation (ESPON 2011).

[9] Defined by the National Directorate General for Disaster Management, Ministry of the Interior, there is currently no uniform, globally accepted terminology. Source: www.katasztrofavedelem.hu, 2018

The exposure, adaptation and vulnerability related data in Hungary are collected by the NAGiS database. The cartograms generated by the data point to the nature of the climate effects that can be projected in Hungary and to the potential volume of damage they cause.

4. THE REGIONAL EFFECTS OF GLOBAL CLIMATE CHANGE IN HUNGARY

Within the given framework of this study, it is only possible to present the most important cartograms related to the main parameters of the CIVAS model, which show the region-specific inequalities of the mechanism of climate change through the example of *heat waves*.

4.1. Climate exposure through the example of heat waves

The increase in the frequency and length of heat waves and the increase of the average diurnal temperatures during summer are classic examples of global climate change. During long-lasting high daily average temperatures, and occasionally extreme high daily peak temperatures surface living organisms are exposed to an increased stress level. The predicted change in the frequency of these heat wave days is shown in Figure 3.

On the cartogram the number of heat wave days are expected to increase in Hungary from west to east can be seen, with a difference of up to 40 percentage points between the two endpoints of the country. On this basis, the southern and eastern parts of our country are more vulnerable to the negative effects of heat waves.

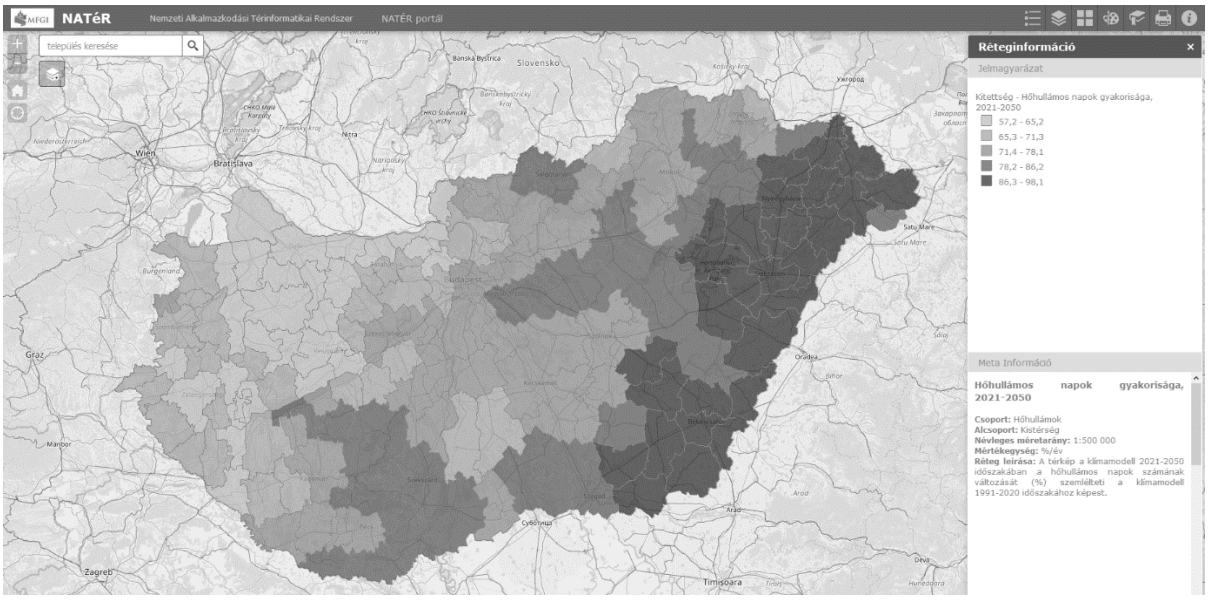

Figure 3*:* Change (%) in the number of heat waves in Hungary between 2021-2050 compared to the reference period 1991-2020 (LAU-1 level)

Source: map.mbfsz.gov.hu/nater, 2018

4.2. Population density as an example for non-climatic factors

To humanity, the most negatively affected areas by climate are the human body and communities. The adaptability of human society to climate change is fundamentally influenced by its number and composition.

By comparing the two cartograms, the urbanisation process becomes visible between 2021 and 2050, where population migrates from rural to urban areas, specifically to the expanding Budapest agglomeration zone (see Figure 4. and 5.).

Figure 4*:* The population density predicted by 2021 in LAU-1 level of Hungary

Source: map.mbfsz.gov.hu/nater, 2018

Figure 5*:* The population density predicted by 2051 in LAU-1 level of Hungary

Source: map.mbfsz.gov.hu/nater, 2018

When assessing the adaptive capacity of urban areas, the following factors should be taken into account:

- in cities, typically due to higher population density, a local climatic impact may potentially affect more people - for example, a more than 30 mm rainfall event (commonly referred to as a downpour) could potentially affect more people and damage the property, the local infrastructure elements;
- the transition to urban livelihood often involves a shift in the economy, whereby households' primary source of income changes to a less exposed economic activity from agriculture – which is one of the most climate change affected economic sector;
- urban areas typically have a larger budget than rural ones, and thus have more financial resources to address the *direct* negative consequences of climatic impacts – such as flood damage, heavy rainfalls – and to decrease the potential damages by strategy making or preventive infrastructure investments.
- urban areas typically have more favourable infrastructural capabilities, which can be *advantageous* – in some cases it may be easier to compensate damages – and *disadvantageous* at the same time – the number of the potential affected party is higher, where the material damage can be greater (ESPON 2011).

In the case of heat waves, these factors also play an important role. In addition, the city's unique architectural solutions, infrastructural elements (high proportion of concrete surfaces, multi-level construction, non-insulated buildings, tower blocks, urban microclimate) can further impair the adaptation capabilities of the local population.

4.3. Climate vulnerability through the example of excess mortality caused by heat waves

Vulnerability arising from heat wave exposure and the adaptive ability to counteract are reflected in the number of excess deaths in a given society. The most affected regions for the excess deaths caused by heat waves are located at the southern border of Hungary and the east and north from the Danube line - especially Nógrád, Borsod-Abaúj-Zemplén, Szabolcs-Szatmár-Bereg, Csongrád and Békés counties (see figure 6.).

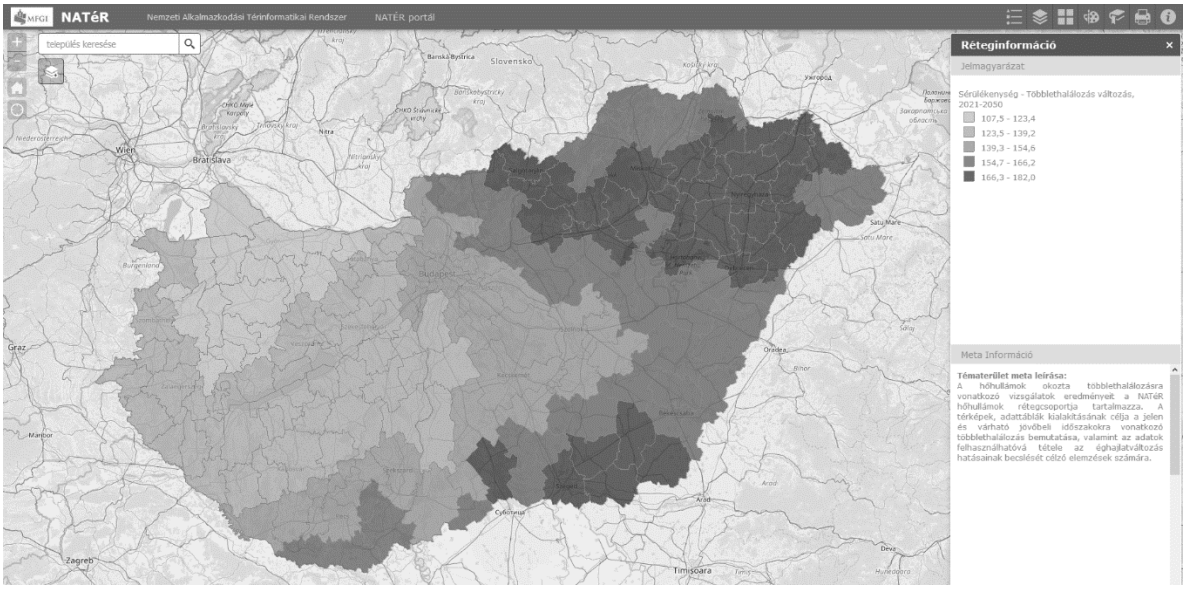

Figure 6: The change in the number of excess mortality caused by heat waves in Hungary, 2021-2050

Source: map.mbfsz.gov.hu/nater, 2018

This prediction is of paramount importance for each regional development and public administration body, as it provides an approximate picture of the areas where taking action is most needed. In the study, the mechanism of climate change could be inspected through the example of heat wave, but it is important to note that in the case of other climatic effects (changes in precipitation distribution, increase in number of climate extremities etc.), similar – but different in regional distribution – results can be obtained (IPCC 2014b).

CONCLUSIONS

Through the example of heat waves as a climate impact we could see how a climate parameter can change the conditions of an existing socio-economic system. Most of the regional competitiveness models have difficulties to display climate change within its relation system but it should be a priority as we could see by the example of the regional effects of heat waves.

Climate impacts – such as exceptional high, constant temperature – not only could affect population biologically, but could also damage infrastructure elements, worsen the condition of economic production (particularly in the primer sector) (Bartholy et. al 2011, IPCC 2014a).

The deteriorating conditions could also result in migration which could further sharpen the regional inequalities between regions with different competitiveness level. Increased vulnerability may further differentiate existing territorial inequality, and depressed areas can suffer from a more significant competitive disadvantage (Káposzta 2014).

The VAHAVA report, which was the preparatory document for the National Climate Change Strategy, states: "*In Hungary, known territorial inequalities, such as the West-East slope, inequalities in urban areas, contradictions of cities and villages, and great social difference – can be further deepened by the effects of climate change because individual regions, micro-regions, settlement types and social strata are not equally vulnerable to the expected weather events.*"(Láng, 2005, pp.17.).

All these findings suggest that global climate change has a strong impact on regional competitiveness – and its three main factors: *income generation*, the *productivity of labour* and *employment rate* –, therefore it would be not only essential to display climate change within regional competitiveness analyses, but a new concept of competitiveness should be created.

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MOMPRENEURS
FEMALE ENTREPRENEURS IN SZEKLERLAND

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Abstract

We propose a sociological approach in order to analyse the group of female entrepreneurs in two Romanian counties. Our goal is – with this paper – to show the impact of traditional and less traditional gender roles, and mainly the impact of motherhood on the decision and strategy of setting up and running a business. Qualitative methods are used: interviews carried out during 2017-2018 with female entrepreneurs, who have small children and who started their business after they became mothers. We define as entrepreneur the person who owns and runs an officially registered company. The strata of female entrepreneurs in the rural counties under study (Covasna and Harghita) are an emerging and concentrated group, with a low level of business culture. Entrepreneurial identity of women running micro and small firms is a multifaceted construction: woman, mother, wife, "family task manager" are all related and often result in conflicting social roles.

In post-socialist countries, women's business practices should be interpreted in a different social context as compared to men's. The Soviet socio-ethical norms put forward a paradox situation for women: besides the uptake and the expression of gender equality (e.g. women's education, work), being "housewife" and the role of the motherhood were also parts of the female role in society. Thus, since the last two decades of the twentieth century, women have had to engage in multiple tasks. The four decades of socialism provided women living in Romania the opportunity, the desire and the aspiration for self-realization, without means to achieve all these. In this context, the innovative role of female entrepreneurs occurs not only in terms of economic activity, but also as leaders in the process of reshaping female social roles. Therefore, we conclude that female entrepreneurs in rural Romania may have a multi-innovative role on a community level.

Keywords: entrepreneurship, female entrepreneur, mompreneur, gender role, labour market

1. INTRODUCTION

The increase of entrepreneurs and small businesses around the world contribute in a positive way to the economic situation. Research studies show that female entrepreneurs have a significant role in this matter (Maxfield 2005). For low-income countries with development deficiencies, as Romania for instance, the existence of entrepreneurs (including women entrepreneurs) can be a key issue (Ashwin 2000). Moreover, the successes of the micro, small and medium sized firms can have an impact on a macro-social level as well (Firestone 2010). In the same time, the emergence and subsistence of small businesses might indicate a predictable legal structure and a prosperous economy as well (Gergely 2013).

After the regime change in 1989, Romania had to face multiple disadvantages, but Szeklerland (Covasna and Harghita counties), a smaller region in the centre of Romania with its Hungarian inhabitants even more, without industry, without a major driving force. The population had to pass through an unfavourable labour market situation. Regarding entrepreneurial initiative, research shows that the entrepreneurial success depended in many post-socialist regions on the convertibility of this social capital (Welter-Kolb 2006), and this is true for Szeklerland as well (Kiss 2004). Women could not have "high level" networks from Soviet times and as some papers demonstrate, women entrepreneurs lack the level of social capital and contact like men had or could have. This was (and still is) disadvantageous for them in the early stages of transition in getting started (Welter–Kolb 2006: 8). This puts the question of woman entrepreneurs in a highly interesting light: from this kind of social situation, how does someone become a risk taking innovator? Who becomes such person? Why exactly do they become entrepreneurs? How, in what way is it possible the harmonization of these wide range – external and internal – expectations?

We propose a sociological analysis of female entrepreneurs by introducing the notion of mompreneurs. By overviewing relevant previous research regarding female entrepreneurs in Szeklerland, we will analyse the motivations of women with small children who started their own business.

2. FEMALE ENTREPRENEURS IN SZEKLERLAND

According to Welter-Kolb (2006) in post-socialist transition countries women's business practice should be interpreted in a different social context from men's (Welter-Kolb 2006: 8). The female characters who become entrepreneurs in Romania could be responsible for the introduction of an emphatic, complex innovation practice, which might generate significant changes at a societal level (Gergely 2013).

2.1. Heritage and innovation

There are two key-concepts: *heritage* and *innovation*. The importance of traditional social roles appears next to some kind of modernity introduced by the socialist decades (Bodó 1998). This small region with around 600000 inhabitants can be labelled as a traditional society where the social definition of gender roles follows a longstanding system of norms valid for centuries. However, the forced urbanization and "socialist" modernity had a significant impact on this: the earlier gender roles were expanded (Magyari-Vincze 2004, Geambasu 2004). Thus, the Soviet socio-ethical norms introduced and left a paradox situation for women: besides the uptake and the expression of gender equality (e.g. the expansion of education, female workers on the labour market), it also left the former model of "housewife" role and motherhood, as an important part of the female role in society (Ashwin 2000). Thanks to this, from the second trimester of the twentieth century, women had to endure double or multiple burdens (Aswin 2000, Welter-Kolb 2006, Magyari-Vincze 2004). So, for women living in Romania, the decades of the socialist era have provided the desire and the aspiration for self-realization, in turn, it did not provide solutions to achieve all these (Gergely 2013). After 1989 the post-socialist era opened the highway for the consumer society. A lot of direct and indirect methods made possible to explore the Western model. One of the most frequent practices was work-migration (Bodó 2008). Hereby, people (in our case: the women) from this region had to face again a new challenge. At first, in the 90s this immigration process was less characteristic for the female population (Kiss-Csata 2004: 112), since in the long-term and seasonal work-migration mainly young, married men were involved (Bodó 1996: 74). But even this new family arrangement meant a new challenge for women who had to carry alone the burden of the whole family. And also meant that compared to men, women accumulated a significant disadvantage in terms of human capital and labour market perspectives (e.g. experience) (Gergely 2013). But in the same time, against all odds, the social relevance and importance of the issue is also due to the fact that women had the opportunity to actually shape their own careers only after 1990, in the "new world". The inhabitants of this region had the opportunity to experience these changes for the first time in their history, even if women's roles and responsibilities became increasingly complex.

A sociological investigation focusing on the female entrepreneurial is justified, since there are no research papers dealing with women's entrepreneurial culture, this field seems to be untouched in the region and in the country as well. Why is a research like this important in a small-town and rural area? First because the everyday experience shows that even today a substantial number of female owned small and medium sized firms appear. This number is expected to grow rapidly and as a result a growth in the female role can be expected (Epstein 1993). On the other hand, however - according to cultural anthropology researches - this area still operates with a lot of traditional cultural models, which still have very strong impact on the social gender roles, on social identity and self-determination (Magyari-Vincze 2004). The division of male and female social roles, the beliefs about women's place and role still follow – in many aspects – the traditions of previous decades (Magyari-Vincze 2004); raising children and household activities remained – almost exclusively – in the female role-package (Welter – Kolb 2006), as the traditional "order" is followed as well.

In this context it is worthwhile to examine the way women succeed in establishing and running efficiently substantially different roles from the traditional patterns and beliefs. The female role-construction appears as a kind of challenge for women entrepreneurs but for their social environment as

well.

2.2. Research antecedents

Thanks to research conducted among women entrepreneurs in Szeklerland during 2009-2010 we have a more detailed picture about the women who started and run a business in Harghita and Covasna counties. The survey includes about five hundred respondents and analysed, with sociological research methods, the motivation of women in starting and managing a micro, small and medium-size business. We wanted to draw a picture about the socio-demographic profile of these female persons, and nevertheless to analyse the cultural and territorial connections of the experienced entrepreneurial behaviour. In addition, we studied the profiles of these businesses and we aimed to describe the individual or collective patterns of business-running logic and to capture these in relation with family-lead modalities.

The survey (2010) and the qualitative research (2009-2010) demonstrated that the level of social commitment to the traditional female roles is very high, which determines their attitude toward business as well (Gergely 2013a). For the major part of the women, entrepreneurial activity must be absolutely compatible with their family life. Results also revealed that business always appears on the second place: individual self-fulfilment, professional success and career development comes only after the family and children. We have seen that the entrepreneurial identity is encountered as expletive to women, mother, wife, "family responsible" identities.

The research also points out that the entrepreneurial ideals are less incorporated. Women owned small businesses are related to the traditionally female roles' work area: the most frequent are groceries and mixed shops, firms in beauty industry (hairdresser, manicure, pedicure), flower or gift shops, firms specialized in nutrition (bakery and pastry shop, restaurant, cafe, catering company operating), in textile industry and clothing (new and used clothing and footwear store operation, dressmaking), services (wedding dress rental, baking cakes, gymnastics). The number of financial services (accounting, financial advisory services) and other kind of business services (translation, tender advice) are few and vanishing. It is also clear that there can be find mainly merchant-type businesses (Sandu 1999). However service activity within firms is also common, but those who have a productive activity are very low in number.

Along the research results we can clearly make a series of statements regarding the female entrepreneurs from Szeklerland (Gergely 2010, Gergely 2013a, 2013b). Thanks to the economic transition, the changed labour market offers a very limited number of work opportunities, especially for women. So they launch micro, small and medium sized businesses in order to compensate this labour market imperfection: they have decided along the entrepreneurial status in order to remediate the labour market deficiencies or to avoid the inadequate job-offers. Or this might be the only solution for them; only in this way can they harmonize work with family and childcare. That is why micro and small enterprises are mostly owned by women (Epstein 1993), with small capital and few number of employees. And the firms usually remain at this level. Only very few women owned businesses can expand and develop from this starting position. However, these firms can be interpreted as important economic agents, because they are workplace-generators, even if just for one person, for themselves. We can convince ourselves about the human resource provisions of the area, seeing that female entrepreneurs have higher education, are more open-minded and flexible, more receptive to learning and to adult training, dispose of more urban habits and lifestyle and at more points can be considered innovators (Sandu 1999). They can be considered innovators, since they launch a business in an area where major distrust can be felt against entrepreneurs and where the traditional female roles are not associated with the perceived independence and material success. It should be noted that these firms have their activity in a rural region, not in a consumption-oriented one. The women open a shop, provide services in the beauty industry etc., and carry out such activities that mainly can be called market generator and customer behaviour-shaping, rather than focusing on demand services. However, there are some persons who started very new things in the region.

3. MOMPRENEURSHIP

This mompreneur expression is slang term for ***mother*** and ***entrepreneur***. There are many definitions of

this notion, we will overview these. In every case we are discussing about a ***mother***, who is entrepreneur and/or she is working from home (I.) First of all, the label of mompreneur can be used to those mothers, who are working from home, for example freelancers or home-workers. They don't have to be necessarily entrepreneurs. In case of Szeklerland this group would not be very crowded, since this is a new kind of working model, and this category appears mainly in the big cities. (II.) Secondly, a mompreneur can also be a female entrepreneur, who runs a business that focuses on selling goods and services to other moms (Jean and Forbes 2012: 115). (III.) Furthermore, a mompreneur is a female entrepreneur who balances the role of motherhood with being an entrepreneur, who is trying to combine day by day the stresses of running a business as entrepreneur, and in the same time the energy and time consuming duties of motherhood. According to this definition, the majority of the Szekler female entrepreneurs would be mompreneurs, since our earlier survey points out that the typical Szekler female entrepreneur is middle-aged, has secondary education, is married and she is mother of two children (Gergely 2013a: 69, Gergely 2013b: 147). Since it would be a very general approach, we will choose a definition, which helps us to narrow our target group. So we choose to discuss about those mompreneurs, (IV.) whose business activity has quasi the same age with her first child, or they started their business during the maternity leave or at the end of maternity leave and prior going back to the labour market, in some cases as an alternative to returning to their earlier jobs. In this paper we will use this fourth definition, and we will analyse the motivation of those mompreneurs, who set up their business during their maternity leave or at the beginning of their reintegration to the labour market after several years of maternity leave. Our target group are the mompreneurs from Covasna and Harghita counties who started their business in the last 2-5 years and have 2-3 small children under 7.

Mompreneurship has received a great deal of civil and academic attention in the last couple of years. Relevant literature reflects an on-going struggle of these women to earn and care enough to meet their needs and social expectations (Anderson – Moore, 2014). Mompreneurship appears as a desirable model of motherhood, which also emphasizes a subtle critique of the social expectations from women to be ideal mothers "under neo-conservatism" and also to have an impact on the regional and macro social economy as well (Moore 2010, Wilton 2017: 198). The rise of mompreneurs can be attributed to the unrealistic expectations women face regarding their dual (and sometimes convicting) commitment to their job and their family. And sometimes even the guilt which came from their failure to successfully fulfil these roles (Jean – Forbes 2012: 115). So, in this context mompreneurship is the women's response to the demanding societal expectations (Jean – Forbes 2012: 115). A study shows that mompreneurs come from families where their businesses' income added less than 20 per cent to the family income. This shows that mompreneurs' main objective is not to make big money; but in the same time suggests, that only those could become mompreneurs, whose financial freedom allows them this choice. This means that mompreneurship is definitely not open for everyone (Jean – Forbes 2012: 115).

Mompreneurship can be viewed as a reaction to neoliberal and neoconservative ideals and policies, which are making harder for women to work outside the home (Wilton 2017: 198). Among these, we can mention the lack of affordable quality childcare or the difficulty to find flexible employment. In this context, mompreneurship appears as a good option for women who do not want to choose between family and work. Mompreneurs are seen as women who are freely making a choice about how to manage family and work. By becoming a mompreneur, one becomes able to fulfil these conservative roles in a better way, and still participate in the paid labour force. This means that their hard won education and degrees were not in vain, and even if in small scale, they contribute to the family income. In this context, the mompreneur is "the perfect combination of the liberated woman and the nurturing mother figure" (Wilton 2017: 198).

4. METHODOLOGICAL REMARK

We propose a case study of female entrepreneurs who started their business in the last 5 years in Covasna and Harghita counties, during their maternity leave. With the help of 10 interviews, we aim to draw a closer

picture to what were the main motivating factors for starting a business with small children mainly in a new area. All the interviews were taken during 2017-2018. These were in-depth interviews with semi-flexible question series. All the interviewed persons had higher education levels, all of them are aged between 30-42 years. 8 of them are living in urban areas, and all of them have two or three small children under 7. All of them are also well known in their own community, and this is why they were selected for this interview since somebody recommended her. In this paper we are focusing on their motivations for setting up a business.

We have to say that this analysis has its limitations as well: its importance as an indication is undoubted, however this group of mompreneurs might be very fragmented, and here we approach only a small part of the whole issue.

5. WHY BECOMING A MOMPRENEUR? – ANALYSIS OF THE INTERVIEWS

According to the interviews, we could separate two groups of motivating factors: (1.) negative (push) factors and positive (pull) factors. Among the negative factors, which were pushing the women towards the entrepreneurial decision are (a.) bad job opportunities, (b.) low salary, and (c.) fast labour market changes. In the case of (2.) positive (pull) factors, which had a pulling force in the entrepreneurial decision, are (a.) internet, (b.) expansion of the on-line shopping habits, (c.) the increase of consumption in urban areas, (d.) the rise of creative and handcraft professions, (e.) the changing child raising concept, and the (f.) less negative stereotypes regarding entrepreneurs.

5.1. Negative (push) factors

5.1.1. Bad job opportunities

The interviewed persons underlined that one can hardly find in our region a job which can be called a good work environment. In our region the employees do not know yet the notion of home-office, flexible working hours, child-friendly workplace, the control-free task management. And for women with small children this environment is even harder. Almost every woman mentioned that in our region there are very few good places to work. The employees do not take in account that your children can be ill, or you have to go to your child's ballet performance, or there is holiday and you do not have grandparents or a nanny to take care of the children.

> *"I had a lot of problems with my boss. She is a woman, she has 2 small children, she even brings her children at the office, but when I asked her permission to leave 20 minutes earlier because I have to take one of my children to the doctor, she was angry. For me it was very awkward to ask every week for 20-15 minutes… But when you have 3 small children under 6, you will always have some logistic task"* (33, 3 children, u.)

5.1.2. Low salaries

Almost every woman mentioned salary as the slightest factor which did not motivate them to go back to their earlier workplace. On the contrary: it was a repulsive factor. All of them got state allowance and the salary was always less or the same.

> *"If I go back, I wouldn't earn much, and half of it I would have to pay for a nanny. So it's just not worth. If I work for myself, in my own rhythm, I can manage to be with my children when it is needed, and I hope I will always be able to earn at least half of the salary I had."* (33, 3 children, u.)

5.1.3. Fast labour market changes

Some women mentioned that during her 3-6 years of maternity leave, a lot of things changed on the labour market, even at those firms where they had worked earlier. New types of jobs and tasks appeared on the horizon. This meant a negative challenge, which they wanted to avoid.

> *"I can say I liked my work. Before. But a lot of things changed there. New boss, new colleagues, new tasks… I tried for a couple of months, but it was very hard for me… Maybe I have changed during maternity leave…."* (40, 2 children, r.)

5.2. Positive (push) factor

5.2.1. The internet

Among the positive factors, which lead women to set up their own business, internet has a leading position. Many of them referred to the internet as a source of ideas and information regarding the profile of her business, or inspiration. Others mentioned the internet as a huge platform for marketing and communication, which can combat the regional obstacles.

> *"With the internet, you can make a name even from a small town or even a village. If you make time and put effort, you can write a blog, manage a Facebook page, depends what is your profile. But you can make much more people discover your work*" (40, 2 children, r.)
>
> *"With the help of the internet, I can easily communicate with my customers. We can send photos to each other. And there everything is documented. And you can work from home; you do not need an expensive office in the centre." (39, 2 children, u.)*

5.2.2. The expansion of the on-line shopping habits

In Romania on-line shopping habits have shown a major increase in the last 5 years. A few women, in whose business plan was included the on-line sale, were more confident, that they will be able to sustain the firm.

> "*If you do not have money for a shop, you can have a webshop, which is much cheaper. And you do not have to pay for the electricity. But you can sell your things easier*" (34, 3 children, u.)

5.2.3. Start-up programs

A lot of moms became entrepreneurs thanks to the start-up programs. Even if in Romania the program was launched in 2016, it became very popular quickly. 2 of the interviewed women mentioned that their firm was founded thanks to a start-up program, and because of this financial support they had the courage to step forward.

> *"I was searching for my way… After my first child was born, I started to learn to sew on a sewing machine. It was some kind of therapy for me – a few hours to escape from home and going to the sewing course. Then I started to make small things at home. And after the second child I was already sure that I won't go back to my earlier workplace". But I did not start a firm. But when I met this start-up program, I decided to try it. Because I felt I have nothing to lose but a lot to win. And I won. Now I will have 2 years of hard work and experience, but I hope after that I can establish a secure business."* (33, 3 children, u.)

5.2.4. Urban areas

Almost all the women conclude that it is much easier in an urban region, than in rural one. Not only that the number of the population is higher in a town, but the expectations, needs, demands are very different in an urban area. Moreover, in the urban area people usually spend a little bit more for services, for design products, almost for everything. Even for those who are living in rural area, the majority of their customers are living in a town or small city.

> *"I see my friend from Cluj Napoca. They go to one fair, and they earn a lot of money. I have to go to 4-5 fairs to make that sum of money. "* (34, 3 children, u.)

The interviews emphasize that the entrepreneurial decision was easier for those mothers who are living in towns; they saw much more opportunity in their closer environment to be hopeful in managing and finding buyers or costumers.

5.2.5. Rise of creative professions

In the last decade people are getting more and more conscious regarding the environment. And the local producers get more and more attention, not only the local product, but also the handmade product. According to the mother interviewed, they see, that everybody can have success who has a bit of creativity. In our town there are a lot of moms, who are making something creative, some handicraft. And even if there is 20 other very similar, the people usually will by this 21st as well.

5.2.6. More and more sophisticated demands

There are mothers, who emphasize that the closeness and small size of the firm can beat the bigger firms, since big firms cannot respond to the special demands.

> *"I have a lot of clients, who want something very personalized, as a gift or a personal thing. So I can make it. But the H&M or the Bennetton or the Zara won't make it. But the small firms will find a way to make it."* (33, 3 children, u.)

5.2.7. Changing child raising concept

All the mothers speak very much about how different is the role of mother in the contemporary society, and how difficult is being a "good enough mother" and to work in the same time.

> *"When I was a child, age 7-8, I always went to school alone. But now I won't let my boys to go alone. Like this, a lot of other things have changed. There are all types of mothers. Who want washable diapers, who pant personalized birthday cards, who want photo sessions with new-born. And because there are all kinds of mothers, there can appear and subsist very diverse products and services as well."* (42, 2 children, u.)

5.2.8. Less negative stereotypes regarding entrepreneurs

Almost everybody, but mainly those who engaged in a start-up business, underlined that there is a change regarding the social cognition of the entrepreneurs. In the last couple of years the population has begun not to consider a successful entrepreneur as a corrupt swindler.

> *"In my village the people were speaking about me in my back. The entrepreneur… What is an entrepreneur doing? But now I see that more people started to understand, that I have a lot of economic insecurity. I have a better month then another one… And being an entrepreneur does not mean that you will have money in a suitcase. Sometimes I do not have a dime in my house."* (41, 2 children, r.)

6. CONCLUSIONS

Our mompreneurs are working in such program and rhythm, that family and household tasks are not ignored or disregarded. 8 of them are working most of the time from home, so their "office" is inside their household. They also perform jobs in a field that is very close to the traditional female roles: sewing, decorating, making jewellery. All of them speak very hard about the exact numbers and thee economic situation of the firm. They are in the beginner phase of their business, and their success floats at a more modest scale, but they do not speak about economic success, they rather conceptualized other types of success. They consider themselves successful if the firm is not in loss, they estimate it as a success. They never boast and they rarely engage to objective assessment of the financial situation of the firm. The desire to obtain profit, to "get rich" almost never appears in the narratives. For them, the "real" success is associated with the harmonization of the role of wife, mother with the role of the women entrepreneur.

Even if not in the classic, Schumpeterian sense (Oláh 2006) - these women can be viewed and called innovators (Sandu 1999). Innovators, but not only in an economic sense (such as profit-raise or regional, territorial development promoting), but also in a social innovative sense as well. On the one hand the understanding of business practice could bring significant social benefits from a regional developmental point of view. The analysis and presentation of successful practices and solutions might generate further positive processes and initiatives. This kind of approach could have a role in shaping and strengthening the female entrepreneur identity. Furthermore, the importance of professional analytical work consists not only in colouring a „white patch" but it also brings a specific example of a „catching-up" exercise in wider post-socialist regional and European context. These women entrepreneurs could be leaders in the restructure process of the female social roles' system. So this group may be a multi-innovative one at community level. They seemed to be *reckless* because the financial risk-taking is not part of the traditional mentality. At the same time *courageous*, because they start an activity with self-confidence, an activity for which they got no models. In addition, they have to be *innovative*, because they invent for themselves a brand new or a not so typical activity. And they manage to create a market for their products, their services. They are also *crisis-managers*, because they find the way to resolve difficult situations with small children,

and to supplement the family income. And of course, they do all this without neglecting the family and the children, remaining loyal to the traditional roles. Last but not least, they manage to develop a (n effective) method to avoid unemployment, seeking to redress the deficit of the labour market.

We could say, the majority of the female entrepreneurs from Szeklerland are mompreneurs, since the typical female entrepreneur has 2 children. But not everyone started her business during the maternity leave. We might conclude that this "mompreneurial" activity is something new and starts to become more and more popular. We could also imagine that there will be more and more mompreneurs setting up a start-up business. So it would be a next research challenge to try to get a more detailed view on the group of mompreneurs to capture diverse situation and stories.

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THE DART-MODEL AS BASIC FRAMEWORK OF CO-CREATION: CASE STUDIES FROM HUNGARY

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ABSTRACT

Thanks to the Internet and the fast flow of information, value creation is now a key element of creating corporate strategy. Consumers have basically changed the dynamics of markets as they appear to companies as a new source of capabilities. In recent years, there is an increasing demand for the creation of markets, where companies are actively engaging with consumers, therefore the company recognizes the importance of consumers' ability and know-how.

The ability brought by consumers lies in the knowledge they possess, in willingness to experiment, and in active communication. All this entails that consumers have almost as much information as they can about companies, which is a major shift in the balance of power.

For this reason, we will use the DART model in our study and we will focus on value-creating consumers and "adventure businesses" by reviewing relevant literature and research.

After that we will explore the online images and interaction of two Hungarian businesses and we will use the DART model's basic pillars.

Keywords: DART-model, new corporate strategy, value-creating with consumers

1. INTRODUCTION

In order to reach today's consumer society companies need to carry out more and more complex exchange processes while involving their customers in direct business processes. Do not think that consumer participation ends with purchasing a product from the company, or maybe developing brand loyalty, or using the company's online store. There is a need to meet much more complex needs, thanks to the development of digital technology, as the consumer has become more interactive, so to say, the "participant" of business. Thanks to the Internet, consumers themselves simply develop self-organizing virtual communities, for example, they communicate through online chat rooms sharing messages for or against the organization. Consequently, consumers are putting great pressure on companies, for example, developing new products in a number of common creative processes (Csordás, Nyirő, Horváth 2012). The aim of our study is to overview the relevant literature and research papers, with the emphasis on the so-called DART model, focusing on value-creating consumers and "adventure businesses". On this basis, we will examine the online interaction interfaces of two domestic businesses using the DART model. The analysis is extended to the owners' social media surfaces in addition to business websites and community channels. Thus, we can present the corporate features of community value creation in two new areas compared to previous research. On the one hand, we can point out what kind of size-specific features community value creation by businesses may have. On the other hand, our study may reveal the extent to which the interactions of these businesses towards consumers are differentiated along the examined online surfaces.

2. REVIEW OF THE RELEVANT LITERATURE

"In the new economy, companies need to build consumer experience into their business models..." (Prahalad 2009:249). Although the previous quotation dates back to 2009, it reflects very well how true the idea of Prahalad (2009) – an Indian professor who lived in the US – is for today's economy, according to which, companies need to depart from their formal, routine roles if they want to succeed. This means that markets need to be set up where the company is willing to be engaged in an active dialogue with consumers, and recognize the importance of consumers' knowledge and ability. Thanks to the Internet, consumers are becoming more active and clearer in communicating with the providers of the products and services. And the most important aspect of this communication is that it is initiated by consumers, where they can use their experiences to address companies. It may therefore be concluded that consumers have left their traditional roles that they only take part in market processes as passive buyers, as a kind of statistical information. Nowadays, consumers are part of the expanded network of companies; they clearly contribute to creating and sharing business values. During value co-creation, direct interactions with consumers are important. It is worth getting as much information as possible about consumers and their opinion. Furthermore, they must be placed into the centre of informal infrastructure in order to participate in the steps of co-creation, such as searching for information, creating products and services. If we do this and let the consumer do this, or if we care about their opinions and needs, we can create an atmosphere of enjoyment where the consumer is happy to "return". This kind of commitment is based on cooperation and exchanges – such as win-win, mutual learning processes – contrary to the earlier consumption and power concepts (Mitussis et al. 2006).

2.1. The DART model, as the basic model of value co-creation

Prahalad and Ramaswamy (2004a, 2004b) point out that a fundamental condition for value co-creation is to ensure interaction between the company and the consumer. The experience of value co-creation can only be ensured through an appropriate interaction system and processes. According to the DART model developed by them, value co-creation consists of four key components: dialogue, access, risk assessment/risk-return and transparency. The dialogue between the company and the consumer reflects the mutual communication of two peers and the willingness to learn from each other. This kind of reciprocity-based dialogue is able to form a permanently loyal community. The next interaction building

element is to provide access to the information and tools necessary for providing consumer experience and value co-creation. For the sake of value co-creation, the company may share important information, data and intellectual property (such as software) with customers, that they may not otherwise have access to or only through high costs. Access is made to be the "internal" participant of corporate value creation by reducing the transaction costs. The next component is called risk assessment or risk return. The point is that the company informs consumers participating in value co-creation about all the risks associated with its products and services, providing the tools they need to assess or reduce these risks. Ramaswamy's (2008) case study mentions entries and posts on the Nike-Plus platform to reduce the potential health risks of running. Finally, the last DART component is transparency. The confidence needed for value co-creation can be built up by the company to give up the traditional advantage of information asymmetry. In the majority of industries, this advantage is otherwise being melted by the advancement of the information society and social media. A good example of this is the online booking of accommodation sites, where consumer ratings and feedback determine the rating of individual hotels. Maintaining information asymmetry in these industries is becoming more and more difficult, and at the same time, the role of trust between the company and the buyer increases. Transparency means that the company itself directly shares relevant information with its customers about its operation, financial performance, environmental impacts as well as the quality, reliability, price, profit margins, etc. of the products and services. See Figure 1.

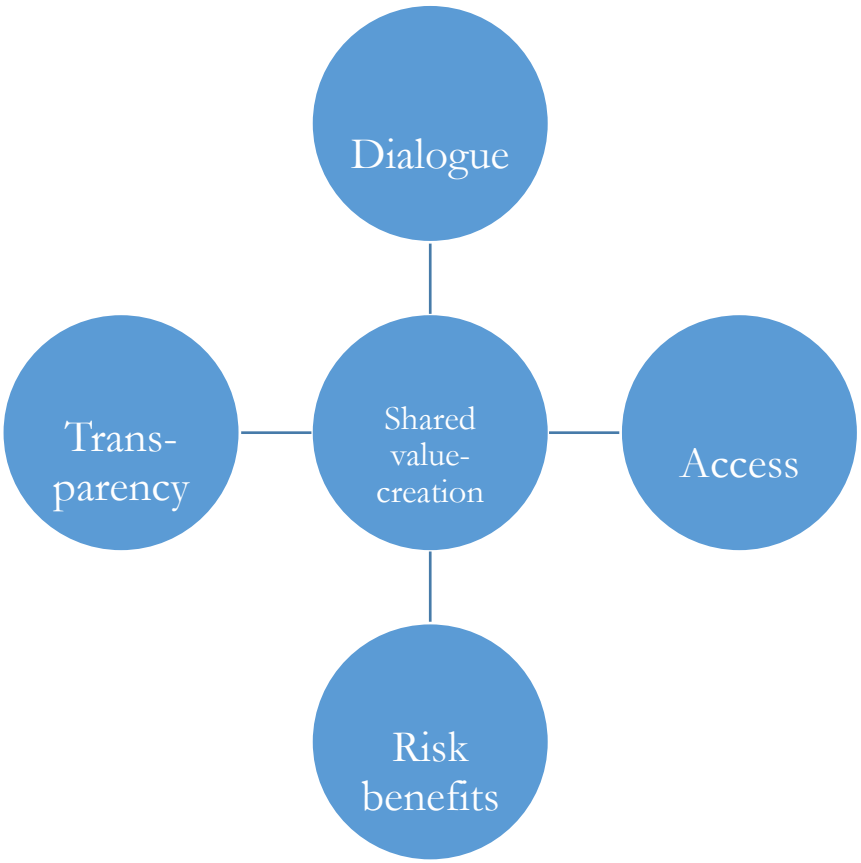

Figure 1: Concept of co-creation (DART model)

Source: own editing – on the basis of Prahalad és Ramaswamy (2005)

2.2. Consumer Communities in the 21st Century - DART model research results

Ramaswamy's previously mentioned case study (Ramaswamy 2008) has shown that Nike's online community platform, Nike Plus, uses DART model building elements to engage buyers in value co-creation. The value-creating interactions of small and medium-sized companies surveyed by Alamanda et al (2015) also include elements of the DART model. Schiavone et al (2014) draws attention to the unavoidable role of social media use. In his case study he proposes to extend the DART model with the "technology management" dimension, which means the conscious application and management of social media. In our opinion, the use of social media is now a natural component and cross-sectional "basic requirement" for creating value for consumers. As a result, we do not consider it fortunate to display it as a separate dimension. However, we agree that researches involving DART analysis are only complete when they also cover social media usage.

The results of the empirical, quantitative research carried out by Taghizadeh et al (2016) in Malaysia's telecommunications companies demonstrate that the use of DART components has a positive impact on the innovation strategy of companies and their market performance. The quantitative research of Maduka (2016) on the Nigerian service sector confirms that providing the dialogue, the access and the transparency has a positive impact on consumer loyalty, while there is no significant impact in case of the risk assessment. The above results are slightly overshadowed by the results of Mazur and Zaburek (2014) according to which the DART model used as a framework of quantitative analyses is less efficient. Their study of validation of the model suggests that the model cannot exactly represent the common value creation practices of companies.

The above examples show that the DART model is not a perfect but well-used and widely accepted framework for supporting and analysing value co-creation for companies and consumers (Payne et al., 2008).

2.3. Value-creating "adventure businesses"

Nowadays, customers can have experiences that would have been unthinkable just a few years ago. In the past, companies were able to determine their prices in their own ways, namely what value their product or service represents to the buyer in their opinion. At the same time, thanks to the information dumping, consumers are not discouraged from bidding on prices or even buying conditions. Online auction forms either on eBay or on Vatera (a Hungarian example) also suggest that the pricing system itself is undergoing a transformation process (Prahalad 2009). Most consumer value research suggests that consumer value is largely subjective (Hofmeister et al., 2003), which means that it reflects the consumer's own opinion, i.e., how much the received product, or service meets his or her expectations. It is a great advantage for the consumer, because prices, for example on the above-mentioned online sites, accurately reflect the usefulness assessed by the customer, so the consumer pays on the basis of his or her personal needs rather than the needs of the company. According to the survey of Beyond Philosophy (2011), 60% of the so-called CEM (costumer experience management) leaders see the development of successful consumer experience management in a "connectivity point". That is, in places where the consumer and the business organization meet each other, during a telephone conversation, an email or a business visit, but even after-purchase services are included here as well as automatically sent questionnaires about the satisfaction within the shopping process.

We can see that the concept of experience gains more and more ground, where intellectual skills and abilities are at the forefront, as opposed to material factors. Beauty, health, friendship, self-realization, sport, environmental protection, etc. are becoming more and more important for almost everyone. However, in order to purchase products / services qualified for this set of values, we also need high quality

material consumption. It is not by chance that all industries are built on this, such as sports equipment manufacturers, food supplements, or organic food manufacturers, to mention only a few (Key Price 2014). Consumers can now choose from a variety of "basket" products, so the consumer becomes more and more unpredictable, raising increasingly complex - higher expectations for a company (Szabó, Hámori 2006).

Törőcsik's (2015) study also states that the "new consumer" is now well-informed, the amount of money he/she spends during a purchase is significantly influenced by the information available to him/her, but if he/she gets a good argument, he/she is willing to pay more for a product. Take the Apple's stores, for instance. It can be seen that consumers are constantly tuned to the characteristics of new products in advance, making consumers believe that Apple's products are the best and most innovative in the world. Consumers are influenced by these features unconsciously, as consumers only concentrate on having the experience and acquiring the latest Apple product (Walden, Marlow, 2014). Recent studies in this chapter also show that relationships between companies and consumers have undergone significant transformations over the past 10 to 20 years, which is illustrated in Table 1.

Table 1: Changes in relationships between businesses and consumers

Where from	Where to
One-way	Two-way
From the company to the customer	From the customer to the company
Controlled by the company	From the customer to the customer
The consumer is a "prey"	The consumer can "hunt"
Choice = you buy / you do not buy	The consumer wants / can show what he wants
The company segments and targets consumers, consumers have to "respond" to the company's bids.	The consumer wants / has the power to create personalized personal experiences collectively in the company's experience environment.

Source: own editing – on the basis of Prahalad és Ramaswamy (2005)

3. CASE STUDIES

3.1. Burján Szafi – "Slim with Szafi without being hungry"

Burján Szafi is known as a dietary food blogger and as a product developer. She started to deal with the issue of healthy lifestyle, weight loss and weight gain in 2004. Then, in 2007, she founded Flair Mojito Trading and Service Ltd. with the help of her husband, producing "Szafi Free" and "Szafi Reform" food product families. In addition to the various flour mixtures, oils and spices, there are many desserts mixes in their product lines. They buy raw materials and spices from different countries, which cannot be obtained at home or not in that quality (Burján, 2017). If we examine the online interaction faces of their business using the DART model mentioned above, we can see that she places a lot of emphasis on community involvement, that is, value co-creation through both their website (**http://www.dietas-termekek-webshop.hu/**) and their community pages (see Figure 2).

She has currently 234 757 active followers on Facebook and 93 900 on Instagram (safi_fitt). Each of the four key elements of the DART model is displayed, and one of the components of the interaction space

is providing the right dialogue with the consumers. The company uses multiple surfaces that fully provide its technical capabilities and provide a familiar environment for consumers. The activation of customers is continuous in this area, so communication between the business and its customers is strong. She responds to consumers' comments, asks their opinions, provides them with information on illustrated recipes, recommendations and online videos, informs them of the usage suggestions for each product, and then informs them about the quality of the products on the results of the review following the visit by NÉBIH (National Food Chain Safety Office), by sharing it on Instagram.

As a result, it is evident that the number of her followers/visitors within the social media continues to grow, and her customers are steadily increasing, so we can say that she can operate a value-creating business in a family atmosphere. Access primarily includes sharing content related to the experiences and feelings of eating foods made from the products she offers and the online ordering of product families. These contents are easily accessible to everyone, open to the public. In the online offer, we can meet business-specific sharing of interactive and original content aimed at the consumer community. Transparency is also available, which is available on 2 websites and 2 community interfaces. It is typical that business owners react to negative reviews and criticisms indicating their willingness to change.

The area of risk reduction is also present on the examined surfaces, as it provides information about the cooking (cooking, baking) risks of foods made from marketed products if they are not used correctly. It can be seen that, for Szafi Burján's business, the online interaction space for sharing value across the DART model is not homogeneous. The full online interaction offer is made up of several, globally-familiar, surface-to-business domains. What we find, however, as a shortcoming is that customer needs are slowly beginning to be bigger than the current capacity of the company, for this purpose it would be worth considering expanding and increasing the number of employees to speed up sales logistics processes.

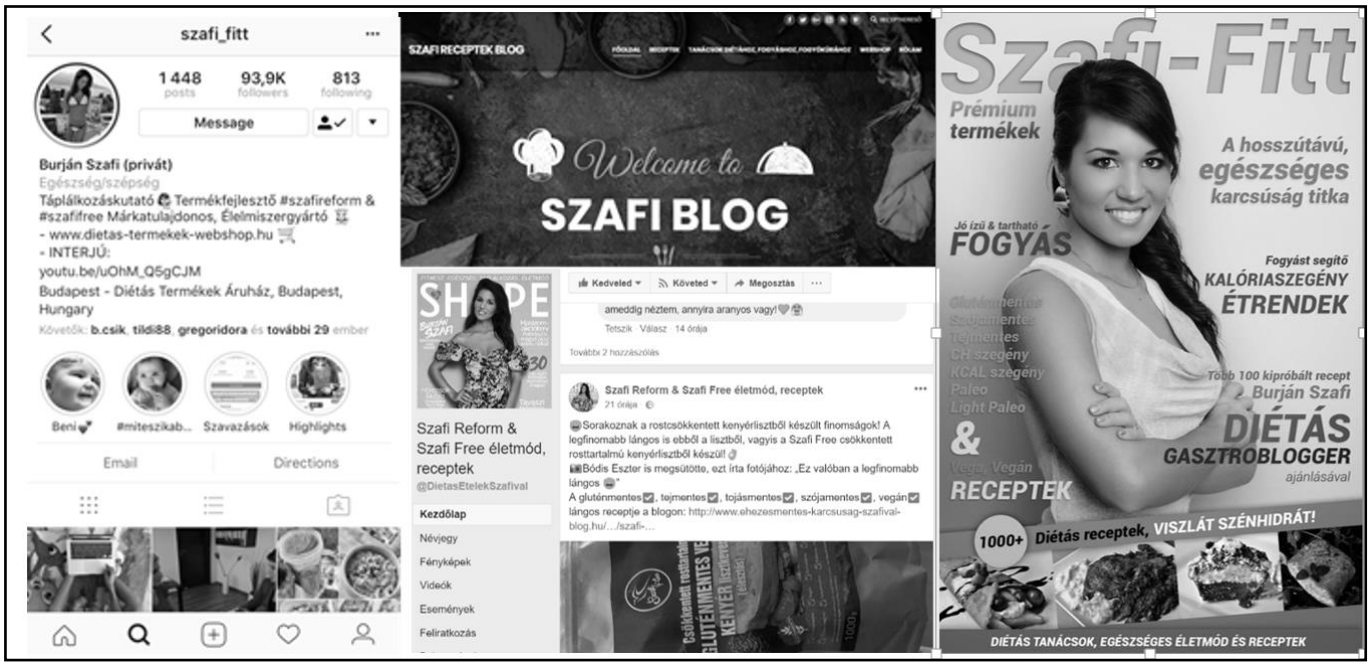

Figure 2: Burján Szafi on the internet

Source: own editing – with instagram, facebook and Szafi website

3.2 Laposa Estate Ltd.

Laposa Estate Ltd. is one of the most dynamically developing white wines specialists' winery of the Badacsony Wine Region and the Balaton Wine Region. The business has been growing rapidly for the past 7 years: between 2010 and 2016 its own equity increased from six million to sixty-nine million forints and its assets increased from eight million to seventy-five million forints. The strategy of the business – in addition to growth - is characterized by a remarkable consumer experience orientation. According to their strategy, they want to sell not only wine, but also a complete package of experiences to their customers. In addition to the winery, the company also operates 4 catering units, with a high emphasis on quality, unique gastronomic experiences based on local ingredients. Another important element of the "package of experiences" is the scenery and atmosphere of Lake Balaton. This distinctive-focusing strategy also means that the market price of their goods and services is relatively high. High value-added, experience-based sales of goods do not have a small market risk as the total transaction cost of the customers (including the price and other costs incurred in obtaining the product) is above the industry average. If, on the basis of the subjective value of the customers, the consumer value of the business package sold by the business falls below the transaction costs, the business loses its customers. In order to reduce the risk, it is therefore justified to create online community spaces that involve the consumers in the creation of shared value, in line with the DART principles. The activity of this business, with the help of the well-known DART framework, is reviewed at 3 levels: we analyse the official website of the enterprise, its social media surfaces and the own social media activity of the main owner (and manager of the company). The results are presented separately for each level.

The website of the company (**www.bazaltbor.hu**) is fundamentally designed for traditional one-sided information. There is no part of the website that would allow consumers to initiate a dialogue with the business or with each other. At the same time, in an easily visible place, irrespective of the currently open subpage, the icons referring to the social media surfaces of the business are located at the bottom of the page. By clicking on these, you will be able to access the community spaces that make the dialogue possible (Facebook, Instagram, TripAdvisor). The only, almost "interactive" menu item for the web site is the wine web-shop, which can be classified in the access category. Customers have the opportunity to access the wine cellar directly through the producer, through a simple online order. However, this access is limited, as the home delivery fee (2.000 HUF / delivery) exceeds the price of the majority of wines, but it also reaches 25-30% of the value of a bottle of wine compared to the premium items. Shipping costs, as a limiting factor, will disappear above $ 20,000. The elements of risk reduction and transparency are only indirectly available on the website. This includes the full and categorized presentation of places selling Laposa wines (reducing the explicit and implicit transaction costs associated with buying wine) or the introduction of the members of the Laposa family, in which they express the philosophy of winemaking and business operations (see Figure 3).

In the range of social media used by the business, Instagram can be considered the most compliant. The "laposabirtok" (= Laposa Estate) on Instagram currently has 206 entries, the page has 6 364 followers. The dialog feature already appears on this interface, but visitors rarely make use of this possibility. In most cases, customer interactivity is limited to liking the images uploaded by the business. The stable number of such feedbacks shows that a community of 150-200 is organized around the Instagram account. There is no information available about what percentage of this small community is made up of current and potential consumers. There are only a few of the uploaded images that have received text feedback from the community, but these feedbacks are clearly from the customer side. Based on the analysis of the images, we can say that the account primarily performs the access and risk reduction functions. The majority of the pictures show not the wine products, but the experiences and the feeling of life available in the wine estate. Visitors can gain visual experience of a central attraction panorama, guest terraces, and last but not least the unique, fine-dining gastronomic offer. The opportunity for acquiring visual experience can be an effective means of reducing the risk of purchasing as an implicit psychological transaction cost primarily among potential buyers.

The company has also registered on TripAdvisor.com, which adds to the consumer interaction space with another important sub-area, providing transparency. Visitors here have the opportunity to evaluate the products and services offered by the company on various aspects. Reviews are public and available to everyone, and it is impossible for the business to manipulate and select consumer feedback: both positive and negative reviews appear on the site. This transparency is beneficial in two respects: on the one hand, it also contributes to reducing the perceived risk to consumers and, on the other hand, enables consumers to express their views in a visible and open way, pointing to the shortcomings and areas to be developed for the "experience package" offered by the company. Thus, buyers - if the company takes the feedback seriously and makes the necessary changes - will be part of the common value creation.

The company's Facebook account is the most complex element of the online interaction space, and is an excellent platform for business-consumer and consumer-consumer dialogues. Consumer posts appear on the Facebook page from time to time, but only occasionally, with limited scope. Most of the interactions get stuck at primary reactions to news, events, and content shared by the business. As a result, communication on the Facebook page is dominated by the business, with a little spice of occasional consumer comments. There is also the possibility recording the positive and negative consumer reviews on this interface, and some of the Facebook users make use of this opportunity, increasing the transparency level. Some of the content shared by the company goes beyond the disclosure of information about Laposa Wine Estate. On the surface, regular events, news, articles and interviews with the Hungarian wine sector and gastronomy, including the Balaton and Badacsony experiences are shared regularly. Some of these, buyers may not find on other channels. Consequently, the account also has an access feature. The official Facebook page of the Wine Estate is well complemented with the owner's own site. The content shared here clearly illustrates the vision and mission of the business owner, the world view of the industry. A personal post that sharply criticized the company's strategy was also shared on the personal page, which generated many posts. Thus, the personal page contributes significantly to the interaction space with the access and transparency functions.

Figure 3: Laposa Estate Ltd. on the internet

Source: own editing – with instagram, facebook and http://www.bazaltbor.hu/ website

4. SUMMARY

Thanks to the Internet and the rapid flow of information, value creation is now a key element of creating a corporate strategy. Consumers have basically changed the dynamics of markets as they appear to companies as a new source of capabilities. The ability brought by consumers lies in the knowledge they possess, in willingness to experiment, and in active communication. As the previous research findings of the literature review show, economic operators should pay attention to the four pillars of the DART model, as it is generally suitable for analysing "experience centred" corporate interactions but not quantitative analysis.

About the two companies of different interest shown in our case study, it can be asserted, that Burján Szafi uses the available community media more intensively and thus she has a greater consumer base and reputation. We would mention that Burján Szafi's larger follower base is likely to be due to health consciousness which is more and more "fashionable" nowadays. So, Burana Szafi's business properly applies and utilizes all 4 DART model elements in order to keep consumers interested in the long term, inform them and increase their number on social media surfaces. Based on our case study on Laposa Estate Ltd we can conclude that the available global online social media are capable of supporting the

creation of a value-creating small business with a shared value for consumers. The tested surfaces are technically able to provide interaction based on the DART model. The case study, however, points out that exploitation of the potential of social media in such a small business has serious difficulties. The company presented by us – despite its high level of online activity – has not been able to engage its customers at a proper level so far. If there are sufficient resources, it is recommended to manage online media content with a professional team dedicated to this task (this is stated in the company's short-term goals according to an interview with the executive). It is also considered a small business specialty that the company reaches its target audience through several social media sites that are free of charge. This, however, involves some risk (sharing or fragmentation of the non-excessive online consumer community), but this risk can be easily managed by the fact that different platforms are "linked" and easily accessible from one site. The development of self-developed and centralized consumer community spaces similar to the examples of large enterprises (e.g. Nike) does not seem to be a realistic scenario.

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GIS DATABASE BUILDING FROM OPEN SOURCES AT THE GAME MANAGEMENT LANDSCAPE CENTRE OF KAPOSVÁR UNIVERSITY

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ABSTRACT

The Game Management Landscape Centre of Kaposvár is one of the most important red deer breeding grounds in Central Europe. The varied and diverse activity of the farm is unique in Hungary, which is located on more than 1300 hectares in Somogy County, Hungary. The Game Management Landscape Centre, together with the Kaposvár University, participates in several research projects as well as a practical training place for university students. Linked to the above, it is expedient to survey the whole area and to build a GIS database from the results.

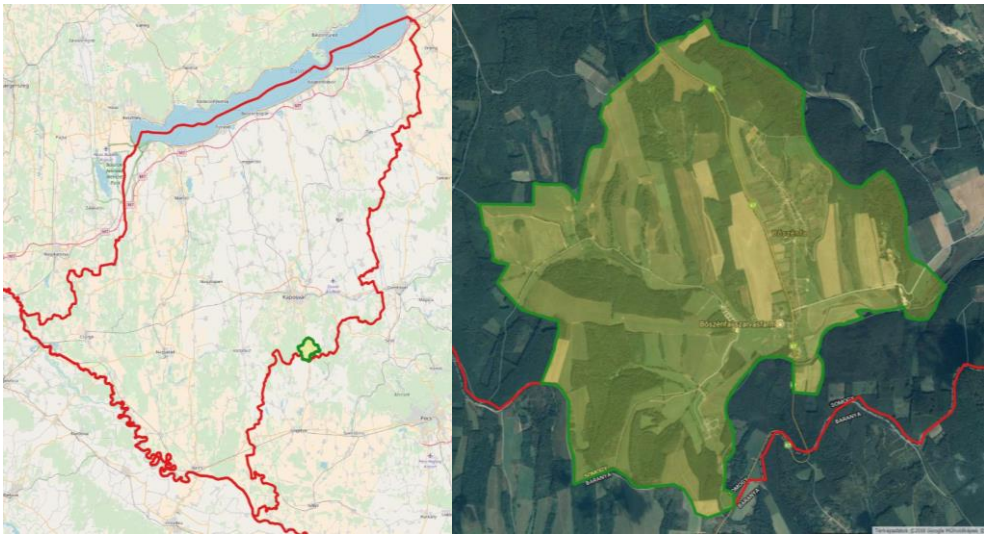
The purpose of this paper is to demonstrate the process of building a GIS database that comes exclusively from the results of field surveys and from open source data. Along with this idea, the authors review the methodologies used in field surveys, then describe the available open source data, map files, and present their advantages, disadvantages, and uses.

Keywords: GIS database, open source, orthophoto, satellite images, Open Street Map, CORINE Land Cover, digital elevation model

1. INTRODUCTION

Bőszénfa, is a small village among the rolling hills of Zselic, on the North side of the border between Somogy and Baranya Counties, in South-West Hungary (*Figure 1*).

Figure 1: Location of examination area



Source: Based on Open Street Map and Google Satellite

Game Management Landscape Centre of Kaposvár University is the biggest deer farm in Hungary, with an area of 1300 hectares. The centre was established in 1985. Today it has 35 employees and the annual revenue is about 350 M HUF. Many various species of big game are breed on the farm, e.g. 1500 red deer, 300 wild boar, 200 fallow deer, 150 mouflon, and 50 roe deer. Domesticated animals - Hungarian grey cattle, rack sheep, pigs, horses, donkeys, goats, and buffalo - can also be found. In addition, there are some special animals like peacocks, emus and parrots. Activities like game management, crop cultivation, forestry, hunting, game meat processing and tourism are included in this complex operation. Many research projects are connected to the farm and they contribute to the theoretical and practical qualification of the students of Kaposvár University. [1]

2. MATERIAL AND METHODS

Our purpose was building a GIS database that comes exclusively from the results of field surveys and from open source data. This article contains the demonstration of this process. We have mostly used the internet and the data collected from previous projects. The attributes of different data sources and the possible applications will be explained in the *Results chapter*.

The QGIS 2.14 were used for the map processing.

3. RESULTS

The following are the data sources we have used in our work. In addition, we briefly describe how we wish to use this data in the following stages of our research.

Taking orthophotos is an old but accurate practice of mapping. Aerial photography is an accurate processing, it has medium or high precision. There is a website (www.fentrol.hu/hu/) which contains downloadable aerial photos. *Figure 2a* shows a photo from 1965 which was taken on photographic film, therefore the spatial resolution is cannot be interpreted.

The newer photos have 50 cm spatial resolution.

The orthophotos were obtained from government resources - from the Department of Geodesy, Remote Sensing and Land Offices, under the Government Office of the Capital City Budapest (www.ftf.bfkh.gov.hu/portal/index.php/termekeink/legifelvetelek). Files made in 2000, 2005, 2008, 2009, 2012, 2013 and 2015 are available in the database named with reference to the examined area. However, "only" the images taken in years 2000 (*Figure 2b*) and 2005 (*Figure 2c*) are currently available free of charge. [2] In the next phases of our research we are planning to purchase additional shots showing current status from tender sources, because we want to analyse the land cover changes in the area at different times. The results obtained will be clarified by field data.

Figure 2: Aerial photos from different years

a b c

1965 2000 2005

Source: www.fentrol.hu/hu/ and based on www.ftf.bfkh.gov.hu/portal/index.php/termekeink/legifelvetelek

The most widely used remote sensing images are taken from space. The different satellites were launched for a specific task, so their sensors were made for a limited region of spectrum.

The LANDSAT program was the first to record images from across the globe. The purpose of the LANDSAT program is to cover global remote sensing data of the Earth's surface continuously. [3] After registration, the Landsat images can be downloaded free from the www.earthexplorer.usgs.gov/ web page.

Table 1 shows the spectral bands and its resolution of Landsat 8 sensors and the usage of bands can also be seen [4].

Table 1: Spectral bands of Landsat 8

Spectral band	Use	Resolution
0,43 - 0,45 μm (Deep Blue)	Coastal areas and shallow water observations; aerosol, dust, smoke detection studies	30 m x 30 m
0,45 - 0,51 (Blue)	Bathymetric mapping; soil/vegetation discrimination, forest type mapping, and identifying manmade features	30 m x 30 m
0,53 - 0,59 μm (Green)	Peak vegetation; plant vigor assessments	30 m x 30 m
0,64 - 0,67 μm (Red)	Vegetation type identification; soils and urban features	30 m x 30 m
0,85 - 0,88 μm (NIR)	Vegetation detection and analysis; shoreline mapping and biomass content	30 m x 30 m
1,57 - 1,65 μm (SWIR)	Vegetation moisture content/drought analysis; burned and fire-affected areas; detection of active fires	30 m x 30 m
2,11 - 2,29 μm (SWIR)	Additional detection of active fires (especially at night); plant moisture/drought analysis	30 m x 30 m
0,50 - 0,68 μm (VIS, PAN)	Image sharpening	15 m x 15 m
1,36 - 1,38 μm (SWIR)	Cirrus cloud detection	30 m x 30 m

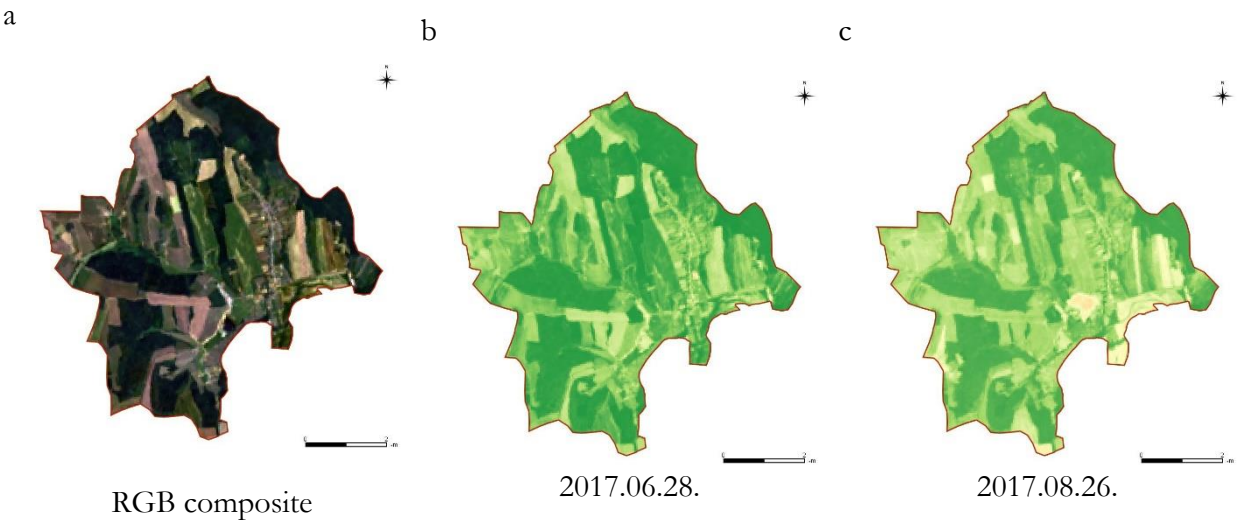
Source: www.landsat.gsfc.nasa.gov/landsat-8/landsat-8-bands/

The RGB image had to be created by GIS software thanks to single band images. Due to multiple bands as well, several different indexes can be created from the Landsat recordings. Normalized Difference Vegetation Index (NDVI) is the most common index that analysts use in remote sensing. NDVI quantifies vegetation by measuring the difference between near-infrared (which vegetation strongly reflects) and red light (which vegetation absorbs). [5] As shown below (1), **Normalized Difference Vegetation Index (NDVI)** uses the NIR and red channels in its formula.

$$NDVI = \frac{(NIR-Red)}{(NIR+Red)} \quad (1)$$

NDVI is a standardized way to measure healthy vegetation. High NDVI values meaning healthier vegetation while low NDVI meaning less or no vegetation. We have three Landsat images which were taken in the summer of 2017. *Figure 3a* shows the created RGB composite using Red Green and Blue channels. *Figure 3b* and *3c* show the calculated NDVI indexes at two different times. The second image shows worse indicators than the first, but vegetation is quite healthy on both.

Figure 3: Results of Landsat image processing



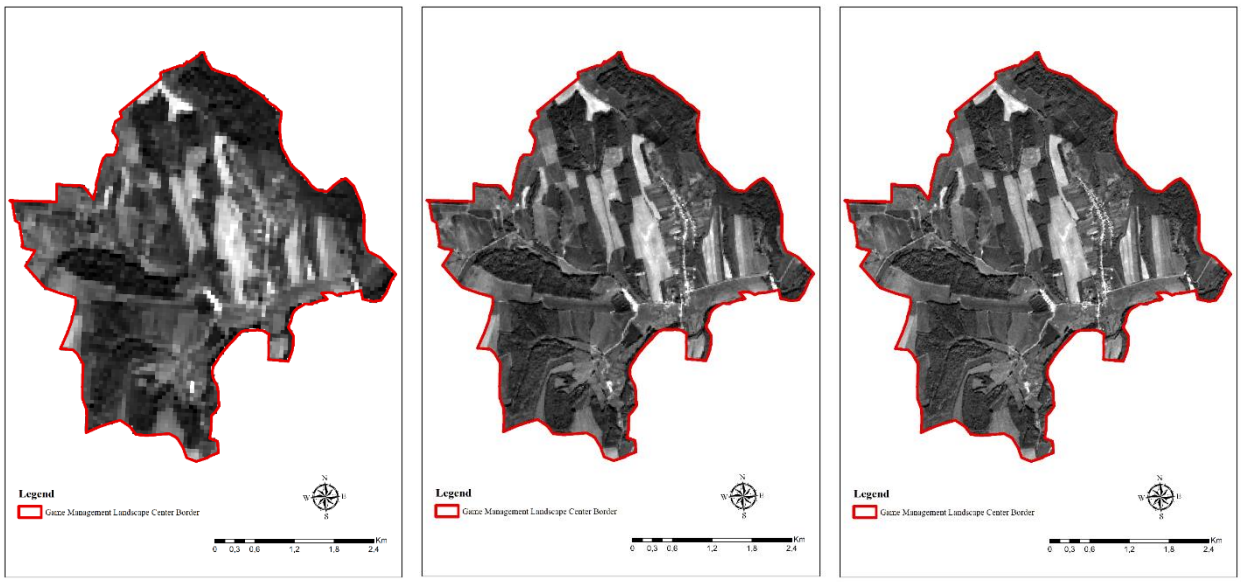
Source: Based on data of www.earthexplorer.usgs.gov/

Sentinel-2A is an Earth observation mission developed by ESA (European Space Agency) part of the Copernicus Programme to perform terrestrial observations in support of services such as forest monitoring, land cover changes detection, and natural disaster management. The satellites capture images at 13 different wavelengths in the visible and infrared ranges. Sentinel 2A has three different spatial resolution 60 m, 20 m and 10 m (*Figure 4*). [6]

Since the temporal resolution of satellites is up to 10 days, the images taken during cloudless periods can well complete/supplement our later orthophotos purchased from tender sources as previously presented. Satellite images can be downloaded from https://scihub.copernicus.eu/ website.

Figure 4: Sentinel-2A images in different spatial resolution

a b c

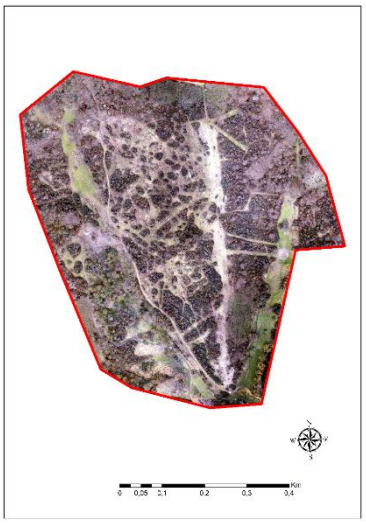


60 m 20 m 10 m

Source: Based on data of https://scihub.copernicus.eu/

In addition to downloaded images own recording were taken (*Figure 5*) using UAV (Unmanned Aerial Vehicle). The flight altitude of the used DJI Phantom 3 Professional drone was 130 m and images have 5.5 cm spatial resolution. We want to use drone technology to capture images on a monthly basis for surveys of forestry, livestock monitoring, fence surveys and agro-forestry surveys.

Figure 5: Drone image of the part of examined area

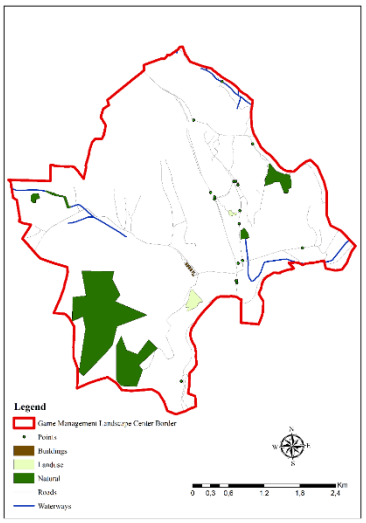


"The OpenStreetMap (OSM) is a collaborative project to create a free editable map of the world. The creation and growth of OSM have been motivated by restrictions on use or availability of map information across much of the world, and the advent of inexpensive portable satellite navigation devices." [7] OpenStreetMap is a tool for creating and sharing map information. Anyone can contribute to OSM, and thousands of people add to the project every day. The OSM maps are saved on the internet, and anyone can access them at any time, totally free.

The OSM is available online (www.openstreetmap.org) and downloadable from the http://download.geofabrik.de/europe/hungary.html webpage.

In the examined area (*Figure 6*) two errors can be detected. One lake has been classified as land-use, while another lake appears as a natural area. The buildings indicated on the map are the machine workshops of the deer farm.

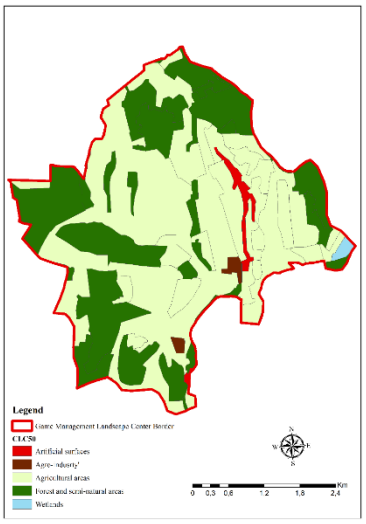
Figure 6: Downloaded Open Street Map



Source: Based on data of https://scihub.copernicus.eu/

The CORINE Land Cover (CLC) inventory was initiated in 1985 (reference year 1990). Updates have been produced in 2000, 2006, and 2012. It consists of an inventory of land cover in 44 classes. The 2012 version of CLC is the first one embedding the CLC time series in the Copernicus programme, thus ensuring sustainable funding for the future. CLC has a wide variety of applications, underpinning various Community policies within the scope of environment, but also agriculture, transport, spatial planning etc. [8] The shape files can be download from https://land.copernicus.eu/pan-european/corine-land-cover web site.
Figure 7 shows the five categories of CLC, which can be found in this area such as artificial surfaces, agro-industry (agricultural facilities), agricultural areas, forest and semi-natural areas and wetlands.

Figure 7: The categories of CORINE Land Cover



Source: Based on data of https://land.copernicus.eu/pan-european/corine-land-cover

The digital elevation model (DEM) is a 3D computer graphics representation of a terrain's surface created from a terrain's elevation data. Common uses of DEMs include e.g. geomorphology, modelling water flow for hydrology, mass movement (for example avalanches and landslides), the creation of relief maps, rendering of 3D visualizations.

The Shuttle Radar Topography Mission (SRTM) was flown aboard the space shuttle Endeavour between 11 and 22 February, 2000. The National Aeronautics and Space Administration (NASA) and the National Geospatial-Intelligence Agency (NGA) participated in an international project to acquire radar data which were used to create the first near-global set of land elevations. [9]

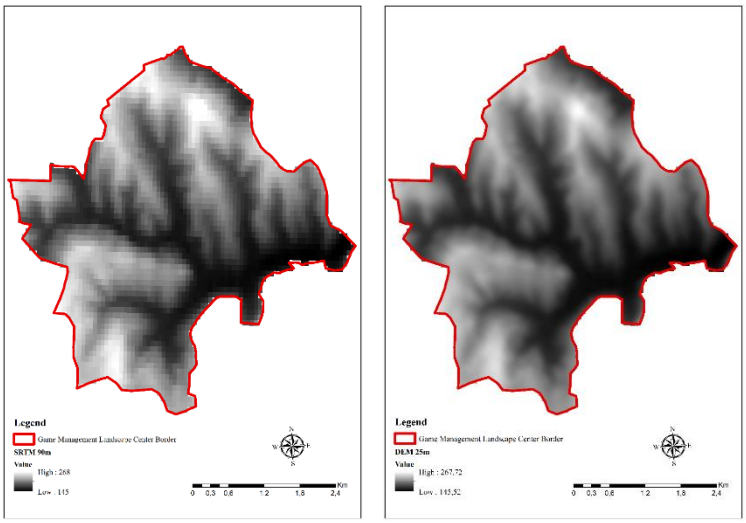
The data are available with a resolution of 90 m (http://srtm.csi.cgiar.org/SELECTION/inputCoord.asp). One has to pay for better (30 m) resolution.

The Digital Elevation Model over Europe (EU-DEM) from the GMES RDA project (EU-DEM) is a Digital Surface Model (DSM) representing the first surface as illuminated by the sensors. The EU-DEM dataset is a realisation of the Copernicus programme, managed by the European Commission, DG Enterprise and Industry. The EU-DEM has 25m spatial resolution. [10] The https://land.copernicus.eu/pan-european/satellite-derived-products/eu-dem/eu-dem-v1.1?tab=mapview webpage includes the data.

Figure 8a shows the SRTM model and EU-DEM is on the *Figure 8b*. The difference of resolution is obvious.

Figure 8: SRTM and EU-DEM

a b



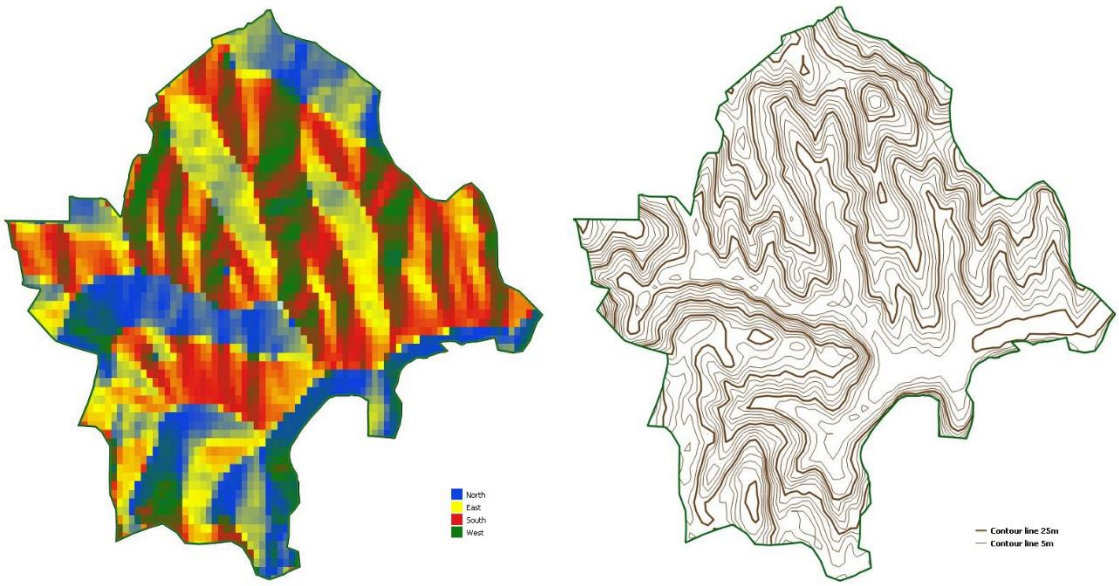
SRTM, 90 m EU-DEM, 20 m

Source: Based on data of http://srtm.csi.cgiar.org/SELECTION/inputCoord.asp and https://land.copernicus.eu/pan-european/satellite-derived-products/eu-dem/eu-dem-v1.1?tab=mapview

There are a lot of possibilities in the GIS software to analyse elevation data. The *Figure 9a* shows aspects of hills. The colours indicate directions (North, South, East and West). Based on the slope and the aspect it is possible to select optimal growing areas for example vineyards. The *Figure 9b* shows contour lines which have derived from DEM. Based on contour lines areas threatened by soil erosion can be predicted.

Figure 9: Aspects and contour lines

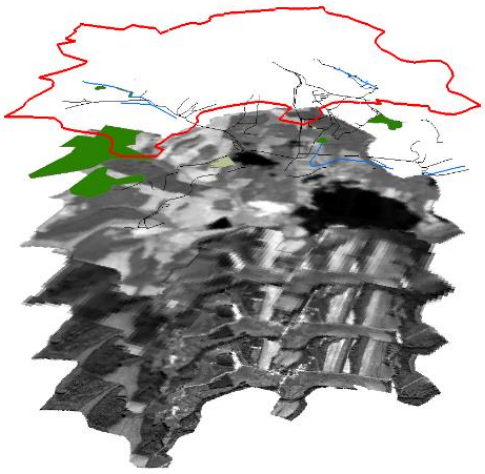
a b



Source: Based on data of http://srtm.csi.cgiar.org/SELECTION/inputCoord.asp

The GIS database is constituted from the data presented in the above. The aerial photos, the satellite images, OSM and DEM are represented as separate layers in the database (*Figure 10*). The GIS is suitable for analysing different layers and revealing connections among layers.

Figure 10: Some layers of the built GIS database



4. CONCLUSIONS

In this article we focused only the database building from free sources. A complete GIS database can be built exclusively using free sources. The suitability of this database depends on the research goal. We are going to supplement it with commercial maps and examine the deep relationships in database.

5. ACKNOWLEDGEMENTS

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LEADERSHIP STYLES APPLIED IN HUNGARIAN START-UPS[10]

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ABSTRACT

Start-ups are newly established and rapidly growing businesses, who are on the market with innovative products, services or processes. Start-ups are highly effective in many aspects, but the chances of failure are high. Is the question of "win" or „fail" determined by the leader's skills, the quality of the idea or pure luck itself? What kind of leadership does a start-up need to become successful? Is there a recipe for start-up leadership or it depends on the circumstances, which strategy will prove to be efficient? In our research we seek answer to these questions, aiming to find out what leadership strategies Hungarian start-up leaders apply that prove to be successful. To get an insight into this emerging and rapidly changing world, we carried out focus group interviews with successful Hungarian 'start-uppers' – and leaders of small-enterprises as a control group to see whether there are any differences in their attitude or the way they lead their companies.

1. INTRODUCTION

In the 21st century many things have changed – and so did the business environment. The actual beginning of the start-up economy may not be precisely determined, but it certainly characterizes the 21st century. But what is more important: they define and dominate the business life nowadays: in 2015 there were 2300 registered start-ups in the European Union employing over 31000 people from all over the member states. We live in the era of start-ups, no question: according to the research of the European Commission 50% of new workplaces in Europe had been created by start-ups (Kollman et al, 2016). This new business model requires a completely new approach in many aspects including business planning, strategy, marketing, and leadership among others. Leaders and founders of start-ups are facing a set of new challenges starting off by having to manage very diverse, often multicultural teams, with the need to react to a rapidly changing environment and facing new challenges every day. All in all, start-ups create not only new business models, but also leadership styles. But what is a start-up actually?

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2. LITERATURE REVIEW

2.1. The definition of start-ups

There are no exact or general definitions yet, it being a pretty new phenomenon, however some general characteristics may be identified to define the essence of start-ups. The concepts may vary, and not only one of them have been created by famous start uppers, while academics also work on finding the essence of the start-up-model, though usually from different perspectives. Some start uppers regard start-up as a way of thinking; others consider it as a decision to prefer immediate impact over stability (Robehmed, 2013). Academics, on the other hand, tend to focus more on the actual business model, strategy and the structure of hierarchy. However, there are some common features in the numerous concepts, by which we may start off getting to know this new business model.

In spite of the various definitions there is a kind of a consensus that start-ups by all means have to be companies that existed for less than 10 years, meaning that the majority were founded after the financial crisis of 2008. For many the 5th year is already a milestone; as those companies, which have already survived this long may already be more stable, therefore they are out of the group, who are sacrificing security for growth. Yet, research generally works with the age of ten as a time limit. In terms of definition the greatest agreement is in striving for rapid growth: in academic research papers, business magazines and the interviews with famous start uppers this characteristic always appears as one of the main goals – both in terms of sales and workforce. The third – and statistically most easily definable – characteristic of start-ups is use of innovative, digital technologies. Most of the start-ups come up with a new, innovative solution to a social or economic problem, usually (but not always) based on IT&C and smart devices (Kollmann et al, 2016; Collyer, 2016).

According to the definition of the European Start-up Monitor (German Startups Association; 2015) three main characteristics need to determine a company in order to be defined as a startup. First and foremost it should not be older than ten years – since start-ups are often also explained as rapidly emerging and growing businesses. The second important characteristic is to feature innovative technologies and/or business models, which means thinking out of the box and going against the flow in many cases. The third part of the definition somewhat correlates with the first one, stating that these companies strive for growth both in financial and employee point of view (GSA; 2015, Allen et al, 2016).

Summarizing these, we can conclude that most of the concepts focus more or less on the same characteristics, such as age, innovativeness – though some regard it as business, others as IT solutions majorly – and the striving for growth.

2.2. The emerging of start-ups – why now?

The start-up environment is given and we face new challenges, but many would ask the question why, or why now have the start-ups emerged and why they determine the business environment of our time.

Rapidly changing business environment and swift technological advances require quick reactions and adaptation from the companies operating on the market. The large machines of the multinational companies are often not able to do so, bureaucracy and their processes simply do not enable them to change direction from one day to another. Young and dynamic companies are ready to react to the market changes more quickly than multinationals, so in those markets, where these rapid reactions are required they may be more successful in the short run. This does not mean that the era of the large companies has passed, however, new solutions are needed and welcome, and markets and people are more open for innovation than ever before. Very often this materializes in the form of cooperation between start-ups and large entities, where the former provide the ideas, innovation and new solutions, while the latter the resources, market knowledge and often also the financials (Hyytinen, Pajarinen, Rouvinenb, 2015; OE-Mitsuhashi, 2013; VAN Gelderen, Thurik, Bosma, 2005).

Multiple research studies may identify a large number of other environmental factors, which provide a prosperous atmosphere for start-ups to emerge, but these are the most determining ones, which have an effect on the true essence of start-ups and make our times the 'start-up era'.

2.3. The situation of Hungarian start-ups

In our research we overview and analyse the start-up situation in Hungary, with an outlook on Transylvania, a place, which was also part of Hungary for a long time in history; and still a large Hungarian-speaking community lives and works there, including start-uppers as well.

It is hard to create any statistics on the actual number of start-ups in Hungary, even if we consider only those, which are based in Hungary, but according to the Visegrad Start-up Report in 2016 their number was approximately 113 (Beauchamp, 2017).

Hungary is one of the dominant countries in technology innovation, also supported by statistics; according to the European Start-up Monitor of 2016 15.6% of them work in IT or software development. At the moment 41.4% of these companies create revenue within the country, which means that their customers are within the country as well, however, 75.4% of them are planning to go international in the following years. As we could see before, growth and the striving for growth is an essential part of the nature of start-ups, which also includes the desire and effort to enter the international markets (Kollmann et al, 2016).

As the definitions above suggested, start-ups are required to be younger than 10 years by all means, but many focus on 5 years old or younger. Hungarian start-ups are on average 2.7 years old, which suggests that they are mostly in the seed or pre-seed phase, at the beginning of their life; and that Hungary at the moment is a pretty dynamic start-up environment. Demographically we know that Hungarian start-ups have on average 6 to 7 employees and 2 to 3 founders, 85.5% of whom are male and 41.6% of them between 25-34 years (Kollmann et al, 2016).

2.4. Leadership of start-ups

First, what is the leadership?

"Leadership is an activity that based on the communication process, influences people's relationships and human behaviour in the interest of a specific goal (s)". (Bayer, 1995)

In another approach, leadership influences others to find a common solution for task. It is necessary for the leader to be accepted as a leader. If the leader is not accepted as such, then we cannot talk about leadership, only about coercion and repression (Berde-Felföldi, 2004).

In general, leadership is a process that coordinates the work of men by considering several factors, by a lead manager (Henschel-Heinze, 2018). This is a work-oriented, purpose-oriented, coordinating, complex and continuous activity (Szabó-Szentgróti, 2017). Historically, aristocratic thinkers thought that leadership ability was a result of "blue blood" and "good genes". By contrast, people with democratic empathy believed in leadership that based on talent and common sense, just like Napoleon's colonels who had a successful career.

People tend to think that there are two main leadership behaviours. One is the traditional, the instructor, the other is a human resource leadership, a cooperative type (Kőműves-Borbély, 2014). Among these classical management behaviours there are big differences, and of course many of them may be overlapping (Ensley et al, 2006; Bakacsi, 2015).

2.4.1. Instructor leadership

The leaders in charge allocate the task and check their employees to see if they are doing their job properly. The leader does not consider employee opinions and ideas, only considers his/her personal views as correct.

They are separating the job by two main groups: important and not important. Responsibility for change, leadership, and decision making is in their hands. Usually he prepares his employees for pre-planned tasks and takes deadlines strictly. They like to show their rank and that they are the "bosses". Among them, strategists, usually prospective leaders, are emerging.

2.4.2. Human Resource Leadership

Nowadays, more and more people with this leadership behaviour are in the foreground – collaborating leaders, who have a good relationship with their employees.

It is characteristic for them to listen to the opinions of the others, and ask for their opinion. He communicates well, looks at a subject in several ways before deciding. They pay attention to the employees. They are real team players, help employees, and mentor them.

It can be stated that based on the interviews, the start-uppers are in the latter category. The answers clearly show that they are empathetic and high-emotional intelligence leaders. It is important for them that the employees feel comfortable.

But we cannot draw general conclusions. There are a few start-ups in Hungary. Many have heard of each other and know each other. Their answers are in many cases the same. This might result from their

common interests and their participation in an incubator program. Therefore, in many cases, they represent the same opinion.

3. METHODOLOGY

Since statistics of start-ups are barely available; and, due to the dynamic environment, they often become outdated very soon. The leadership of start-ups is an emerging topic nowadays; therefore we mainly relied on primary data resources. The present study discusses the results of a pilot research, grounding the base for a larger, quantitative survey on leadership styles and best practices, so we relied on qualitative data sources, such as in-depth interviews and focus group interviews, which provide an insight into the life of start-uppers and gives an overview on the differences compared to small and mid-size companies. So far we have carried out three in depth interviews with Hungarian start-uppers of different sectors (food industry and manufacturing industry), and also carried out a focus group interview with Hungarian speaking start-uppers in Transylvania.

4. RESULTS AND EVALUATION

In our research we aimed to discover the practices Hungarian start-up leaders apply to manage their companies, adapt to the dynamic environment and develop and meet the requirements and challenges of the market constantly. The in-depth interviews and the focus group interviews were structured upon the same scheme, focusing on the success factors and personal efforts for becoming a good leader.

In the first phase of our research we carried out in-depth interviews in the first quarter of 2018 with three start-uppers of ideas in different stages, as Table 1 shows.

Table 1: Participants of the in depth interviews

Name	Position	Industry	Idea	Age of the idea	Funds
Péter	CEO, founder	agriculture/food	online outsourcing of farming	3 years	not yet
Pál	CEO, founder	food	meat marinating	4 years	yes
András	CEO, founder	manufacturing	production management software	2 years	yes

After the introductory phase we asked all the participants to define success and the characteristics of a good leader. Probably it is not surprising that when it came to defining a successful start-up, the answers showed some similarities with the general definition of start-ups, putting growth and lots of active work and participation in the focus. One of the respondents have already directed the topic towards leadership, stating that the core and essence of start-ups is the team.

All the three respondents emphasized the importance of starting with 'why' and putting it in front of the questions 'how?' and 'what?', which is also suggested by the famous work of Simon Sinek *Start with why* (2011); however they all admitted that they have read and started to apply its findings as well. These factors were considered as the key to success, but have already shown forward, towards the characteristics of a good leader as well. As for the free association, our respondents identified a good leader by flexibility, care and being a super plus person (meaning the dedication of enough time, effort and money for the cause). They furthermore highlighted the importance of self-realization and example-setting to the colleagues and employees, which again enhanced the importance of thorough dedication to the idea and the start-up. When considering the more practical side, our respondents focused on the optimal use of the resources – certainly considering the interests of the company – which also includes the ability to delegate the tasks efficiently, sharing responsibilities and organizing a traceable reporting system.

So far the conversations were focusing on generalities, but in the second block our questions focused more on personal experiences, thoughts and ideas. First of all we asked what our respondents personally do day by day in order to improve their companies. To this question the answers were quite varied, though there was one thing highlighted by all: communication. Péter was the person, who focused the most on the importance of communication: communication of the reasons why they do something to the employees and asking questions from customers to understand their interpretations of the product, their ideas and the things they probably lack. He also emphasized the importance of measurability, which is a bit in line with the response of András, who believes in the role of traceability and continuous monitoring and cooperation with the employees. On the other hand, Pál, while mentioning thinking together and learning from each other as important means of communication, he put the focus on finding the best practices and solutions; but also emphasized the difference between a leader and a boss, claiming that being a leader is far more beneficial; and certainly that is the approach he prefers.

When asking what they do to become more successful as leaders, all respondents – independent from each other – replied self-development and continuous learning. Their sources of learning are different: András enhanced the importance of experience, and Péter for example uses videos and professional books to improve himself, which, as he said, is one of his main strengths as well. All the leaders mentioned the need to develop in terms of administration, which they would also like to minimalize, as it is time consuming and – as they feel – it does not contribute to value creation; and all of them would like to improve their time management skills as well. Improvement in terms of IT knowledge has also appeared in the answers of all three respondents, as none of them comes from this sector, but all three need to deal with technological issues on a daily basis. Pál also emphasized the importance of planning, for which he would dedicate far more time than he currently does. When it came to planning, András and Péter also mentioned that at the moment there are no written rules or codes of conduct in the company, but they clarified that this is also something they would like to improve in the future.

Generally all the three start-up leaders seemed to focus a lot on the things they need to improve; and their dedication and eagerness to learn was visible in all of their responses. However, since we were curious about best practices and leadership techniques as well, we tried to focus also on what they consider as their strengths. Certainly, these are characteristics originating from personality as well, but it is interesting to see which strengths start-uppers mention as important from the business environment perspective. András considers flexibility and quick situation-analysis and reaction as his main value, which helps him to get by in the dynamic and complicated start-up atmosphere. Péter, as mentioned before, regards himself the best in learning and self-development, which he tries to transmit to the company as well. Pál explained that he

is good at decision making under large pressure, which is quite usual in the start-up world, and he also feels he is good in handling colleagues and his team, which is – as written above – most often the core of the start-ups.

5. SUMMARY AND CONCLUSIONS

The greatest challenge of the research is to address and ask start-uppers both in Hungary and in Transylvania. As our interviewees explained, time is money, and in this rapidly changing environment they cannot really afford to spend time on non-value-creating processes, which unfortunately also includes answering questions of researchers. This meant our most severe limitation; however, we are truly grateful to our respondents for sacrificing their time and capacities to support our work.

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VALUE CREATION AND MARKETING STRATEGY OF THE CSÍKI BEER BRAND

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ABSTRACT

The present study aims to summarize the examination of the Csíki beer brand based on their strategic management and marketing strategy. The primary research was based on an interview conducted with the CEO, an online survey questionnaire (n=251) and data collection as well as analysis using the Marketing mix model and Kapferer`s brand identity prism. In general, we can conclude that the strongest values of the brand are the following: place of origin (Szeklerland), tradition, emotional involvement by the target group, advertisement strategy based on humour with traditional "szekler" elements. Online shopping with free shipping is also popular and it is a good plan to start a drone delivery in the future. The market position is unique, because these fine craft beer makers are competitors of the traditional premium lager beers in the stores. The high-quality materials and ingredients, the partnership with the Sapientia University and the place of origin improves the product's image on the Hungarian market.
Keywords: branding, Kapferer's prism, beer, value creation, csíki, szekler, brewery, consumer's behaviour, marketing strategy, marketing mix.

1. INTRODUCTION

The present paper aims to examine the opinions of the Hungarian youth about the Csíki brand. There are more trends nowadays present in the brewing industry, which defines the innovation strategy of companies (Schmidt - Walsh, 2017). Such a trend is the preservation of a healthy lifestyle (Törőcsik, 2014 and Huszka-Ercsey, 2014), with excellent integration of craft beer. On the other hand, local patriotism is gaining ground where consumers look for local products, traditional and authentic solutions (Szakály, 2017; Szakály et al, 2016 and Lázár-Tánczos, 2014). An important change is that there is a shift in consumer behaviour towards the big industry premium and the craft quality beers, from the consumption of cheap and low-grade beers (Schillinger, 2018).
Considering all of the above we decided to place the Csíki beer at the centre of our research and we analysed especially the marketing activities of companies, and also the brand-building value creation, consumer perceptions of the brand, and brand awareness examining the brand image.

2. MATERIAL AND METHOD

Secondary research is based on an overview of the main literature available on this topic. The primary research can be divided into two parts: interviews conducted among the members of the management, an in-depth interview with the marketing director (Ingrid Jakab) as well as an online questionnaire survey. Answers received during the in-depth interview have been built into the marketing mix and the brand prism. The results of the questionnaire are also discussed in detail. The questionnaire was self-

administered, containing several blocks, with questions ranging from the general consumer habits with the Kapferer's model brand identity prism.
We received and validated 251 questionnaires, the procedure was not random sampling, and the distribution was done by a snowball method.
55 % of the sample population is male, 45% is female. By age, the ratio between 18-29 years is 72.65%, the 30-39 years of age were 13.46%, the 40-49 years old was 7.34%, 2.85% was in the 50-59 age group and 3.67% was above the age of 60. 56.2% of the sample had a high school diploma and 33.9% had a higher education degree. According to the place of residence, 18.3% of the respondents live in the capital city, 28.7% live in a county seat, 29.1% are urban residents and 23.9% are resident in villages. 26.7% of respondents are not yet employed, 57% work in an office environment and 16.3% of them do manual labour.
Mathematical-statistical analyses were performed using IBM SPSS 20, the study was limited to a cross-table analysis, due to the pilot nature of the sample (with extra Chi-Square test at 95% probability level).

3. RESULTS AND EVALUATION

The results present the elements of the marketing mix and then the results of questionnaire research. Finally, in the light of the results, we establish the brand prism which can be an excellent summary of value creation (Phillipshopelain, 2012).

3.1. The marketing mix of Csíki Beer Manufactory

Marketing mix is a combination of marketing tools that companies employ in some market situations. Though the model is old, nowadays it is used due to its simplicity, practicality and durability.

3.1.1. Product policy

The value of a product is significantly influenced by the manufacturing itself or manufacturing conditions. The production equipment of the Csíki Beer Manufactory is provided by Miskolc ZIP Hungary Ltd., sewage purifiers and bottling machines were acquired from Germany, Kronest (Csupor, 2017). In 2016, thanks to an investment, a new division was set up, so today, with excellent technical capabilities, they can produce significantly more beer per day than at the beginning when a wine bottling production line was used.
The water of the Harghita mountain springs is used for brewing, which is a prime quality water supply. The quality of the product is determined by the high quality of "Segesvár" hops, the highland barley and the yeast with the same quality.
Since May 2018 the range of products includes 6 products: Forbidden Csíki beer, Szekler beer, Forbidden Csíki Honey "Festive" Beer, Forbidden Brown Csíki Beer, and Forbidden Csíki Cream Beer. They don't use enzymes, preservatives, additives and do not dilute, sell pasteurized beer (Dósa, 2016).
Production of the lead product was started in November 2014 by the name of True Csíki Beer (Ígazi Csíki Sör), in Hungary was launched on the market in the summer of 2016. The manufacture's beers are made by Arpad Simonffy master brewer. Beers have been developed by the Sapientia Hungarian Transylvanian University, at the Department of Food Science and recently the scientific-experimental relation is a defining one between the two organizations (Dósa, 2016).
On January 27, 2017, the Marosvásárhely court decided that the production of the True Csíki Beer products should be halted, and existing stocks must be called back and are to be destroyed. That's how the name of Forbidden True Beer was born as a temporary solution, which is the "forbidden" tag for the rest - subsequently introduced sub brands - remained in force. The "forbidden" quality indicator is therefore a "nickname" prefix (Figure 1) during the legal dispute between Csíki beer and Heineken Ciuc's premium brand that is presumed to have been consciously chosen and became compulsory later (after the official agreement between the two manufacturers) finalized marketing strategy. In the domestic context,

this strategy is unprecedented and seems to be sustainable in the medium to long term and the company creates a "brand name" category for Csíki beer.

Figure 1: Changes of the Csíki Beer brand name on the label
Source: http: //foter.ro/cikk/20170207_ez_lesz_az_igazi_csiki_sor_uj_elnevezese (9/10/2017).

The Forbidden Csíki Beer belongs to the family of Lager Beers, which is a low fermentation beer. In the lower fermented beers group, the Bock type beers are strengthened, by compliance of "Reinheitsgebot" (Bavarian Purity Act). The color of this kind of beers ranges from white to dark brown, and usually has an alcoholic volume of 6-8%. The beer has lighter colour at the 6% alcohol content. This beer's unique character is, that it has a bit of a bitter flavour because of using little hops which are also boiled for 45 minutes prior to use. The unique bottles are green and they decorate them with Szekler motifs. Design elements also include some of the Szekler motifs, the label has several of these decorative elements. The slogan is a memorable one with character: "Refreshing, nourishing and cheering." In 2015 and 2016 this product also won the year's beers prize at the National Agricultural and Food Exhibition and at the Fair and the Buda Castle Beer Festival Grand Prize. In addition to other prestigious awards, it also won the Hungarian Product Grand Prize.
The colour and the alcoholic content of Szekler Beer with a bitter taste same as the Forbidden Csíki Beer. However, this is no longer Bock type, but Pilsner with very high hop content, with fragrant floral "sharpness". The boiling time traditionally takes 12 hours, followed by a 6-week maturing phase. Its motto is: "Very Strong".
The Forbidden Csíki Honey "Festive" Beer is handmade honey beer with a 9% alcoholic volume. The Szeklers gave the name of the "Festive beer" because of its high alcohol content and because it is usually popular around the holidays. The particularity of this drink is that they add 1,200 kilograms of mixed flower honey for each 10,000 litres of beer from Udvarhelyszék, Szász Illés honey producing farm. Its colour is amber; its taste is sweet and bitter, with flowery smell. One of the Manufacturers' important philosophies is that with this type they want to revive old Hungarian traditions, since old chroniclers thought that honey beer was the favourite drink of the Huns.
For Forbidden Csíki Brown Beer, the caramelization of barley gives the brown colour of the beer, with alcohol content of 7%. Its motto is "Brown like the bear".
The fifth product of the Csíki Beer Manufactory is the Forbidden Csíki Cream Beer. This beer's specialty is that it produced with three different kinds of malt, water, hops and yeast. It has an alcoholic volume of 4.5%; its characteristic flavour (caramel and chocolate) is complemented by the three types of malt, and produces more foam compared to other beers.
During the interview it became clear (Csupor, 2017) that the market demanded one or more flavoured beer, especially among Hungarian consumers. They are continuously experimenting with something new, they have already worked on black beer and are also experimenting with beer distillate (at the time the article was written, the product was already on the market).
The company would like to establish a potato processing factory where the production of "Csíki Chip" is planed (Csupor, 2017). This investment is underway and the foundation stone has been laid, the launch of the product is in progress.

One of the company's latest developments is blueberry flavoured beer, named Forbidden Csíki Ice Blueberry Beer, a Bock-type beer, brewing specialty, with the motto of "The Gift of Harghita".
The types of beer produced continue to expand with the Forbidden Csíki 100 Day old Beer, the Unselected Forbidden Csíki Beer, as well as Forbidden Csíki within the Smuggler family the Forbidden Csíki Beer Distillate and the Csíki Smuggler Blueberries Beer and - Crumples: the latter – the company also opens a new product category - the products are chronological already in the research phase.
Packaging is restricted to bottles (0.5 L) and barrel (30 L). Their internal market surveys show that there is a demand for a canned version, just like in other countries in Europe (Donadini-Porretta, 2017). This claim does not match the company's basic philosophy but it does not exclude it either (Csupor, 2017). The product development and innovation have a decisive impact on corporate effectiveness (Fertő-Tóth, 2012); this area is given high priority in the company, encouraging a vision of the future.

3.1.2. Price policy

The Csíki Beer Manufactory works with high quality ingredients, makes a craft quality beer, and these factors are moderately enforced in prices, which mean they have a competitive advantage. The product is offered at a fixed wholesale price for their partners, and then they will be on the shelves in a freelance system sale. This price value extends - based on our own research - from 280 HUF to 700 HUF per bottle. Brown, honey or other specialty products are priced from 400 to 1200 HUF. At present, the Forbidden Csíki Cream Beer is the cheapest product; it is available for 199 Forint /bottle.
In the table we presented a price comparison with some handicraft products, and the spectacular price advantage of Csíki beers is obvious.

Table 1.

Comparison of craft beers with the products of Csíki Sör

Craft beers (brand names)	Price (Forint)	Pack size (litre)	Alcohol content (%)
Alcatraz	630	0,50	5,6
Al'e Capone	670	0,50	6,6
„Négy Kettes"	860	0,50	6,6
„Fót 500"	780	0,50	6,0
„Tuck Barát"	540	0,33	7,5
„Csíki" Beer	299	0,50	6,0
„Csíki Barna" Beer	409	0,50	7,0
„Csíki Krém" Beer	199	0,50	4,5

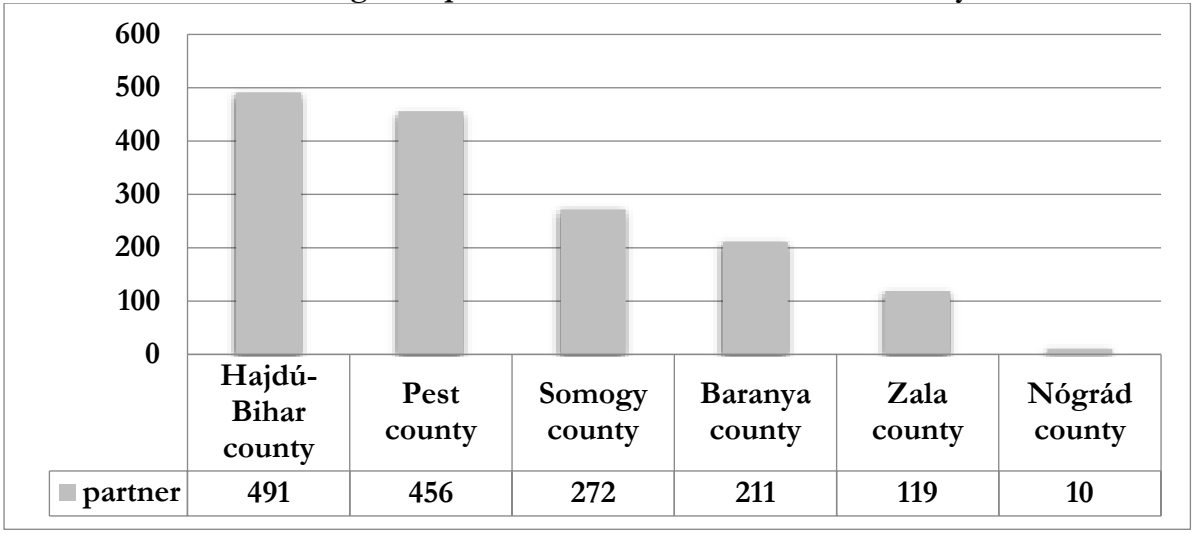
Source: http://sorwebaruhaz.hu/kezmuves_sor and https://csikisor.hu/a-csiki-sorhazhoz-megy/ Data based on own editing

3.1.3. Distribution

In Hungary and Transylvania, Csíki Beer products are delivered by Csíki Beer Manufacture. From Csíkszentsimon to Hungary we get the necessary quantity of products with trucks to 5 locations: Budapest, Győr, Debrecen, Hódmezővásárhely and Kaposvár.
The Csíki Beer Manufacture employs about 150 people, out of which 35 people work in Hungary, 25 of them are regional representatives. Transylvanian recruitment of staff is in close collaboration with the Sapientia Hungarian Transylvanian University, the most part of starting team are food scientists, and marketers from there (Dósa, 2016).
The Manufactory owns 38 of 3.5 tonnes light vans and 10 cars. Most of the 3.5 tons light vans operate in Hungarian. The company currently has 4725 resellers (Figure 2).

Figure 2:

Distribution of Hungarian partners in the Csíki Beer Manufactory in several counties



	Hajdú-Bihar county	Pest county	Somogy county	Baranya county	Zala county	Nógrád county
partner	491	456	272	211	119	10

Source: www.csikisor.hu own elaboration

The manufactory has a serious competitive disadvantage on the market because it is said that to many catering companies (and other sellers) the major multinational breweries companies "buy" shelf space, which is usually strictly imposed and limits other breweries, there is a strict limit on the number of product "units" that the Csíki Beer Manufactory can place on store shelves (Csupor, 2017).

Starting in August 2017, the company made it possible to order the Csíki Beer by the case, at a cost of 299 HUF / bottle. It's important that ordering is allowed for individuals not just companies. This action is an unusual initiative; it delivers a completely new marketing idea on the domestic market.

3.1.4. Marketing communications

One of the company's main intentions is to make its brands distinctive and immersive. They want to build a clear brand image and generate emotional appeal from the target market, they want to keep consumer interest and commitment towards the brand. The company uses a variety of tools striving to realize, primarily through value creation, using Szekler motifs as building blocks (bear, coat of arms symbols, village and Hargithan traditional environmental elements), underlined by typical Szekler humour. Some promotional material excellently reflects these value creation motifs. Valorisation is one of the most effective tools for customer engagement during construction by SAS (2007 and 2012).

There is an ambition of the brand, which is to follow the "pattern" set by Absolute Vodka, namely focusing, building a special image around the bottle. The bottle is presented in natural environments, on a field, near a creek or in a village surrounded by Szekler motifs (Figure 3). The communication function of marketing is a powerful tool to strengthen the brand. Interestingly, as the "forbidden" word was used during the multi-month "battle" with Heineken, the term continues to appear after the end of the legal dispute, and was extended to all their beer brand products. We believe that it was a part of a predetermined strategy. This guess is reinforced by the fact that, after the owner is accused of smuggling on some sites at the beginning of 2018 (MN, 2018) shortly thereafter (April 1, 2018) a product portfolio with a "smuggling" sub-brand name appears in the new product category containing three products. The owner responded creatively to the accusation in of the leading news portals with a motto: "Urchin but not smuggler" (David, 2018). It is a peculiar practice in itself that important strategic announcements are published on April 1st.

Figure 3: Motifs used in Csíki beer adverts
Source: http://www.berero.ro/en/cumpara/barna-sor-99(2017.08.25.)

From the interview with the marketing manager (Csupor, 2017) we found out that the manufactory does not intend to build specifically ATL instruments for the future, do not plan giant posters, television or radio advertisements, do not want to make use of high visibility media. Radio and television advertisements have already been used and have had an impact on sales, but they consider that community building tools, community media, festival presentations, and promotional online campaigns are more important. The financial capabilities of the company only allow for the use of lower budget tools, but BTL tools are well suited to their strategy. They want to get closer to the consumer, and because of their "local" nature, local "closeness", they have good prospects of using "terroir marketing", as in the case of local beer brands in other countries (Melewar-Skinner, 2018).

With the help of incentives, promotions and gifts, there is a permanent presence of the company on the market. In the winter of 2016, before the manufactory entered Hungarian market, it announced a special prize game with the name of "Noah's Ark". The essence of the special "Szekler farmland" building game was that they could win different animals such as goldfish, pigeons, rabbits, hens, goats, sheep, pigs, horse carts, cattle and horses. The greatest gift that the company offered in 2017 was a free factory tour with

beer tasting. From the beginning of August 2017, there is no need for other marketing actions because the nearest "Csíki Beer" site will be visited by consumers. The factory made online ordering possible, consumers could order a min. of a case of beer and the first 5000 orders got T-shirts as gifts.
Promotions are a monthly occurrence. In the second half of 2017, who visited the website of the Manufactory (www.csikisor.hu), received 10% discount for buying beer and they could use it for delivery by October 31, 2017. This successful action was followed by another: after every order in Hungary (minimum one case of beer) buyers got one more case. In every month from September 2017, in the Szekler Brewery gifts were given away among visitors.
In the area of social responsibility, the company is becoming more active. They are in touch with Csaba Böjte, as the locals (Szekler) know Böjte Father and support the Dévai St. Ferenc Foundation. During the "Noah's Ark" promotion many of the winners did not pick up their prize-animals, so the company offered them to the orphanage. Another investment of the company is the Spider Drone Security financed by the owner András Lénárd. Currently, the drone designed and built by Attila Bustya holds a world record among hovering small drones, with 126 minutes. The manufactory plans to deliver beer cases as soon as legislation allows it. The technology has been pre-tested in this area with great success (Kosza R., Kosza A., 2016).
From time to time they organize recycling actions of used glass in partnership with the local waste management company in the framework of the "Beer for waste - Glass Harvest" action. In exchange for 5 kilos of used bottles they offer a bottle beer. The company uses selective waste management and special attention is paid to waste water treatment. Their wastewater treatment system filters out most impurities resulting in tap water like quality (Csupor, 2017).

3.2. The results of questionnaire surveys

3.2.1. Respondents' perceptions about the Csíki beer brand

The paper seeks to examine how the company's brand values are reflected in the target group's perception. We have examined some key areas, such as perceptions, consumption frequency, popularity, and product quality judgment. First, we asked them what they are thinking when they hear the brand name Csíki Beer (Figure 4).

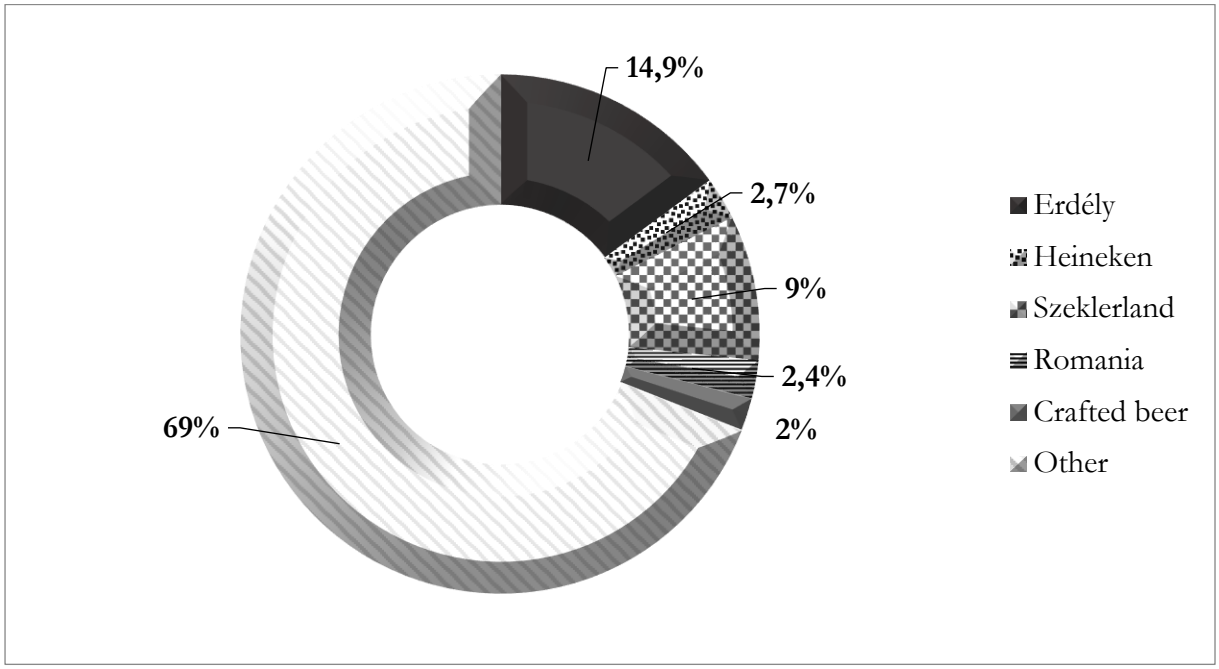


Figure 4: "What do you think when you hear the word: Csíki Beer?" distribution of responses (%, n= 251 persons)

23.9% of the respondents marked Transylvania and Szeklerland as the first thing they thought of when hearing the name of the Csíki Beer. 69% of the respondents marked "Other" as an answer. Within the "Other" category a number of positive comments have been received, mainly referring to the excellent taste of the beer, its alcoholic volume and the Manufactory's "tenacity". Other answer written in this category were: "home" "pride", "persecution", "banned", "Heineken scandal", "experience" and "tradition".

3.2.2. Consumer behaviour

In the survey more than 34 brands were listed as regularly consumed products: Csíki beer is consumed by 30.26% of the respondents on a regular basis. Sopron (45.41), Heineken (32.27%), Dreher (31.0), Staropramen (27.49%), Borsodi (24.7%) followed a downward trend among the more frequently consumed brands. The list of favourite brands was closely related to the list of the most commonly consumed products. Based on the participants' answers we found out that those who regularly drink Csíki Beer are occasional consumers (Figure 5). Out of those respondents who drink beer only several times a month or year 37.8% chooses Csíki beer. Among those who consume beer on a daily basis or several times a week only 6.4% opt for Csíki beer.

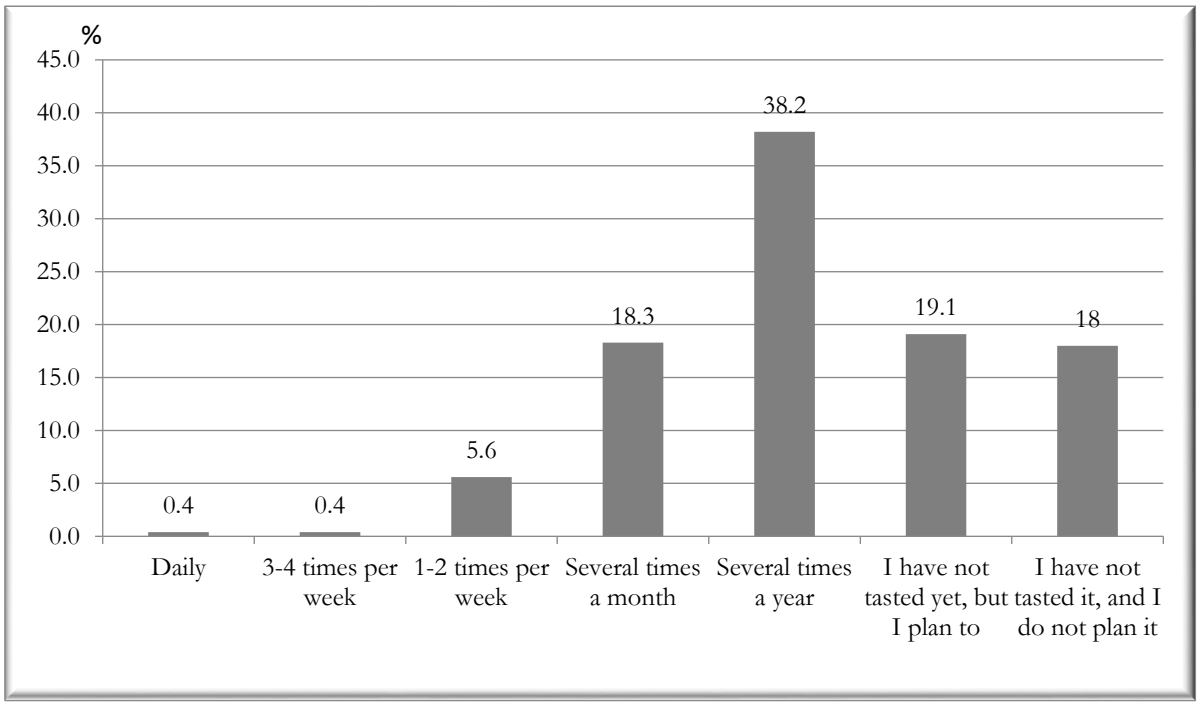


Figure 5: Frequency of consumption of Csíki Beer among the respondents (%, n = 251)

3.2.3. Consumer appraisal of quality

Those who consume the Csíki Forbidden Beer are typically satisfied with the taste of it (67.1%), alcoholic volume (64.1%) and package design (58.6%). This is how the consumers prefer these aspects when choosing a brand (Thong et al., 2018 and Seimiene - Kamarauskaite, 2014). Clearly the respondents are the least satisfied with the pricing (Table 2). Another question revealed that the majority of respondents (73.3%) would be happy to recommend the Csíki Beer to their friends.

Table 2: The opinion of the respondents regarding the Csíki Beer (%, n = 251)
5 = Completely satisfied, 1 = Not satisfied at all

Satisfaction level / Elements of quality (%)	5	4	3	2	1
Taste	**41,8**	25,3	19,8	6,6	6,6
Price	8,2	**31,9**	30,8	17,6	11,5
Alcohol volume	**32,6**	31,5	26,0	4,4	5,5
Pack size	**29,8**	29,8	27,1	6,6	6,6
Design	**30,4**	28,2	27,1	8,3	5,5

The questionnaire also aimed to find out how respondents heard/found out about the brand. The majority of the respondents mentioned the internet and acquaintances (**Figure 6**).

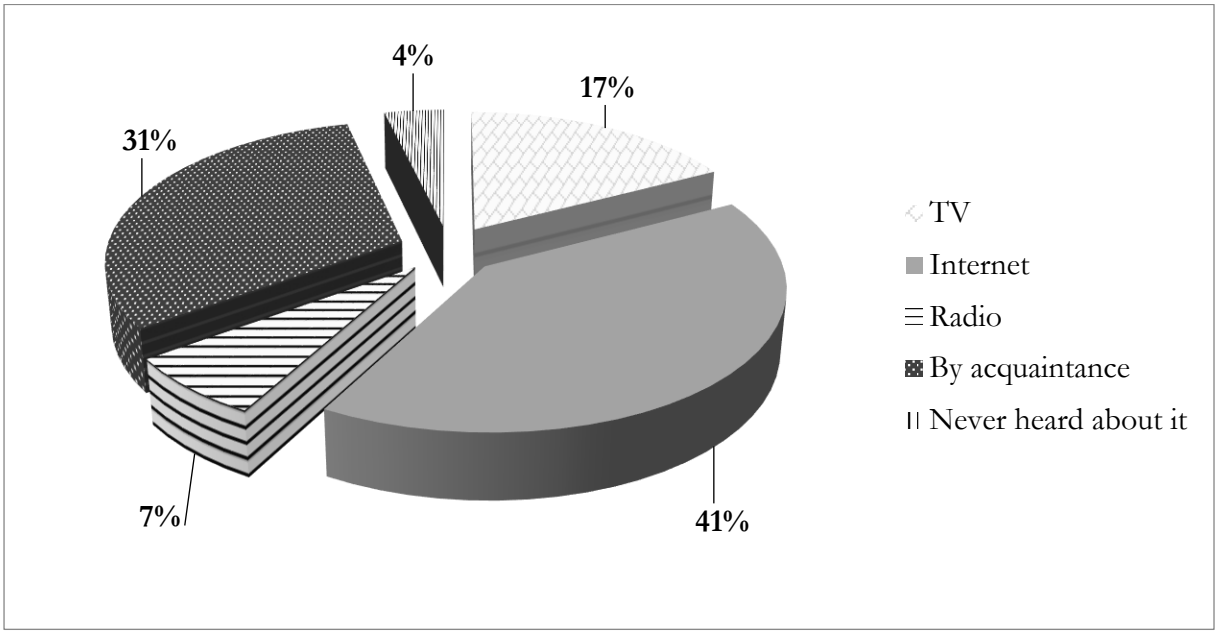


Figure 6: Information sources for the Csíki Beer Manufactory (% n = 251 persons)

3.3. The brand prism of the Forbidden Csíki Beer

Kapferer's brand-prism is a well-known model that is a key tool for brand identity and brand positioning in strategic planning (Kapferer, 2012). Nowadays, when there is a greater focus on the consumer and involving the customer companies need to pay more attention to customer engagement (Fader, 2012). This is similar on the beer market as well; the younger generations are even less committed to a brand than X or Y generations, so there are many more tasks for companies. A new research study (Spáčila-Teichmannováa, 2016) reveals that 38% of X-generation Czech beer consumers stated "I only drink my favourite brand, I rarely drink a different category" (level 3) on an engagement scale of 1-4, with the highest level being 4. This value is only 24% for members of Y generation. In England, the result of the same survey is 30-22%. Only 4% of Y generation are loyal to a brand, compared to the 32% value of the X generation, which is predominantly true in Europe. (Similarly to British consumers, 4% represent people highly committed to a brand.)

The research aimed to create the brand prism of the Forbidden Csíki Beer as the first beer launched by the Csíki Beer Manufactory. We considered the aspects of appearance, personality relation, culture, message and self-image. Our analysis is illustrated in Figure 7. In the case of the manufactory, the team has been important from the beginning. They are the same people in the same positions in leadership, management, operation and production who once started creating the Csíki Beer (Csupor, 2017). When striving to create values, creating content it is time-consuming, yet "trendy". The strategy for getting close to the target group was thoroughly discussed among the leadership members. The public opinion has

helped in shaping the brand, which can be characterized by extremely positive attitudes toward Transylvania, and the Szekler people. Everything that comes from here is "ours", it is "made with heart and soul", we could say. It seems that generational differences typically found in consumer behaviour are relevant and valid in our case as well. The "our brand" concept is able to create a strong personality, an identifiable character behind the brand, knowing the historical antecedents. Since there was no such a brand in the category of Csíki beer, which builds its identity on the Szekler origin and has a strong marketing communication, conquered the "old age", this strategy is undoubtedly difficult to copy. Meanwhile, in the foreground projects marketing management uses all the elements of the multicultural marketing toolbox to mediate brand values. It can be said that they build their own "Heineken" brand with just as clever and professional techniques as the biggest competitors. Of course, this can be a double-edged sword based on a public goodwill, but the values on which the brand is built are much more than that. For example, about origin, common heritage, good-fellowship, tenacity, freedom, unlimitedness, an attitude of "show what the Hungarian spirit can do", the protection of fundamental values, the strength of common effort, teamwork, enjoyment of life, humour and cheerfulness.

Figure 7: Brand prism of the Csíki Beer Manufactory, KAPFERER (2012) model based on

Based on the questionnaire, the brand has succeeded in associating "Transylvanian", "Szeklerland" motives. Respondents' answers reflected on the excellent taste of beer, the "sympathy with the people living in the Szeklerland" the feeling of belonging to the same community. The expressions of "home", "pride", "persecution", "forbidden", "tradition" are associated as brand values, however further research is needed.

4. CONCLUSIONS AND SUGGESTIONS

Based on a summary of new international studies (Ernst and Young, 2013 and 2014) Europe is the world's most important beer brewing centre, which contributes the economy of the continent. "Four of the largest beer producers are currently European, besides them, some 3,000 small and medium-sized enterprises are Europeans with a cash flow of more than 100 billion Euro"(Major, 2017). This exceptional market situation and the trends already listed in the introduction are growing and more players will join the industry in the future, in addition to the changing beer market and occasionally the strong government influence both in the USA and Europe (Lynn, 2012). We can only guess if the Csíki Beer Manufactory can have a sustainable strategy in the future in the upbeat competition. In any case, the value creation process has been started, organized, while at the same time showing the flexibility required by market changes, which proves creative imagination and innovative marketing ideas. It is recommended to develop additional products, extend the product line. It's still a great idea to build on elements with Szekler origin and local ingredients (such as blueberries). The pricing is an important element, because it grants a favourable position between craft beers and industrial premium beers. Product delivery with a drone would be a significant breakthrough, but operating drones requires legislative approval. In communication it is necessary to keep up the good work and stick to the strategy because it is well-made and professionally aligned to the set goals. The main task of the company is to extend the brand, the value creation and preservation. Beyond the four basic ingredients of beer (barley, hops, spring water, and yeast) Szekler peoples' heart and love of the land is the fifth "secret" ingredient.

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TO SURVIVE OR NOT TO SURVIVE - FARMS IN SHORT SUPPLY CHAINS IN HARGHITA COUNTY

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In present-day economy, short supply chains assure the subsistence of the families concerned. They assure employment for all family members, and in this way they strengthen social economy developed within local communities. A characteristic feature of family farms is that they secure the future of the next generation. The progenitors pass down their knowledge and select the most suitable heir in the line of succession. The insecurities inherent in the process of succession and the threat of potential outside influence are strong. Short supply chains are part of farm businesses. We gain information from data through artificial intelligence methods that can shed light on covert, inner connections. We rely on these methods in the analysis of our data.

Key words: short supply chains, data mining, agriculture, family farms

Introduction

The phrase "short supply chain" stands for a quite new and interesting domain. The activity covered by this term is known world-wide: it is carried out on a global scale, influencing our whole life. Its value is constantly increasing among consumers and the demand is growing.
Agricultural food products are produced and sold through processes devised and implemented by the producers. These two operations take place within short geographical distances. Consumers can purchase the goods directly from the producers experiencing trust and authenticity. To provide these, producers might need deeper knowledge apart from their existing experience.
Short distance between producer and consumer is common – the average geographical distance between the two does not exceed 40 kilometres (Benedek et al, 2013). Due to the short distances, transportation and storage time and expenses are reduced, which entails the reduction of fuel consumption and the minimization of environmental pollution. Negative externalities exercising a social impact, such as car accidents or traffic jams, can be eliminated (Benedek 2014). Producers sell their food products, and thus they realize an income. However, this diverse operation and the changing strategies require proper knowledge that can be measured by the level of qualification. Producers would like to envisage a sustainable future for their farms. Sustainable farms guarantee the future of short supply chains.
To analyse our data we use a data mining tool, named Weka (Eibe, Hall, Witten 2016), an Open Source Software developed at the University of Waikato, New Zealand. "Weka is a collection of machine learning algorithms for data mining tasks. The algorithms can either be applied directly to a dataset or called from your own Java code. Weka contains tools for data pre-processing, classification, regression, clustering, association rules, and visualization. It is also well-suited for developing new machine learning schemes".

Material and Methods

The term "short" derives from the minimal geographical distance and from the effects of the social and cultural closeness. The "way" between the producer and the consumer is short. This implies that intermediary agents are pushed into the background or are eliminated altogether. Purchase becomes direct, producer and consumer meet each other personally. This way, they get to know each other, the products become more valuable, and the producer faces the demands in a more subjective manner. The farmer prepares the products on a small scale, thus creating small or medium units allowing the production of

personalized merchandise. That is to say, if a buyer communicates his preferences to the farmer even before the goods are prepared, he can have the products adjusted to his taste (e.g. more salty, spicier, etc.). Short supply chains are operations realized through direct purchase taking place locally and in a face-to-face manner.

Global enterprises known all over the world are in many cases family businesses handed down over generations persisting in the activity started by the predecessors. Heirs were introduced to knowledge about the business at a very early age, and older family members shared all their experiences with them. A prominent example is the case of the Japanese Houshi hotel and spa. It is an extremely old business: it has existed for 1300 years across 46 generations and it is a viable business these days (Nábrádi, 2016). This case shows an exemplary model of behaviour and inheritance. The question emerges whether this can be replicated by family farming businesses.

Registered farm businesses are in most cases family businesses. A family business is a company in which the roles of leadership and control are assumed by family members from different generations. The family has the majority ownership and the majority proportion of control. Furthermore, at least one more family member works on the farm, so the family possesses the business. Family-based communities have strong emotional connections, they are loyal with other family members, and they tend to turn inwards. In contrast, the enterprise is outward-looking, task-oriented, led by rational decisions instead of emotional ones. This difference in attitude might explain some of the conflicts emerging within family businesses (Nábrádi, 2016).

For the quantitative research, we carried out the questionnaire-based survey between December 2016 and February 2017. Our subjects were farmers living, producing and selling agricultural products in Harghita county, more precisely, in the catchment area of Csikszereda town. We worked with 77 analysable samples. We used the possibilities offered by the Likert scale to assess the importance of different factors, and we worked with the following values: very important (5), important (4), moderately important (3), slightly important (2), and not important (1).

As we had a relatively small dataset (77 instances), our goal was to discover as many rules and decision trees as possible, using the Weka framework. We use classification, where the class attribute is what makes reference to the perspective of the business and farming. The values of this attribute are: sustainability, reduction, expansion, inheritance and liquidation of the activity and farming. The rules and decision trees that gave results on the data are: *One*R (Holte 1993), *JRip* (Cohen 1995), *J48*– Java implementation of the C4.5 algorithm of Ross Quinlan (Quinlan 1993) and RepTree (reduced error pruning tree), thatis a fairly general type of tree, for which no reference is available according to Peter Reutemann, Dept. of Computer Science, University of Waikato, NZ.

Results and Discussion

In the case of the businesses analysed in our study, the farms are active until the point where the farmers become too old to maintain them. Aging and death of the fathers can result in drastic changes in the family farms. The heirs, their children, do not always continue the business. There are situations when they liquidate the business by selling the equipment, the land, and the livestock. Despite these negative cases, family businesses do not face generational changes at present. A reason for this might be the profit motive. The producers share the capital and the labour within the family. This way, their property is growing, and everybody is contributing to its growth. Another obvious reason might be that the transmission of traditions, customs, operations, procedures and knowledge to younger generations was carried out successfully. At the time of establishing a family farm the number of the founding members is an important factor. According to the literature, the founders frequently choose their spouses and their relatives as co-workers (Nábrádi, 2016). Another influencing factor is social status. Members of poorer population strata are more interdependent, since they do not have enough capital to start a business on their own. In such cases, the support and the competence of the family constitutes the main resource. Thus the business starts as a family business and it often remains as such. The situation of those coming from better-off social strata is different. These founders possess enough starting capital, they are able to face financial

challenges, consequently they can freely decide on who they want to work with in the future. They are not constrained to work with family members.
The founders experience the risks and the hardships of the process, and they hand down the lessons learned to their descendants so that they don't have to face the initial hardships. The latter learn the most convenient ways of dealing with problems from their predecessors. They will know how they can benefit most from different products. In most cases, the predecessors honestly and unconditionally, voluntarily or involuntarily share all their knowledge with the successors. The members of the family generate profit for themselves, that is, material values are divided among the family members, so they are motivated to develop efficient solutions. The members of the household become committed to the farm. The more diverse knowledge they invest in the business, the more profit they make. With the unconditional transmission of theoretical and practical knowledge, the predecessors help their successors to become more competent in sustaining the family business. Newer generations will acquire the knowledge of their predecessors at an early age. This inherited knowledge is enriched by their own professional experience. As a consequence, the business will start developing instead of stagnation. This process is further facilitated by the wide range of training courses supported by modern technology.
Just like any other domain, marketing and meeting consumer demands also have their own tricks. Predecessors, in most cases, already formed a customer circle. They knew how to treat their customers, and they sometimes even knew their customers' requirements personally. By leaving behind this invaluable knowledge and the customer circle, they helped the businesses enormously in facing generational changes. Loyal customers have direct experience of the changes that occur, and they might decide to remain loyal to the products they have been consuming for a period of time. Members of the newer generations (following in the footsteps of their predecessors) will understand that they need to take quick decisions since in many cases an unfavourable but quick decision is better than not making any decision. The spirit of the business will reflect the character of the elderly who established the farm. The competence of the newer generation is indicative of the predecessors at certain stages of business management.
Another explanation for the prevalence of family businesses in agriculture can be that numerous farmers lend their own name to the business and products as a brand name suggesting quality and reliability, which is another way of motivating the members of the family. The survival of the name entails the continuity of the "secret recipes, special tricks, and professional practices".
Theoretically, successors have all the conditions to continue the business. They usually have proper knowledge and equipment, but even so they sometimes decide to liquidate the business. The goal of a family business is long-term survival over generations with the preservation of material goods and other resources. Many family farms do not reach this goal, only a few of them manage to survive over generations.

The model below is given by the OneR algorithm for the present dataset, where the criteria of classification are the attribute of continuation.

=== Classifier model (full training set) ===

area ha:
< 21.5 ->sustenance
< 42.0 -> expansion
< 233.5 ->sustenance
>= 233.5 -> expansion
(51/77 instances correct)

If the land (expressed in hectare) is smaller than 21, then the focus is on sustainability. If the land is smaller than 42 (but larger than 21.5), then the farmers focus on expansion. Between 42 and 233.5 hectares sustenance becomes a priority, but in lands larger than this, expansion is the main goal of the farmers.

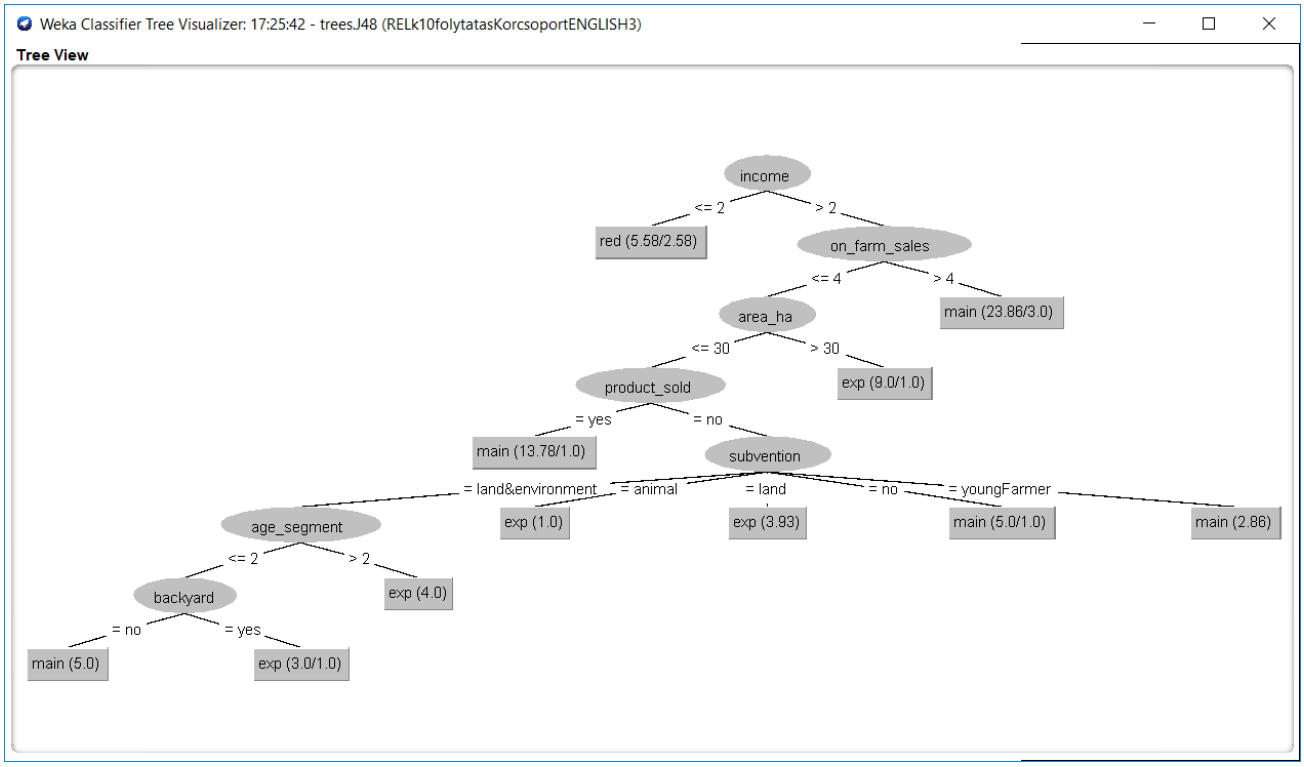

Figure 1: J48 decision tree model

In the J48 decision tree the decision depends on the remaining income.
We consider it a reduction if the remaining income is less than 2% of the total income.
We have sustenance in the following situations:

1. If the remaining income is more than 2% of the total income, and the importance of on-farm sale is higher than 4 (according to the Likert scale)
2. If the remaining income is more than 2% of the total income, the importance of on-farm sale is lower than 5 (according to the Likert scale), the land is smaller than 30 hectares, and all the products are sold.
3. If the remaining income is more than 2% of the total income, the importance of on-farm sale is lower than 5 (according to the Likert scale), the land is smaller than 30 hectares, and the products are not sold, but no subsidy is allocated, or only young farmers' subsidy is allocated.
4. If the remaining income is more than 2% of the total income, the importance of on-farm sale is lower than 5 (according to the Likert scale), the land is smaller than 30 hectares, the products are not sold, area payment (farmland subsidy) is allocated, the farmers' age is between 46 and 65, and there is no backyard.

Expansion occurs in the following situations:

1. If the remaining income is more than 2% of the total income, the importance of on-farm sale is lower than 5 (according to the Likert scale), and the land is larger than 30 hectares.
2. If the remaining income is more than 2% of the total income, the importance of on-farm sale is lower than 5 (according to the Likert scale), the land is smaller than 30 hectares, the products are not sold, and the subsidy comes in the form of livestock (animal) subsidy or area payment.
3. If the remaining income is more than 2% of the total income, the importance of on-farm sale is lower than 5 (according to the Likert scale), the land is smaller than 30 hectares, the products are not sold, the subsidy is area payment, and the value of the age group is higher than 2, that is, the farmers are over 45 years of age.

If the remaining income is less than 2% of the total income, then reduction predominates. But if it is more than 2%, and the importance of on-farm sale is higher than 4 (according to the Likert scale), then we

expect the sustenance of the farm. If the remaining income is more than 2% of the total income, the importance of on-farm sale is lower than 5 (according to the Likert scale), and the land is larger than 30 hectares, then farmers aim at expansion.
The attributes used in the Weka models play an important role in the analysis of the data, so we created a separate statistics for them in the SPSS program.

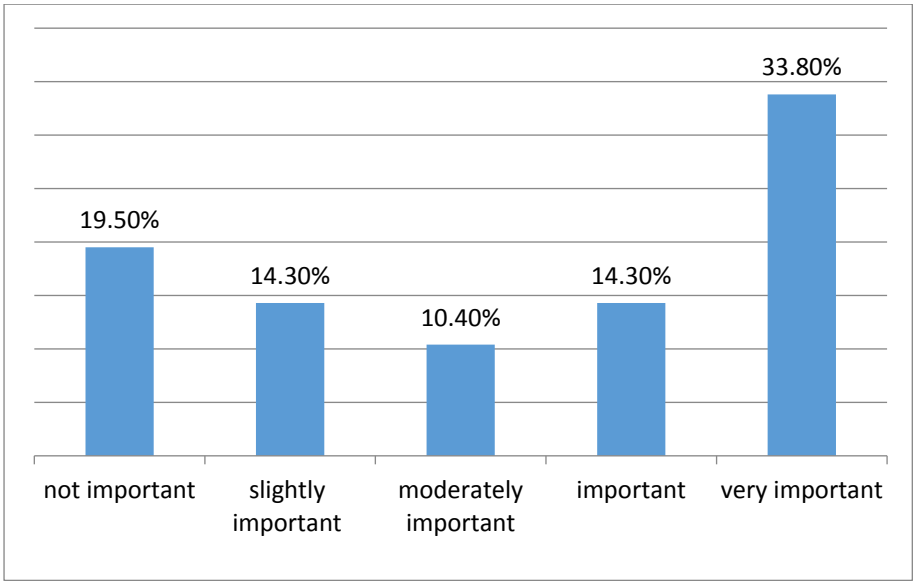

Figure 2: The importance of on-farm sale

As can be seen in the chart above, 33.8% of those interviewed consider that on-farm sale is very important (5), since this way they can save time and energy; 14.3% find it important (4), and 10.4% think that it is moderately important. Contrary to this, older farmers, who enjoy the opportunities for social interaction given by the producers' market and who have less goods for sale, appreciate that on-farm sale is only slightly important (14.3%) or not important (19.5%).

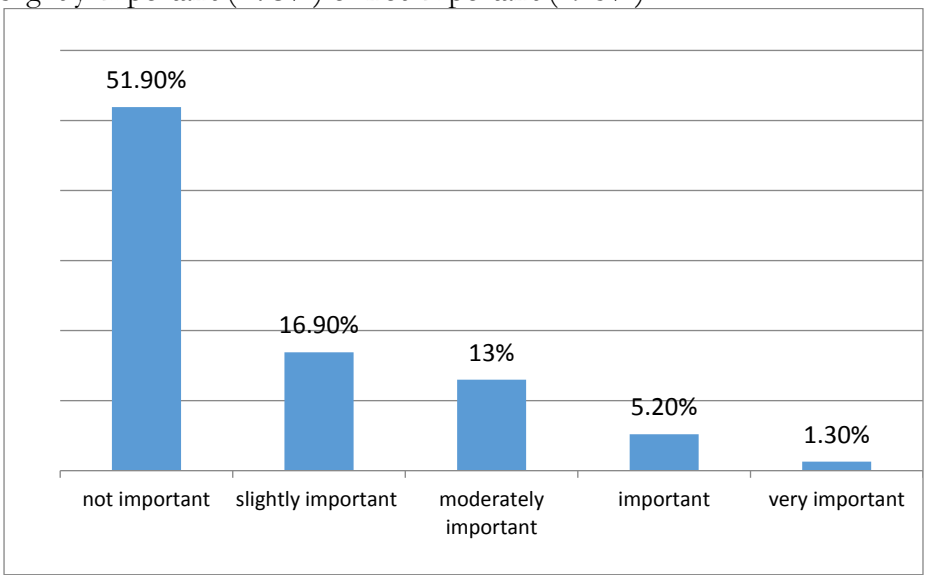

Figure 3: The importance of the hospitality industry and rural tourism

The majority of the farmers we interviewed are reluctant with regard to hospitality industry and rural tourism as a way of selling their products; according to 51.9% it is not important, 16.9% say that it is slightly important, while 13% of the farmers consider it moderately important. An exemplary attitude is

shown by the 5.2% of the farmers who recognize the opportunities given by these services and by the 1.3% who consider these opportunities very important.

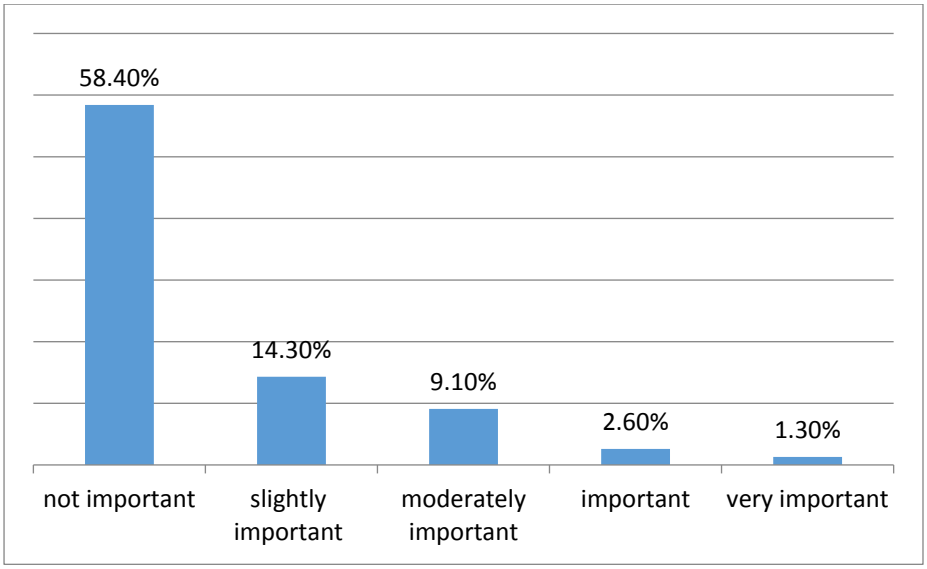

Figure 4: The importance of pick-your-own sale

The pick-your-own selling scheme is unknown in our region, so 58.4% of the respondents does not find it important, 14.3% find it slightly important, but 2.6% of the interviewees have already tried it and consider it important, while for those who have been more successful in their attempts (1.3%) it is very important.

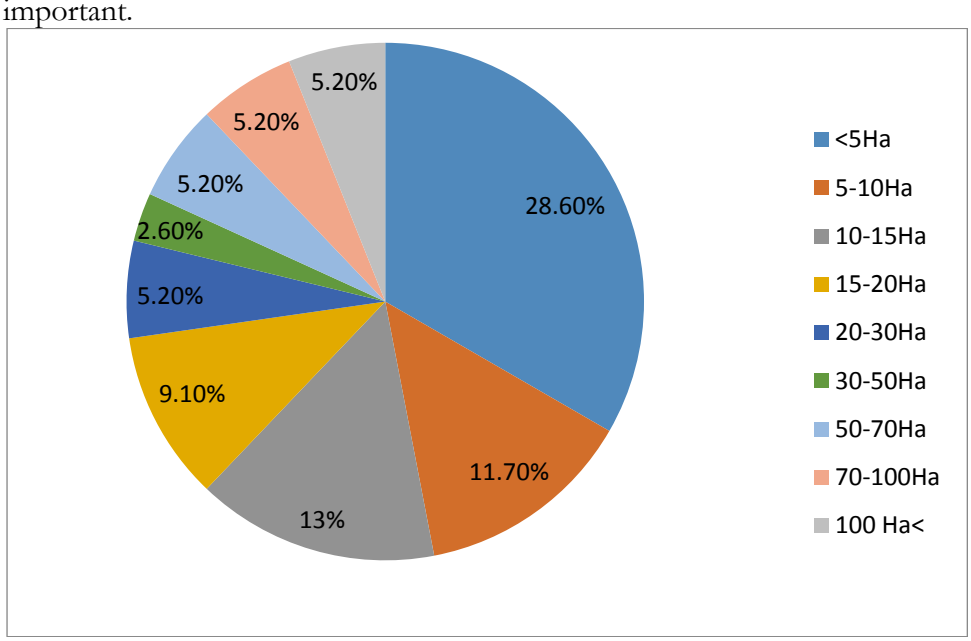

Figure 5: Distribution of respondents according to the size of the farmland

Since Romanian farmland structure mainly consists of small-holdings, this characteristic feature is reflected in our sample. 28.5% of the respondents own less than 5 Ha, and 11.7% cultivate between 5 and 10 Ha of land. 13% of the farmers possess between 10 and 15 Ha. 9.1% produce on a piece of land with the size between 15 and 20 Ha, while 5.2% use 20 -30 Ha. 2.6% cultivate between 30 and 50 Ha, and the size of 50 – 70 Ha is characteristic to 5.2% of the respondents. The same percentage (5.2%) of the interviewed farmers work on 70 – 100 Ha or more.

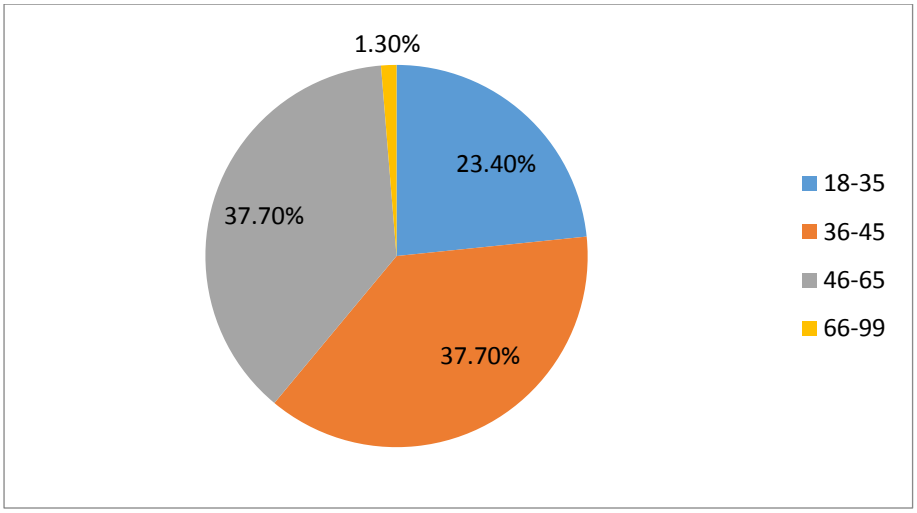

Figure 6: Distribution of respondents according to age groups

23.4% of the respondents participating in the research are young farmers under 35 years of age. The age group 36-45 and that of 46-65 are both represented by 37.7%. The percentage of farmers older than 66 years of age is only 1.3 in the present research. It is an encouraging development that young people start to take over the management of the farms in our region – a sign indicating that generation change accompanied with a change of approach has occurred in many family farms.

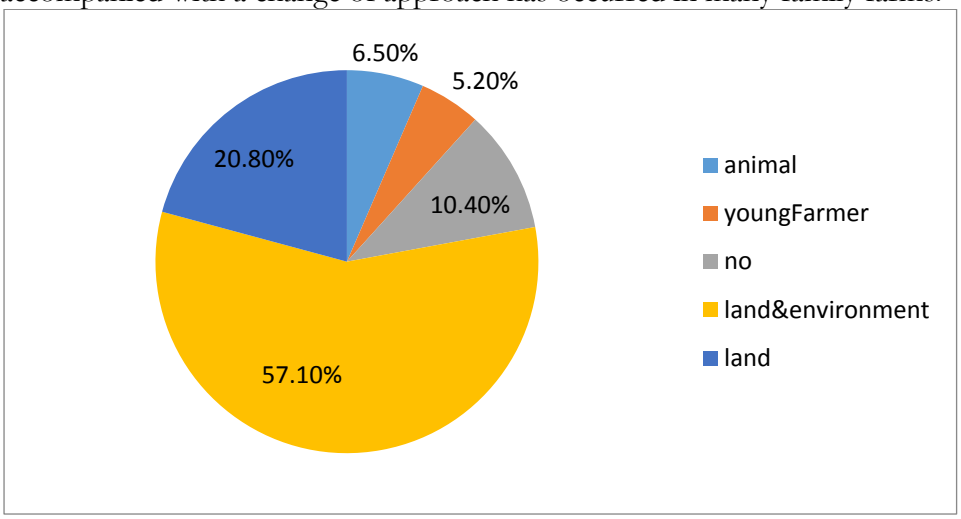

Figure 7: Distribution of respondents according to the types of subsidies

The farmers living in our county aim at obtaining the most advantageous subsidies. Making full use of the geographical assets, 57.1% of the farmers applied for land and environmental subsidies. 20.8% of the farmers applied for land subsidies (area payment) alone. Those owning a large livestock (6.5%) solicited only animal (livestock) subsidies. 5.2% assumed the challenges of applying for young farmers' subsidies. Unfortunately, 10.4% of our interviewees did not apply for any form of subsidies.

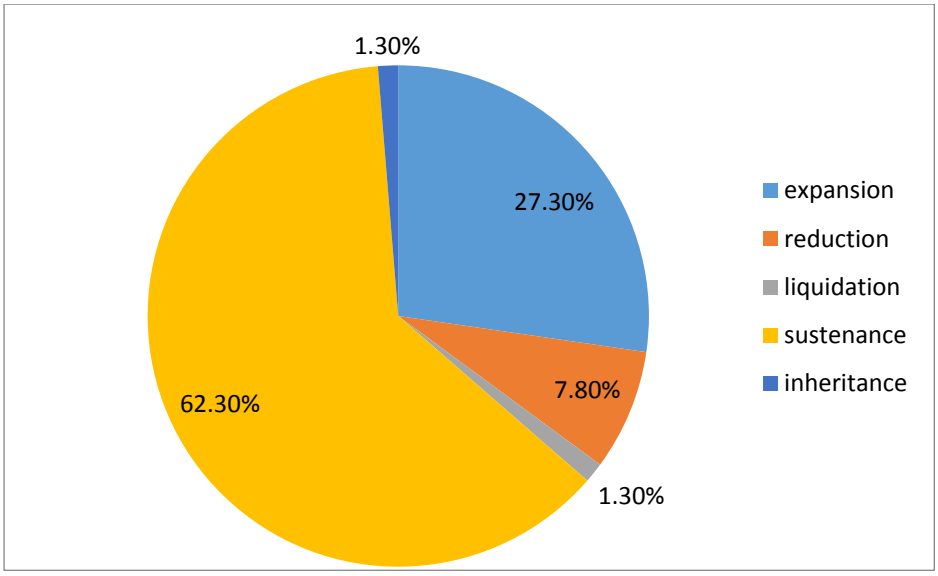

Figure 8: Distribution according to future plans

The majority of the interviewed farmers was born and grew up on the farms inherited from their parents and grandparents, so the farms represent an inalienable part of their family homes and their memories. This is why 27.3% of the farmers would like to extend their farms in the future, while 62.3% want to sustain them at their current level. Farmers who do not have the possibility to continue the business, namely 1.3% of the interviewees, would like to liquidate their farms. Older farmers who cannot cultivate their farmlands any more, but they wholeheartedly cling to country life, would like to pass the lands down to close or distant relatives. 1.3% of the respondents would give the farm to a family member as a heritage.
JRIP rules:
==========
=== Classifier model (full training set) ===
(on-farm sale<= 3) and (area_ha >= 20) => cont=exp (17.0/3.0)
(pick-your-own>= 3) and (catering<= 2) => cont=exp (4.0/0.0)
 =>cont=main (56.0/11.0)
Number of Rules : 3
This model gave us three rules with 71.43% confidence. Cont means continuation, exp is the value of continuation, here expansion, main means sustenance, and is also a value of the continuation attribute.

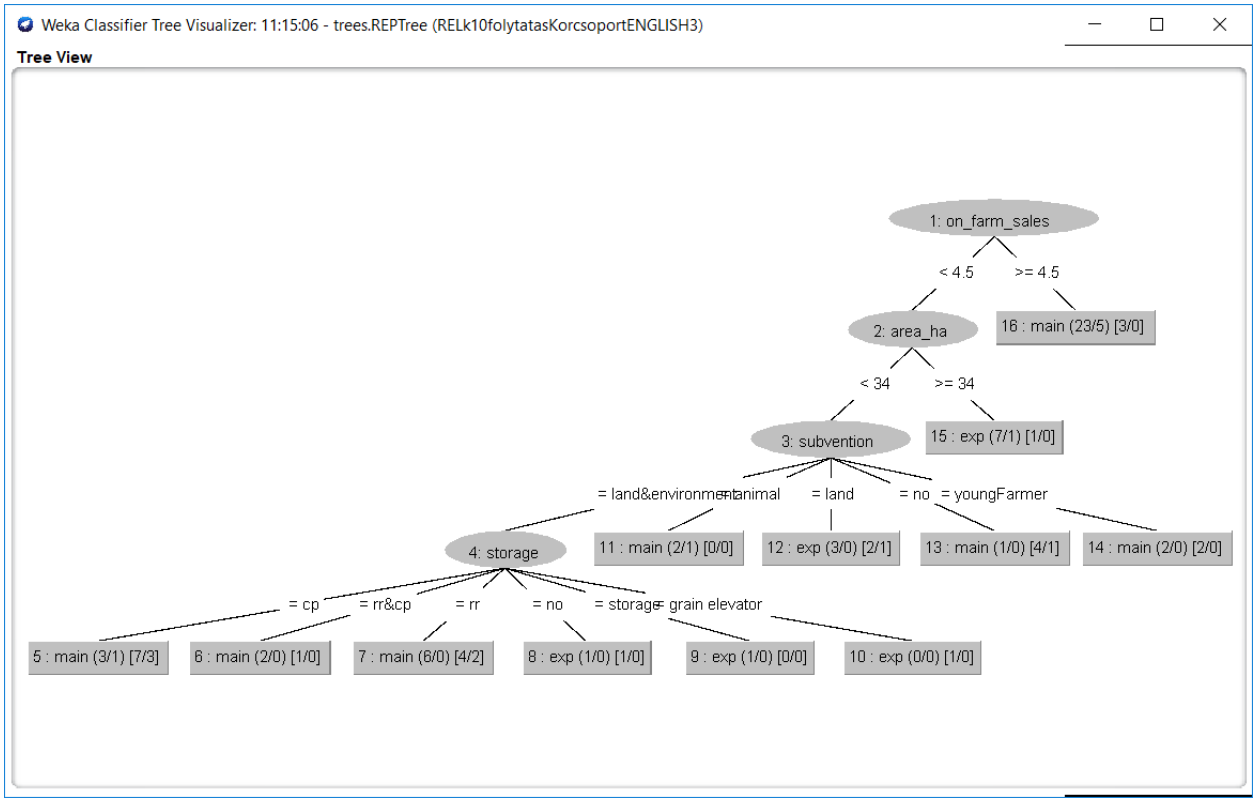

Figure 9: The model given by the RepTree algorithm

cp – cellar/pantry, rr –refrigerating room, main – sustenance, exp – expansion are abbreviations used to fit the tree in a readable manner. The decision tree shows us, that the main attribute in this model is on-farm sale, which reflects in the Likert scale the sales from house of the business. Next attribute that chops the tree is subvention (subsidy), which reflects the type of subvention the farm has. The last attribute refers to the storage of the goods.

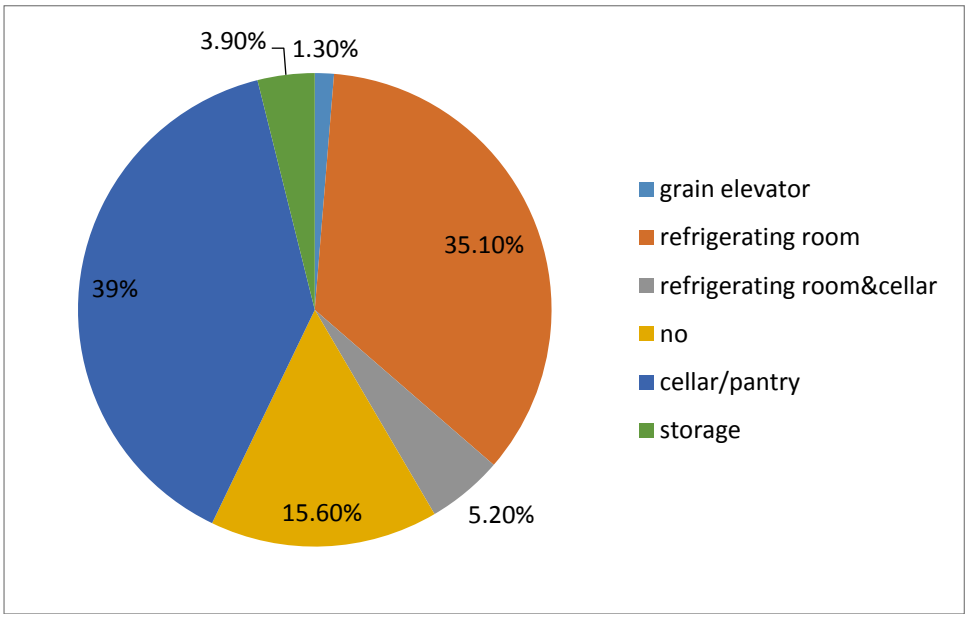

Figure 10: Distribution according to storage places

For participants in short supply chains proper storage of the food products is essential, which requires substantial investment to build suitable storage places. 39% of our interviewees use cellars or pantries to this end, 35% use refrigerating rooms, occasionally converted cellars. 3.9% built barns and warehouses, 1.3% enriched their property with a grain elevator, while around 15% of the farmers do not possess any kind of storage place because they immediately sell their products.

Conclusion

All in all, short supply chains are part of farm businesses. Producers sell their food products, and thus they realize an income. However, this diverse operation and the changing strategies require proper knowledge that can be measured by the level of qualification. Producers would like to envisage a sustainable future for their farms. Sustainable farms guarantee the future of short supply chains.

Our analysis revealed that short supply chains are strengthening on a local level. The direct relationship characterized by trust between producers and consumers facilitate the development and the expansion of the chains. Short supply chains can survive beside multinational, large, and medium-sized corporations. The conditions are given. With a successful generational change, short supply chains also gain an opportunity for developments and prosperity.
In our analysis carried out with the help of Weka data mining tool, we discovered a few interesting rules and decision trees. These bring to the foreground certain attributes which are important for certain models from a data mining perspective, that is, we found important attributes playing an important role in the survival of short supply chains.

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A STUDY ON THE CORRELATION BETWEEN TOURISTIC MOTIVATION AND LIFESTYLE IN HUNGARIAN DOMESTIC TOURISM

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Abstract

Due to the change in the structure and the system of the consumer society, previously used consumer and demographic characteristics have become unsuccessful to reveal and analyse the causes behind the consumption habits of the consumer, tourist behaviour. As a result, the characteristics of describing traditional consumer behaviour were complemented by psychological and psychographic factors. Among these factors, besides many other factors, we can mention lifestyle. The study is supported by primary research. During the quantitative data collection, oral and online surveys covered the Hungarian population who were traveling regularly or who were interested in traveling. The aim of the research was to categorize the regular residents of the country into lifestyle segments, to highlight the possible difference between the lifestyle groups of different types of tourism and tourist products. The results of the research reveal the obvious differences between the people who participate in different types of tourism and the lifestyle segments of the most common buyers.

Keywords: lifestyle, tourist motivation, Hungarian domestic tourism

Introduction

The definition of lifestyle and its interpretations are primarily linked to sociology. Sociology offers two types of interpretation. According to one, lifestyle reflects a kind of achievement and is the consequence of some social affiliation, your position in the hierarchy. The other approach claims that lifestyle is an indicator of a given social position that you intend to gain and maintain.

The first definition of lifestyle translated into the Hungarian language can be linked to Max Weber, (Weber 1964) who in his book formulates two types of social stratification, that of the classes and that of the estates. It is the stratification of the estates that is closest to the definition of lifestyle: "... classes are stratified according to their relationship to production and the acquisition of goods, while the estates are stratified according to the principles of consumption of goods as represented by their special lifestyle" (Weber, 1964: 93). Max Weber does not elaborate on any groups of lifestyle; he treats it only as a means of power and authority in the hands of the ruling status groups (Utasi 1984, Sobel 1981). In his opinion, lifestyle can be interpreted in two dimensions. One dimension expresses the way of life and is closely related to how individuals conduct their lives, where their place in society is confined. The other dimension depicts how the environment, the outside world sees the consumers, where their public behaviour is perceptible.

Several researchers have made an attempt at the definition of lifestyle with the consideration of various aspects and factors. The first research into lifestyle and the resulting conceptual definition is from Max Weber. It is also important to mention the following researchers, who defined lifestyle from different aspects and aimed to fit it into a system of consumer behaviour. The scientific work of Bell (1958), Rainwater – Coleman - Handel (1959) Havighurst – Feigenbaum (1959) lasted until the end of the fifties. Bell draw the attention to the examination of the correlations between consumption and consumer behaviour. Rainwater, Coleman and Handel highlighted the relationship between consumer behaviour and lifestyle and stressed its importance. However, the achievement of these scientific researchers still lacked an accurate definition for the concept of lifestyle. A paper published by Lazer (1963) includes an accurate definition which was widely accepted and adopted. In his view, lifestyle is a system. It means a distinguishing and characteristic conduct of life referential to particular segments of society. Shopping habits and consumer behaviour realistically reflect the individual lifestyles and manners of life (p. 130).

Levy (1963) offered a totally different interpretation and refuted the Adlerian conviction which claims that people's lifestyles are influenced only by their own personalities and behaviour. In his perception, lifestyle is a complex and constantly changing system. It is a system of symbols formulated on the basis of our own set of values which can be divided into several sub-symbols.

Kelley (1963) approached the concept of lifestyle from the marketing point of view. Marketing people do not only sell products and services, but the goods purchased symbolise the consumer's/buyer's lifestyle as well. Veblen (1975) discussed lifestyle through the examination of the social elite. In prehistoric community sheer physical superiority, the defeat of weaker individuals, the killing of wild animals signified bravery and heroism. Later this theory underwent a change. Otiosity and idleness started to represent grandeur since these luxuries were the privilege of only those who possessed a sufficient size of wealth. Naturally, this was a characteristic of the elite. With the advent of the Industrial Revolution, a rich and propertied layer of society could afford to buy luxury goods thereby making their consumption special in contrast to the average consumer. Therefore, this peculiar consumer behaviour came to represent and characterise the lifestyle of the well-to-do.

Veblen (1975), Halbwachs (1971), Summer (1978), Hexter (1916), Weber (1964) characterised various lifestyles by the differentiated consumption of particular groups. Different conditions of life which, in turn, determine the way we consume goods and conduct our life. Consequently, they considered living

conditions, the ways of spending leisure time, food consumption and clothing as the most important factors (Bobula, 1937).

The definition offered by Berkmann – Gilson (1978) is also one of the many. In their words, in a wider sense, uniformed behavioural patterns are characteristic of a particular lifestyle. At the same time, lifestyle is a complex system of our values, opinions, attitudes and interests paired with a uniquely characteristic behaviour and conduct.

Apart from the notions described above, there have been several other attempts at the definition of the concept of lifestyle. We believe that lifestyle cannot be described and characterised with only one word, we are dealing here with a much more compound concept. Judging from the multitude of definitions published by researchers and their often contradictory nature it seems evident that neither the researchers of sociology nor that of marketing represent a single position concerning the definition of the concept of lifestyle. This is understandable since „lifestyle" mirrors our public conduct, our values, attitudes, opinions, our personality, and fully determines our consumption habits and behaviour.

The recognition of the importance to analyse lifestyle and a need for deeper-going research can be dated to the early nineteen-seventies. It was then that researchers began to realise that the demographic features used earlier to analyse consumer behaviour and identify certain lifestyle groups proved to be insufficient. In order to better analyse consumer decisions and understand deeper content factors lying behind them, it became necessary to consider other factors as well. The evolving psychographic analysis aimed at a more profound understanding of the behaviour of consumers, in the case of this paper, that of travellers.

In what follows we intend to introduce and analyse the most important trends in domestic and international research into lifestyle. The description of models is non-exhaustive since there have been innumerable research methods applied and results achieved in the chosen field. One phenomenon can be noted though, namely that the majority of models and research methods are built based on the methods adopted earlier.

Although researchers' opinions split over the elaboration of the particular models, methods, as well as their dimensions and details, in general it can be established that lifestyle research divides into two larger factions. The two groups are configured on the basis of what their research focuses on in respect to consumption. These two options are as follows:

- the FAMILY as consumption unit, and the exploration of its types;
- the INDIVIDUAL as consumption unit, and the recognition of its unique characteristics (Veres - Hoffmann - Kozák, 2009).

In what follows, the paper is trying to review the trade literature of the research directed at the individual since our own research was also based on the individual's characteristics of consumption, the analysis and understanding of the consumption habits of travellers and tourists.

Research focusing on the individual can be broken down and classified further. One part of the body of research is one-dimensional; the other employs a multi-dimensional typology. The one-dimensional method studies lifestyle only from one, predetermined aspect and strives at a one-dimensional exploration

of the consumer's habits and behaviour. In contrast, the multi-dimensional typologies look much more complex and aim at a 'universalist' analysis of consumer lifestyle (Veres - Hoffmann - Kozák, 2009).

The VALS model

The name of the method derives from the initial letters of three English words: Values, Attitudes and Lifestyles. The research method originates from the US and as its name indicates investigates the relationship between values and lifestyle. There are two variants of the VALS method, but many people refer to it and use it summarily as the VALS model. The first model, known as VALS 1, was worked out in 1978, and is linked to the name of Arnold Mitchell. The results of the method Mitchell (1983) published in a book. The survey was conducted by asking 1,600 people in the US. However, many scientists questioned the expedience of the research as well as the relevance of the theory.

The results of the research establish 9 lifestyle groups of people:

1. Integrated
2. Outer-directed
    a. achiever
    b. emulator
    c. belonger
3. Inner-directed
    a. societally conscious
    b. experiential
    c. I-am-me
4. Need-driven
    a. sustained
    b. survivor

Because of the cumbersome and complicated nature of the method it was revamped by the Stanford Research Institute in 1989, and VALS 2 was created. The questionnaire designed then is used even today especially with a commercial aim and is a popular and well-known tool of market research employed in marketing planning. Essentially, it is a psychometric method which uses personality traits as the basis of research and seeks to establish correlations between individualist features and consumer behaviour and habits. It examines these features in two dimensions: motivation and resources. The method is less theoretical than practical and is better applicable than the earlier version. The questionnaire is accessible to everyone on the website *strategicbusinessinsights.com* and by filling it online we can simply refer ourselves to the appropriate lifestyle group as shown in *Figure 1* below.

Figure 1: Lifestyle groups
Source: www.strategicbusinessinsights.com

The *Figure* needs a bit of explanation though. The method differentiates between eight clearly visible types of attitude. The particular colours refer to the diversity of the types, the size of the circles indicates the ratio of the individuals belonging to a particular type. The horizontal dimension depicts consumer motivation while the vertical dimension shows the consumer resources. The group of disposers over High Resources includes the Innovators, Thinkers, Achievers and Experiencers. The Believers, Strivers, Makers and Survivors belong to the group of individuals with Low Resources. The consumer motivating factors incorporate Ideals, Achievement and Self-expression. Individuals motivated by ideals operate along principles and knowledge. People inspired by achievement and results opt for services that can radiate success in front of their peers. Individuals motivated by self-expression aspire to versatility, activity and renewal (Kotler - Keller 2012).

Human needs are inexhaustible and under optimal intensity can turn into motivation. One individual can show several needs at the same time that rank among psychological features and generally spring from some psychological tension. Referring to Maslow's 'hierarchy of needs' it is likely that the need of belonging somewhere, the need for appreciation and recognition also fall into this category. After a time, this need, to the effect of some external or internal factors, will turn into motivation. Motivation urges the individual to action through which the tension reduces or ceases completely. Motivation, therefore, can be described as an internal condition, which drives and motivates people to achieve certain objectives. The same way as income and social status determines an individual's place in a hierarchy, motivation defines the election criteria (Veres, 2007).

Several theories have been born for the interpretation of motivation. Sigmund Freud in his psychoanalytical theory used the iceberg metaphor for the human mind; the part above the water surface is responsible for conscious thinking, the larger part under the water influences the sub-conscious. Based

on this he argued that most of the time people are not aware what is driving them. His speculations about the soul back up the notion that body and soul are in harmony with each other and with a modification of the soul, human behaviour changes as well. Attitude, however, is deterministic, that is pre-determined (Freud, 1923).

Sigmund Freud also dealt with the question of personality, which he divided into three parts: the id, ego and superego. The id is an incipient form, can be considered as the "antecedent" of the ego and the superego. The id changes according to the pleasure principle taking hunger, thirst, protection and sexual drive as its basis. The ego follows the reality principle, allows for the impacts of the environment thus playing a significant role in the formation of personality. However, a constant tension prevails between the pleasure and reality principle since what the individual wants is retarded by the reality principle that is the ego. It is the superego that decides over the good and bad deeds (Carver-Scheie, 1998.).

Motivation factors influence decisions in the positive direction eliciting a feeling of satisfaction. Lawler – Hackman – Porter (1975) employed motivation as a method and by developing it further applied it aptly to increase the sale of products and services in tourism. Based on the model it can be established that the motivational process starts with the scale of the reward which induces an effort and becomes a real achievement by the complementation of abilities and characteristic traits. The process after external or internal gratification terminates in contentment. Consequently, the recognition of effective performance is the reward itself.

Material and method

The empirical research was conducted by applying a quantitative methodology using a questionnaire that consisted of 14 groups of questions including 121 statistical variables. The questionnaire was structured to incorporate the following question groups:

- Travel habits: these questions measure the respondent's travel frequency, the average length of trips (dichotomy and ordinal scales), complemented with an open question about the primary associations attached to travel (4 variables)
- External factors influencing travelling habits were measured by 12 coded variables on a scale from 1 to 5
- Lifestyle was measured by using 34 coded variables on a scale from 1 to 5 (with an adapted list of questions)
- The importance of touristic motivations was measured by employing 64 coded variables on a scale from 1 to 5
- The demographic criteria were measured on a nominal and ordinal scale normally accepted in research practice (7 variables)

Statistical processing of the variables was completed by employing the SPSS 25 programme.

The comprehensive research was conducted from May to September 2017, using three different methods, applying online and personal questioning together. The three methods and sources were as follows:

- The questionnaire was mailed using the emailing list of a prestigious domestic tour operator designed in a *google.docs* format.
- University students were asked to distribute the paper-based questionnaires among their acquaintances and get them filled by as many people as possible. As a background variable they were asked to focus on people who had taken at least one domestic trip in the last couple of years.
- Using online social forums, the questionnaire was targeted at the layer who was expected to give relevant answers to questions related to travel habits.

During the query time of a half year, from the three sources 1,743 questionnaires were returned completed of which 1,596 were suitable for rating.

The statistical methods applied were as follows: cross-table and associational stenosis, factor analysis, cluster analysis and multiple linear regressions. In the present paper, among the innumerable data gained by applying the statistical methods referred to above, the one supporting our hypothesis is singled out and analysed in detail.

To test the hypothesis a causal model was set up (path model), which exposes cause and effect relationships with the help of regression models. The following causal relationships were presumed:

- *The starting point of our model comprises the endogenous variables of lifestyle, that is, the lifestyle factor group which can influence the perception of the external impact factors: how individuals perceive and what significance they attribute to the external impact factors.*
- *Lifestyle has an influence on travel motivational factors.*
- *Lifestyle (beyond the indirect effect above) exerts a direct influence of travel habits.*
- *Perception of the external impact factors influences the motivation of travel.*
- *Perception of the external impact factors (beyond the indirect effect above) exerts a direct influence on travel behaviour.*
- *Motivations have a direct effect on travel habits.*

These relationships are displayed in *Figure 2*, the path diagram.

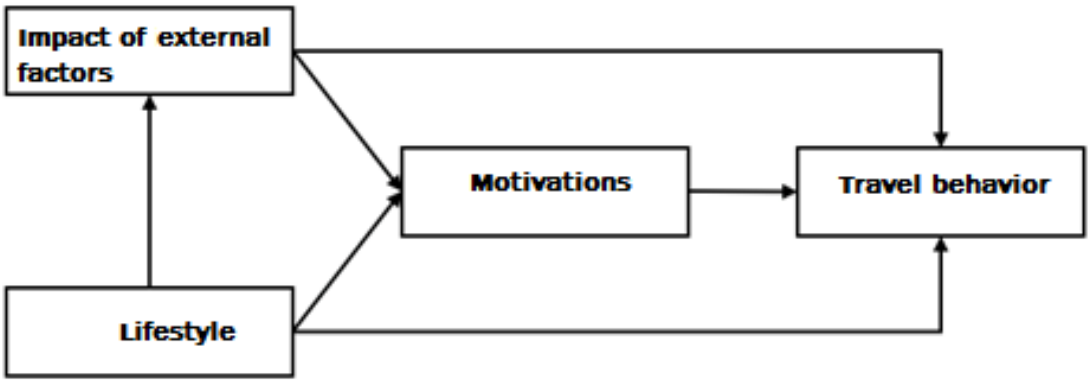

Figure 2: Direct and indirect factors influencing travel behaviour
Source: own design

Results and analysis

Table1: Distribution of respondents by demographic data

		frequency	%	% of respondents
Sex	**male**	291	18.2	18.4
	female	1288	80.7	81.6
	No data	17	1.1	
Date of birth	**before 1945 (veterans)**	92	5,8	5.8
	Between 1946 and 1964 (baby boomers)	524	32,8	33.0
	Between 1965 and 1979 (X generation)	722	45.	45.4
	between 1980 and 1994 (Y generation)	187	11.7	11.8
	after 1995 (Z generation)	64	4,0	4.0
	Total	1589	99,6	100,0
	No data.	7	0,4	

Source: own design

The sample is over-represented among the female respondents (80.7%). Male propensity to respond is very low, only 18.2% of the people polled. 1.1% of the respondents did not give indication of their sex. The largest group to respond were individuals belonging to the X generation, while the smallest group was constituted by the veterans, or the generation of builders to apply another name.

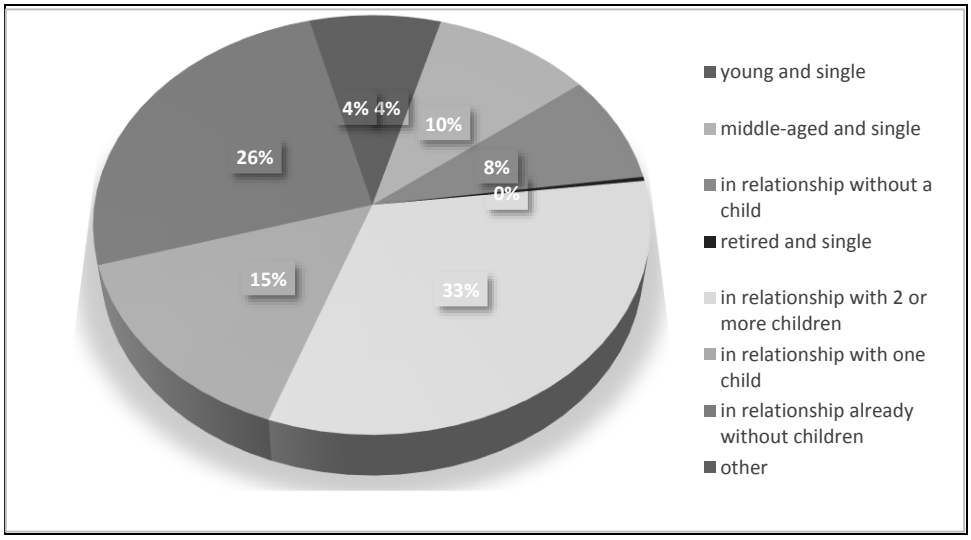

Figure 2: Family life cycle
Source: own design

Almost half of the respondents, precisely 45% live in families with at least one child. The largest group, 33% lives with a spouse with two or more children. A high ratio is represented by those who live with a spouse, but already without their children. The two respective results can be associated with the age of the respondents, since a large ratio of them belongs to the X generation, the age group of 40 to 50, raising typically one child and in many cases the child has already left the family home.

The development of travel habits is analysed with the help of cross-tables. This reveals whether there is a correlation between the two variables that is one variable belonging to any category can influence to any degree the fall of the other variable into a different category. There is a weak (C=0.121), but significant (p=0.000) correlation between sex and travel habits. From the repartitions it is possible to draw a conclusion concerning the direction of the relationship. It is visible from *Figure 4* that a significantly large part of women go on holiday only once a year (men 13.7%, women 25.6%). Also, a larger proportion of men take a holiday 6-10 times a year than women (13.1% vs. 7.9%). The conclusion is that men enjoy a holiday more often. (However, in this case the data should be handled with reservations, since the majority of respondents are women and presumably they travel with their partners. The proportional discrepancies of male/female respondents, however, are corrected by the calculated partition coefficients).

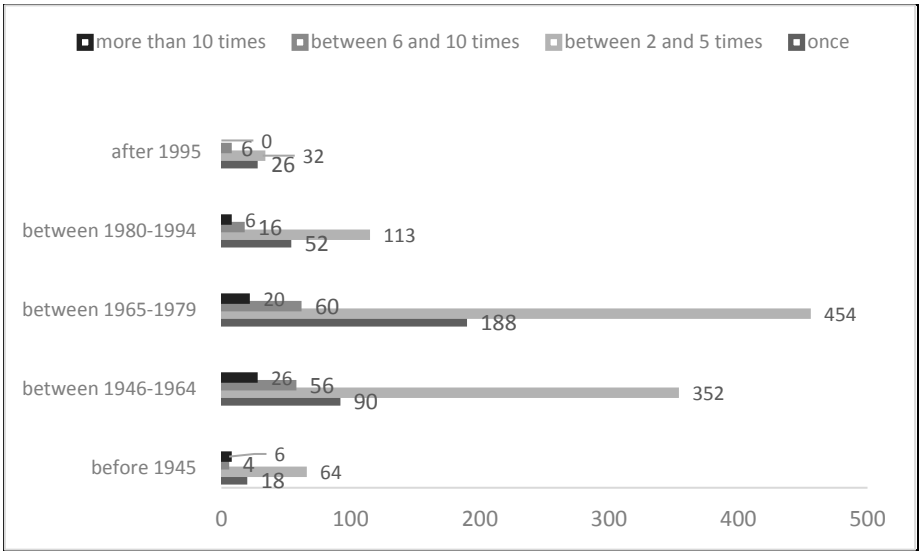

Figure 3: How many times a year does one leave home for the above purpose staying within the country considering the person's age
Source: own design

There is a weak (C=0.089) but significant (p=0.000) correlation between age and travel habits. It is evident from Figure 3 that the X generation (age group 40-53) leaves home the most often with the purpose of tourism and spending leisure time, which shows a significant difference compared to the other age groups. They are followed by the baby boomer generation (age group 54-72), who leave their homes 2 to 5 times a year going on domestic trips. The least active age group in this respect is the Z generation, aged 23 or younger, who travel the least often probably determined by their income situation.

The objective of cluster formation is to establish homogenous groups showing significant differences between one another and within which the individuals' demographic situation and travels habits are in accord. Thus the criteria for group formation must be variables whose variance within the sample is relatively high (their repartition shows high diversity). Consequently, the criteria easily applicable in group formation are:

- age
- income
- composition of household
- frequency of travel.

The variable for length of travel does not operate well as a group formation criterion since it is relatively homogenous. The cluster forming criteria listed above are variables measured on an ordinal scale therefore they are appropriate for classifying the individuals into groups. The clusters are characterised by the features of the cluster centre (centroid), which is an (often imaginary) central element of a cluster. In our case, cluster treatment seems most effective with the formation of 4 clusters and the mean values of the cluster forming criteria in the particular clusters are as follows:

Clusters:

1. Tourists short of cash: typically travel only a few times a year, on 1 or 2 occasions, low-income households, under 50 age group, live in a relationship, with at least one child

2. Country rovers: Travel often (at least 6 times a year), affluent households with high income (over 150 thousand Ft/head), born between 1946 and 79, live in a relationship, in half of the cases already without the children.

3. Childless young people: Travel typically 2 to 5 times a year, affluent households with high income (over 150 thousand Ft/head), younger generation (born between 1965 and 94), live in a relationship but mostly still without children,

4. Well-to-do middle-aged or senior citizens: Travel typically 2 to 5 times a year, affluent household with high income (over 150 thousand Ft/head), born before 1964, live in a relationship, most of them already without children.

Lifestyle variables are described in the Q6 question set of the questionnaire. Their grouping (dimension reducing contraction) was also completed by factor analysis (applying the main component method, the Kaiser normalisation and varimax rotation). Before the formation of factors, the reliability of the variables' scales must be tested for which the *Cronbach's* α coefficient was used. Each of the 31 variables involved in the analysis was measured on a scale of 1 to 5, in which case: *Cronbach*-α = 0.726. The value of the index is proportional. Apart from that, the scale of all variables is reliable attested by the table above. The *Cronbach*-α indexes are dispersed between 0.707 and 0.734.

The definition of factors was made on *a priori* principles, however, they partly meet the Kaiser criterion as well, that is the eigenvalue of all 8 factors exceed 1 (eigenvalues: between 1.175 and 4.283). Although the eigenvalue of the 9th factor also exceeds the value of 1 (1.120), it does not comply with the *a priori* criteria, thus the 8-factor variable set was considered final. The whole accounted variance came to 58.397%, which signifies a still acceptable loss of data. The factor weights of the factors produced exceed in all cases the 0.5 threshold value.

Table 2: Factors produced

Factors	Number of variables	Smallest factor weight
Survivors	5	0,542
Experiencers	4	0,717
Believers	4	0,669
Innovators	5	0,507

Achievers	4	0,662
Strivers	3	0,524
Learners	3	0,534
Thinkers	3	0,594

Source: own design

Touristic motivations were collected in the Q7 question set of the questionnaire. Their grouping (dimension reducing contraction) was also completed by factor analysis (applying the main component method, the Kaiser normalisation and varimax rotation). Before the formation of factors, the reliability of the variables' scales must be tested for which the *Cronbach's* α coefficient was used. Each of the 31 variables involved in the analysis was measured on a scale of 1 to 5, in which case: *Cronbach*-α = 0.749. The value of the index is proportional. Apart from that, the scale of all variables is reliable attested by the table above. The *Cronbach*-α indexes are dispersed between 0.728 and 0.776.

The definition of factors was made on *a priori* principles, however, they meet the Kaiser criterion as well, that is the eigenvalue of only these 5 factors exceeds 1 (eigenvalues: between 1.347 and 7.010). The whole accounted variance is relatively high 64.460%. The factor weights of the factors produced exceed in all cases the 0.5 threshold value.

Table 3: Factors produced

Factors	**Number of variables**	**Smallest factor weight**
Safe adventure	10	0.667
Active idyllic	7	0.595
Low-cost	3	0.807
Prestigious	3	0.717
Cultural	3	0688

Source: own design

Conclusions

In the whole sample, contrary to the conceptual model, none of the motivation factors have an impact on travel habits.

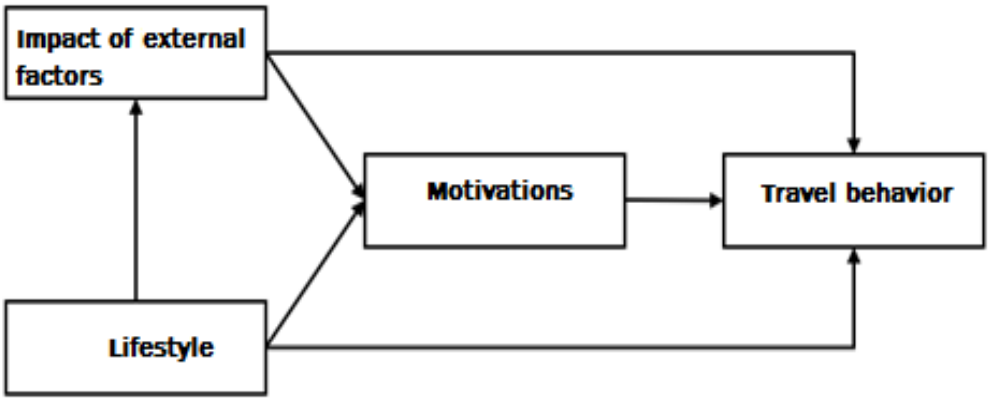

FIGURE 5 CORRELATION OF DIRECT AND INDIRECT FACTORS INFLUENCING TRAVEL BEHAVIOUR IN THE WHOLE SAMPLE

Source: own design

Considering the individual impacts in detail:

- Lifestyle → Impact of external factors:
  - Getting there as an external impact factor plays an important role in the selection of the trip for individuals belonging to the Survivor and Experiencer lifestyles.
  - The sights as an external impact factor play an important role in the selection of the trip for the Innovators, while for the Survivors they are markedly not important.
  - Cost is not an important external impact factor for the Strivers at all.
- Lifestyle → Motivations:
  - A safe adventure is an important motivation factor for the Innovators, Achievers and Learners, while they are markedly not important for the Survivors and Strivers.
  - Active idyll is an important motivation factor for the Innovators and Achievers.
  - Low-cost travel means an important motivation for the Survivors.
  - Snobbish trips are important for the Experiencers, Innovators and Strivers alike.
  - Culture motivates the Believers, but has no impact on the Survivors at all.
- Impact of external factors → Motivations:
  - People motivated by active idyll are influenced by the sights.
  - People motivated by low costs are influenced by getting there and the expenses incurred.
  - People motivated by snobbery are influenced by getting there and the details of the trip.
  - People motivated by culture are influenced by the sights.
- Impact of external factors → Travel behaviour:
  - Costs and details of the trip as external impact factors exert a negative influence on travel behaviour, the same way as if someone has a dominantly Survivor lifestyle.
  - Experiencer lifestyle, however, influences travel behaviour in a positive way.

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THE MAIN FEATURES OF MATERIAL TERRITORIAL CAPITAL IN THE RURAL AREAS OF HUNGARY

Zsuzsanna Kassai, Ph.D – Ilona Gerencsér

Abstract

Since the end of the 20th century many attempts have been done at defining territorial capital, however, there is still not a widely accepted definition. Despite, it is a common knowledge that the territorial capital can have a significant positive impact on the quality of life of rural population and the regional competitiveness, too. Besides, the level of development of a region also depends on the quantity and quality of territorial capital.

International research outcomes have already confirmed that the EU LEADER rural development programme can significantly contribute to the increase in the quantity of territorial capital in a rural region and the improvement of the quality of its components. Moreover, territorial capital can strengthen the relations among these components, too. However, the characteristics of territorial capital of Hungarian LEADER regions in the current EU programming period have not been examined yet in detail. That is the reason why we studied the main features of the material components of territorial capital in our paper. The most important components of economic, infrastructure and institutional capital of Hungarian LEADER Local Action Groups were analysed. Multivariate statistical methods (namely factor and cluster analyses) were applied to explore the differences between rural regions.

Keywords: territorial capital, LEADER programme, economic capital, institutional capital, infrastructure capital

1. INTRODUCTION

The term territorial capital has been in transition. The understanding and the examination of territorial capital has already constituted a substantial part of modern regional science. More and more international and domestic research studies focus on the determination of territorial capital, which can also be called as 'rural capital' in the rural regions (Kis, 2014). Although, there is still no widely accepted, general definition of this term, there are many differences and overlaps in its conceptualization. Therefore, the measurability and the quantitative examination of its components has to encounter several limitations (Oláh, 2017; Jóna, 2013; Jóna-Tóth, 2012; Tóth, 2011)

One of the earliest and most often cited definitions of territorial capital related to the EU LEADER is derived from the LEADER European Observatory (1999), according to which "The territorial capital refers to the things that constitute an area's assets …. are intended to identify the distinctive features of an area whose value can be enhanced" (p. 19). The present research accepts the above definition and uses the term in that sense.

The international literature provides a broad scope for classifying the forms of territorial capital. I applied a mixture of the classification of Lin (2001) and Camagni (2008). According to them we can distinguish the tangible, in other words material capital and the intangible, in other words immaterial capital. This paper focuses only on material components of territorial capital. I have studied three types of material capital: the economic capital, the infrastructure capital and the institutional capital. The economic capital includes a command of economic resources (money and wealth, assets, property). It is related to the economic performance of the region and its welfare (Jóna-Hajnal, 2014). In case of infrastructure capital mainly the endowments and the extension of infrastructural elements are usually studied. It can involve the examination of public utilities, natural endowments, accessibility of territories, etc. Similarly to Dombi

et al. (2017), I have revealed to which extent the regions are provided with the required public institutions and their services. My research mainly focused on different components of cultural institutions.

2. MATERIAL AND METHODS

In the following subsections the materials and methods applied in the research will be presented briefly. The study area covered 103 LEADER Local Action Groups which are indicated in different dark colours on the map below (Fig. 1).

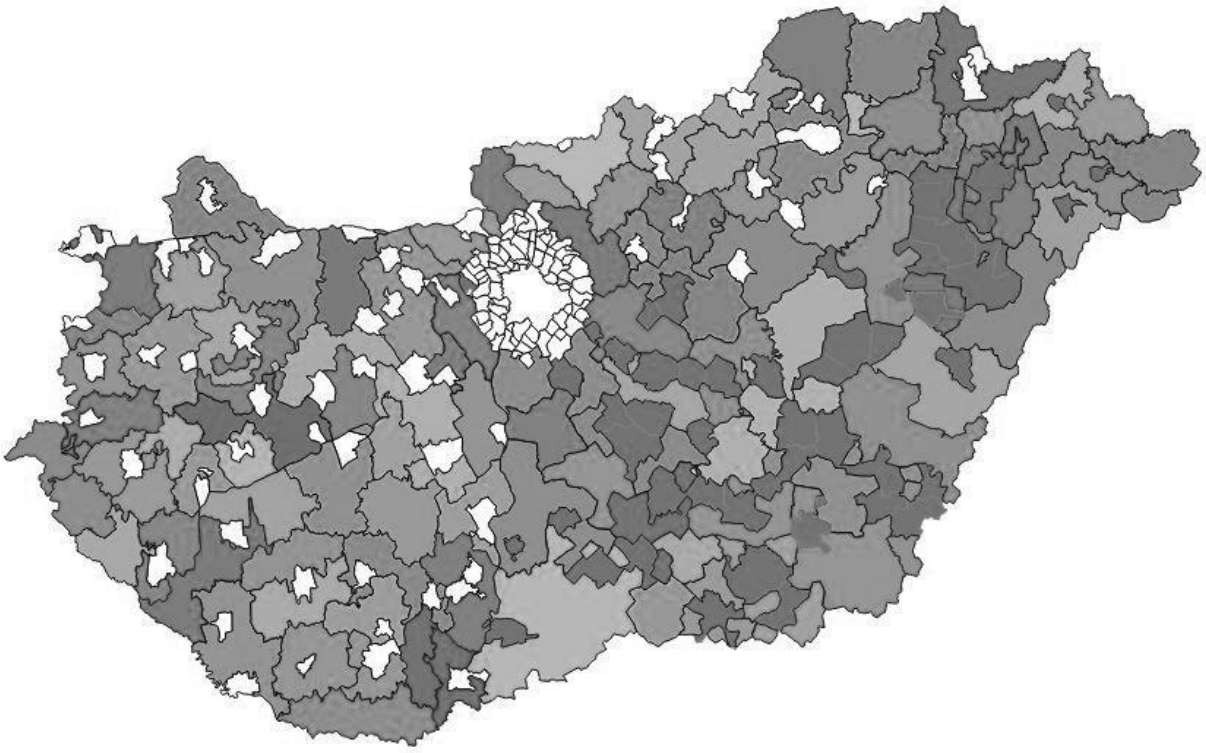

Figure 1. The examined LEADER Local Action Groups

Source: own edition with QGIS, 2018

The areas highlighted in white are the non-eligible areas for LEADER funds, therefore, they were excluded from the research. They are non-eligible because the population number exceeds the threshold of 10,000 people and/or the population density is more than 120 people/km^2.

There are also some areas which are highly populated, but their outskirts are eligible. These areas were also out of the scope of my research, because the examined data were not available only for the outskirts.

2.1. Material

First of all, a literature review was carried out related to the concept of territorial capital and the EU LEADER program. Mainly the reports of LEADER European Observatory and some studies about the conceptualization of territorial capital from Nan Lin and Roberto Camagni were used. Besides, to examine the concept of territorial capital in Hungarian context, the empirical studies of György Jóna and Gábor Dombi et al. were also analysed.

For the analysis two databases of Hungarian Central Statistical Office (TSTAR, 2015; Census, 2011) were used in the research. Besides, two other databases of National Tax and Customs Administration of

Hungary were also examined: the database of personal income tax payers and the database of tax returns of companies in Hungary. In addition the accessibility database of regions of GeoX Ltd. was also studied.

2.2. Methods

Altogether 44 basic indicators were collected from the above listed databases. The number of indicators has continuously decreased in the preparation of research. Finally 34 derived indicators were created (11 economic capital, 16 infrastructure capital, and 7 institutional capital components).

First, I used descriptive statistics (e.g. minimum, maximum, mean and standard deviation) to examine the main basic characteristics of Local Action Groups. Since there were still too many indicators which made the understanding of material capital components difficult, factor analysis was applied to reduce the dimension. Different extraction methods were tried out during the factor analysis, finally the Principal Component (PCA) was chosen. Different factor rotation methods were tested and finally, the Varimax method was used because it helped most to separate factors and so understand them.

The use of the Kaiser-Meyer-Olkin (KMO) measure and the Bartlett's test helped me decide whether the examined indicators were suitable for factor analysis. In case of KMO test, if the gained value exceeded 0.6, it was suitable for the analysis. In case of Bartlett's test, the variable is proper if the level of significance is smaller than 0.05. Based on the values of communalities, a dropping process was applied and so the variables being unsuitable for the analysis were filtered out. The limit value was 0.5 for communalities. So, five factors were created from 15 indicators (Table 1) which will be shown in detailed in Results chapter.

In case of the first factor the total variance explained is around 24%, in the second it is 21%, in the third 11%, in the fourth 10% and in the last factor it is 8%, so the cumulative value is 75%. That means the 5 factors can explain 75% of the total variance, which is a really favourable value (Table 1).

Based on the five factors a cluster analysis was used to group the Hungarian LEADER regions. Here again different cluster creation methods (hierarchical cluster and K-means cluster analyses) were tried out. Within hierarchical clustering different methods (e.g. centroid clustering, between-groups linkage, within-groups linkage, and Ward's method) were used and finally Ward's method was the most appropriate. Based on the Dendrogram received the creation of 4 to 6 groups was strongly suggested. Therefore, in case of K-means clustering only these cluster numbers were set. Finally, the creation of four clusters seemed to be the best solution.

Table 1: Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.67	24.50	24.50	3.67	24.50	24.50	3.22	21.48	21.48
2	3.23	21.53	46,02	3.23	21.53	46.02	2.56	17.09	38.58
3	1.67	11.15	57.17	1.67	11.15	57.17	2.26	15.04	53.62
4	1.50	9.99	67.16	1.50	9.99	67.16	1.87	12.49	66.10
5	1.22	8.15	75.31	1.22	8.15	75.31	1.38	9.20	75.31
6	0.82	5.45	80.75						
7	0.66	4.40	85.15						
8	0.52	3.48	88.64						
9	0.47	3.11	91.74						
10	0.40	2.69	94.43						

11	0.31	2.03	96.47						
12	0.21	1.39	97.86						
13	0.18	1.17	99.03						
14	0.11	0.76	99.79						
15	0.03	0.21	100.00						

Source: own edition with SPSS 24 for Windows, 2018

3. RESULTS

3.1. Results of factor analysis

In the end of dropping process the KMO measure of sampling adequacy was 0.67, so the final variables were suitable for the factor analysis. This was also confirmed by the outcomes of the Bartlett's test, since its null hypothesis according to which there was no correlation between the variables had to be rejected as the significance level was smaller than 0.05 (0.00) (Table2).

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.673
Bartlett's Test of Sphericity	Approx. Chi-Square	920.523
	df	105
	Sig.	0.000

Source: own edition with SPSS 24 for Windows, 2018

The communalities of indicators were between 0.52 and 0.92, so it proved all the 15 variables were appropriate to do the factor analysis. There were only two institutional indicators whose communalities were below 0.6 value: the number of non-formal education communities per 1000 inhabitants and the number of places of primary and secondary education establishments per 10,000 population. The other communalities examined were above 0.6 value (Table 3).

Table 3: Communalities

Indicators	Initial	Extraction
Number of non-formal education communities per 1000 inhabitants	1.000	0.517
Number of places of primary and secondary education establishments per 10,000 population	1.000	0.518
Number of personal income tax payer per 1,000 inhabitants	1.000	0.610
Number of post offices per 1,000 inhabitants	1.000	0.668
The total size of protected sites per km^2	1.000	0.672
Personal income tax base per a taxpayer	1.000	0.744
Length of public road per km^2	1.000	0.760
Number of households connected to waste water collection system per 1,000 households	1.000	0.778
The total size of green areas per km^2	1.000	0.790
Unemployment rate	1.000	0.792
Amount of net revenue of export sales per company	1.000	0.869
Amount of equity per company	1.000	0.869
Number of cultural centres per 1,000 inhabitants	1.000	0.888
Number of library per 1,000 inhabitants	1.000	0.900

Number of households connected to waste water collection system per 1,000 households	1.000	0.920

Source: own edition with SPSS 24 for Windows, 2018

The first factor includes four components of institutional capital (Table 4). This factor involves the following indicators: the number of library per 1,000 inhabitants, the number of cultural centres per 1,000 inhabitants, the number of post offices per 1,000 inhabitants and the number of non-formal education communities per 1000 inhabitants. It can be established that the cultural institution components are significant elements of material capital. All the factor loadings are positive, so variables are positively correlated with each other.

The second factor also involves four components, among which one indicator is an institutional capital (the number of places of primary and secondary education establishments per 10,000 population) indicator and three variables (unemployment rate, the number of personal income tax payer per 1,000 inhabitants and the personal income tax base per a taxpayer) are economic capital components (Table 4). Based on its content this factor is called 'Economic capital, educational institution'. Two of the factor loadings are positive, while the other two are negative.

The third factor also includes only institutional capital components: the number of households connected to water supply network per 1,000 households, the number of households connected to waste water collection system per 1,000 households and the length of public road per km^2 (Table 4). All the factor loadings are positive, so the indicators are positively correlated with each other. Based on the information contained, this factor is named as 'Line infrastructure'. This factor confirms that the physical infrastructure is also an important part of material capital.

Table 4: Material capital factors

Factors		Components				
		1	2	3	4	5
Institutional capital	Number of library per 1,000 inhabitants	0.942	0.033	-0.091	-0.006	0.053
	Number of cultural centres per 1,000 inhabitants	0.932	0.049	-0.078	-0.044	0.100
	Number of post offices per 1,000 inhabitants	0.771	-0.128	0.099	-0.164	-0.139
	Number of non-formal education communities per 1000 inhabitants	0.586	0.349	0.093	0.125	0.165
Economic capital, educational institution	Unemployment rate	-0.111	-0.855	-0.075	-0.186	-0.086
	Number of personal income tax payer per 1,000 inhabitants	0.228	0.725	0.158	-0.041	-0.072
	Personal income tax base per a taxpayer	-0.009	0.674	0.438	0.213	0.228
	Number of places of primary and secondary education establishments per 10,000 population	0.246	-0.672	0.036	-0.033	-0.062
Line infrastructure	Number of households connected to water supply network per 1,000 households	-0.101	0.144	0.930	0.154	0.039
	Number of households connected to waste water collection system per 1,000 households	-0.011	0.385	0.779	0.118	-0.093
	Length of public road per km^2	0.537	-0.233	0.638	-0.019	0.103

Business characteristics	Amount of net revenue of export sales per company	-0.065	0.119	0.078	0.919	-0.019
	Amount of equity per company	-0.034	0.094	0.145	0.915	-0.014
Environment	The total size of green areas per km^2	-0.120	0.063	0.215	-0.126	0.842
	The total size of protected sites per km^2	0.289	0.090	-0.219	0.100	0.723

Source: own edition with SPSS 24 for Windows, 2018

The fourth factor is called 'Business characteristics'. It contains two economic capital components: the amount of net revenue of export sales per company and the amount of equity per company (Table 4). Both factor loadings are positive, so the variables positively correlate with each other.

The last factor was named 'Environment'. It involves two infrastructure capital components: the total size of green areas per km^2 and the total size of protected sites per km^2 (Table 4). They confirm that green infrastructure is also a substantial part of material capital. Here again both factor loadings are positive.

3.2. Results of cluster analysis

Because of length limits of the paper, only the outcomes of K-means cluster analysis are presented in this subsection. Four clusters were created based on the factors listed above. The 103 LEADER Local Action Groups are divided into the four clusters in the following way (Table 5). There are significant differences among the size of the clusters: while the smallest one includes only four LEADER-regions, while the biggest one covers 55 Local Action Groups.

Table 5.

Cluster	1	32.0
	2	55.0
	3	4.0
	4	12.0
Valid		103.0
Missing		0.0

Source: own edition with SPSS 24 for Windows, 2018

In the first cluster 32 Local Action Groups can be found. They are mainly located in the Northern Hungary and Northern Great Plain regions (Figure 2). In this cluster the values of the first factor are below the average, so there is a lack of cultural institutional capital in these LEADER regions. Besides, the economic capital is also quite week in this cluster and the number of educational institutions is also law. The green infrastructure capital is average. Only the line infrastructure is favourable. Therefore, this cluster is called 'LAGs having small material capital'.

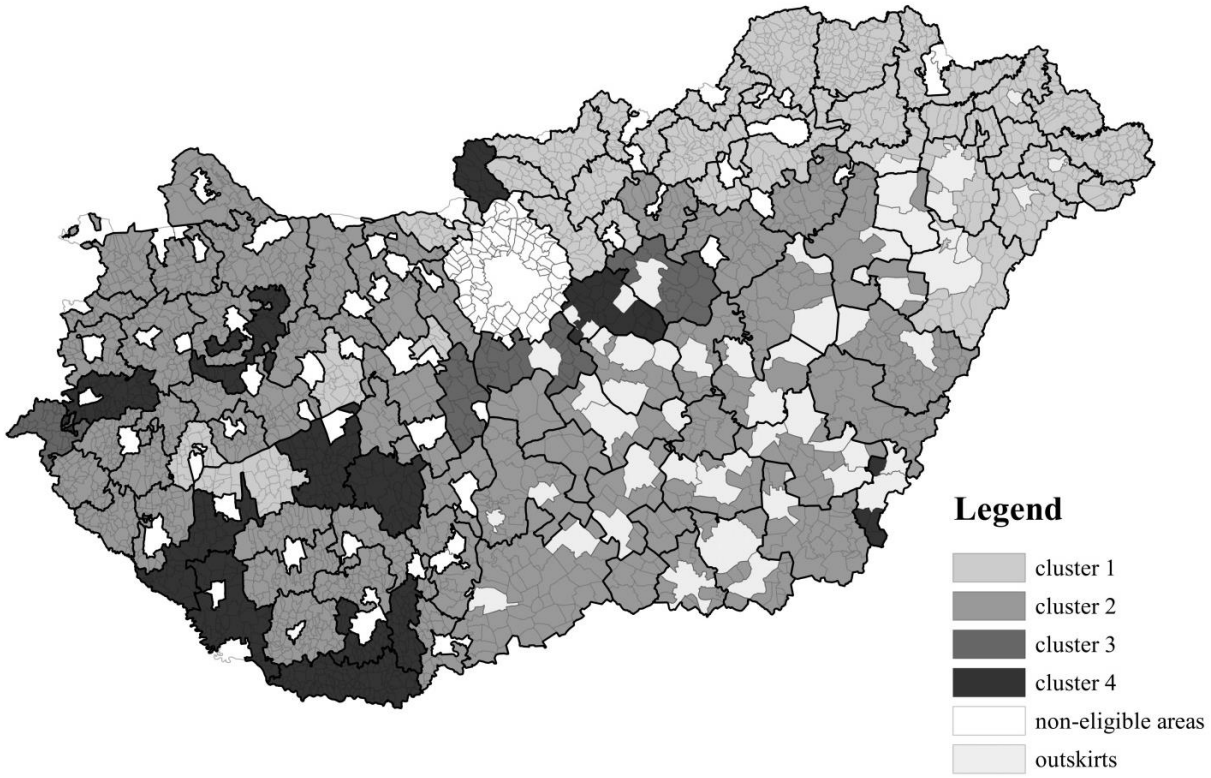

Figure 2: The material capital clusters
Source: own edition with QGIS, 2018

The second cluster is the biggest one, since it involves more than half (55) of the LEADER regions (Figure 2). The situation is average for the first (institutional capital) and fourth (business characteristics) factors, while the components of the third (line infrastructure) and fifth (environment) factors are quite unfavourable. In contrast, the components of second factor (economic capital and educational institution) are above the average. Therefore, this cluster is named as 'LAGs having an average amount of material capital'.

The third cluster is the smallest one, since it contains only four Local Action Groups (Fig. 2.). The first (institutional capital) and the last (environment) factor components are below the average, so the number of cultural institutions and services provided by them are low and the total size of green areas and protected sites is also small. The situation for the second (economic capital, educational institutions) and third (line infrastructure) factors is average, while the business characteristics are very prosperous. Thus, this cluster is called 'LAGs with favourable business characteristics'.

The last cluster covers 12 LEADER regions (Fig. 2.). These Local Action Groups are mainly located in the Southern Transdanubia region. The economic capital (second factor) and line infrastructure (third factor) capital components are below the national average. On the contrary, the environmental components (fifth factor) are strongly above the national average. So the ratio of the total size of green areas and protected sites are very high in these LEADER regions. For this reason, this cluster is named 'LAGs with high nature value sites'.

4. CONCLUSION

The main goal of this paper is to examine the main characteristics of the components of material territorial capital of the Hungarian LEADER Local Action Groups. In the first part of the study the definition of territorial capital and its types were presented based on national and international research outcomes. Three forms of material capital were studied: the economic, the infrastructure and the institutional capitals.

A new method was elaborated to examine these components of territorial capital in the Hungarian LEADER regions. The following five factors were created: 1) institutional capital; 2) economic capital, educational institution; 3) line infrastructure; 4) business characteristics; 5) environment. In most factors the different material components are not mixed, they are separated: the first factor includes only institutional capital components, the third and fifth factors involve only infrastructure capital indicators, while the fourth factor contains only economic capital elements. Only the second cluster includes both economic and infrastructure capital components.

On the basis of the above mentioned factors, the following four clusters were created: 1) LAGs having small material capital; 2) LAGs having an average amount of material capital; 3) LAGs with favourable business characteristics; 4) LAGs with high nature value sites.

The analysis has revealed that there is no cluster in which all the material capital components are either favourable or unfavourable. However, it can be concluded that Local Action Groups in the first cluster are in the most disadvantageous position. In this case, there is a lack of institutional and economic capital, as well. These regions are mainly located in the northern and eastern part of Hungary.

Since we live in a dynamic economic and social environment, the outcomes of the research were valid only in the moment of data collection. Therefore, it is considered to be important to repeat the research in a few years. Then, it could be established whether the LEADER programme has contributed to the increase in material territorial capital in the rural regions.

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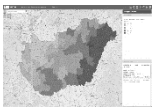
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REGIONAL AGRICULTURAL INNOVATION. STARTING CONDITIONS FOR INNOVATIVE AGRICULTURAL PRACTICES AMONG YOUNG FARMERS IN HARGHITA COUNTY

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Abstract

The 21st century can without doubt be called the century of innovations. New discoveries and technologies appear instantly in different areas of the world and thus bring about different and quickly changing trends. The spread of innovations has been triggered by the change in our communicational habits too. In his theory of diffusions, Rogers (1985) mentions that the spread of innovations can be described as a communicational process similar to an S curve. In my paper I analyse the regional agricultural innovation, as well as one of its specific form of appearance that is vital in the field of regional development. By agricultural innovation we mean all the activities that are different from the agricultural practice of the last twenty years and which, through the acclimatization of new technologies, grows plants not specific for the region and breeds animals (Biró–Magyar 2015). I present the features of the innovative farming model through four local case studies. I explore the topic through semi-structured interview method. The approach of the innovative farmer is different from the mind-set of those who follow the traditional farming model because the innovative entrepreneurship brand appears as an answer to the challenges of the world and has a strong communicational trait. Openness towards the outer world, the use of personal relationships and an analytic, business-oriented way of thinking are all necessary for exemplary initiatives. The start-up conditions and difficulties of innovative businesses, the knowledge necessary for the functioning, the relationship between the farmer and the local society, as well as the opportunities for advancement, all make up the personality of the innovative farmer as a relevant social phenomenon situated in this less researched, but highly interesting area.

Key words: innovation, young farmers, agriculture

1. INTRODUCTION

At the same time as the regional agriculture is boosted, the importance of knowing the role of agricultural players is also discussed. Farmers in Szeklerland include people engaged in household farming, ten-acre farmers and agricultural innovators, including organic farmers and young farmers. In my paper, I examine the start-up processes of knowledge and entrepreneurship of innovative young farmers in Harghita County. Since innovative economies are distinct and appear spot-like, it is difficult to identify the target group, there is no record in which innovative farms are counted. The numbers for different innovative farms can differ, in some settlements there are two or three farmers, in other settlements there is none, so it is very difficult to identify the number of enterprises. In the absence of statistical data, I conducted a qualitative research, during which I tried to get a detailed view of the young farmers in Harghita County through case analyses. Regional agricultural innovation can only be talked about in relation to regional practice, and I consider important to mention Rogers' innovation theory. According to Rogers (1985) the spread of innovations within a given society can be defined as a communication process. According to

how fast an innovation is accepted by the members of society we can distinguish five adaptation categories. The first category is represented by the social group called the innovators, which represents only 2.5 % of the society (Rogers 1985). The Szekler innovators can be classified in this category because they accept and naturalize the novelties first and they are represented by young farmers. As the spread of innovations assumes a communication function, for young farmers it is closely linked to the acquisition of information and knowledge. In my research, besides mapping the starting conditions, I also examine the processes of knowledge acquisition. In a society that insists on traditions and does not show openness to innovations, young innovators have a pioneering role for the local society, so the regional society often faces uproar over their activities. Although only a few per cent of the regional society are innovative farmers, they have an important role to play in structuring processes in agriculture as the agrarian activity of the younger generation will determine the agricultural situation of the coming years.

2. AGRICULTURAL CHARACTERISTICS OF SZEKLERLAND

The Szekler region is less open to accept innovations. Rural communities live their everyday lives within the boundaries of settlements. They hardly ever make contact with the outside world, especially the older generation. Communities are also confronted not only with physical, but with mental boundaries too, which are structured by the community habits. Closed communities live their daily lives along the traditions. The Szekler society has a high share of land ownership, mostly obtained by inheritance, and many households retain their self-income only from agricultural activity (Gergely 2013). Experience so far shows that in the region negative thoughts dominate about agriculture in the society. Over the last twenty years the situation of agriculture was defined as hopeless. In the Szekler region the two most common forms of agriculture are self-sustaining and farm-based farming models. Under the self-sustaining term I mean the small-scale agricultural activity of family households. Even today the rural areas of Szeklerland are characterized by these farming practices and production of food for oneself. The farmers get rid of the remaining surplus through exchange or they sell it. A typical form of selling goods is to expose them in front of the gate, a type of selling which is unpredictable (Biró-Magyar 2015). The leaders of the farm-based farming model run the agricultural activities on more than ten acres. Generally, they prefer to cultivate crops that are typical of the area such as wheat, barley, rape or potatoes. From the livestock farming point of view more than ten individual stocks and mechanized work are typical. In the large-scale farming model a large number of agricultural machinery is sold with the involvement of paid labour. In the last two decades a third type of farming model begun to emerge which is considered to be a pioneer in this region. Innovative farming practices are those initiatives that are rooted in a non-typical farming model. The innovative agricultural practices have a great diversity and they appear independently and periodically. This is reflected in those breeds of animal species and cultivation of plant species that were not present in the region so far, such as the osier, French varieties of walnuts, currants developed in research institutes, raspberries and other soft fruits, chinchilla, snails and worm farms, animal species bred abroad, rabbit breeds and the bred of cows. During these years the need for healthy food consumption, the linkage with the countryside and the appreciation of the rural area has strengthened; it began to emerge programs that supported the agricultural innovation process; the attitude of the media with regard to agriculture has changed too, the growing number of professional forums, conversations held focused on agrarian innovation. At the same time, in the Szekler society, a process was launched, which aimed at the valorisation of places; more and more people are going back to their roots, the role of rural and local values are becoming important, local identity is becoming stronger and a closer relationship starts to form between individuals and rural environments. These social changes are very important for agricultural innovation, because in Szeklerland there is a close, long-time relationship between individuals and agriculture, the vital element of the Szekler region is in the agricultural sector (Kiss 2013). The agricultural innovation process is a diverse process, involving many partners; it is built from below, created by the farmers' initiatives, not coordinated from higher levels. Similar bottom-up initiatives greatly contribute to the development of the region and to improving its competitiveness, but it is not yet known to what extent

these initiatives will be put into practice. The actors in the field of agricultural innovation are extremely diverse and an important factor is identifying these actors. One such group is the young farmers group. Although innovative farming practices appear spot-like in the area, their operators are in close contact with each other. The young farmers group from Szeklerland is characterized by openness and good communication skills. Young farmers often and reluctantly share professional information and seek for development opportunities. The information needed to operate the farms is obtained from professionals, specialist books, talented, more experienced farmers or from abroad. In the Szeklerland region, the institutionalized programs that support the acquisition of foreign experience by young farmers are becoming increasingly popular. In recent years it has been possible to participate in organized exchanges and apprenticeship programs for young farmers who are open to the agricultural practices of Western European countries. Among these and similar institutions I would highlight the programs of the LAM Foundation, the St Benedict Centre and the Caritas Rural Development Sector in Alba Iulia. Germany, Austria, Switzerland and Hungary are the most visited countries by the young farmers. The knowledge and experience gained abroad is applied at home by launching agricultural activities that are successful in one of the above mentioned countries. In addition to the experience and knowledge that comes from abroad, young farmers also need financial resources to start their businesses. Economic capital is occasionally available for them because the young get in the possession of land and agricultural machines by inheritance from their parents and grandparents. In addition to new information and technologies and acclimatization of innovation, the support of family members and the economic capital also play an important role. The work of young farmers is assisted by their family members, and the division of labour is done as follows: the management is done by men and the administrative tasks are carried out by women. The young farmers are important actors of the regional agriculture. They are the initiators of a process that largely defines the regional agriculture. Young farmers define themselves as pioneers, but accepting their own activities with the local society remains an eternal struggle for them.

3. RESEARCH QUESTIONS AND METHODOLOGY

In my research, based on the case studies, I examine the starting conditions of innovative young farmers in Harghita County and the knowledge acquisition process necessary for the operation of their economies. During the interviews, I made two categories of analysis, grouping the first category around the information that young farmers learned about innovative farming. In my opinion, given the lack of professional and technological information in the region that is essential for the operation of an innovative farming, the farmers had to obtain them from outside the region. The second category involves the acquisition of knowledge by farmers, including all the information related to the training of the farmers that revealed the need for young farmers to acquire further knowledge, what motivated them to learn and what kind of training they did so far. My research is based on qualitative data analysis, which means that the received information is not processed quantitatively (Babbie 2003). I have interviewed four young farmers from Harghita County. When selecting the subjects among the sampling methods I chose the snowball sampling. In qualitative research, the objective reality is not the primary consideration but a detailed knowledge of the interviewee and the research problem. Qualitative research does not aim at representativeness but it is interested in explaining the unique phenomena. In my paper I look for casual links and I examine the issues raised in depth.

4. RESULTS AND DISCUSSION

The present section of the paper presents the analyses of the results and data obtained. In the first group of questions, I included demographic questions about the interviewed person, such as age, gender, marital status, type and size of residence, the people he/she lives together in a household, what kind of school education he/she has, past and current workplaces. I asked every interviewee to say a few words about agriculture and what they are currently doing. Among the four interviewees all of them are young unmarried male farmers. With the exception of one farmer, the subjects live in rural areas; the farmer who lives in the city has the orchard at his grandparents. I conducted interviews with four young farmers, the youngest is 21 years old and the oldest is 34. Neither of the four farmers' education matches with their current activity, B.Zs. has 10 classes, B.Sz. 12, O.Zs. and H.F. are college graduates. Two of the farmers had jobs before their current business, one of them worked in Germany in agriculture and the other in a brewery. In what follows I will briefly summarize the farmers' activity in what they are engaged, which I consider to be important because I will refer to them several times. The farmer from Cârța deals with goat breeds, we cannot talk about a large stock of animals because he has only 12 animals, but the innovation is in the fact that he made his own stock by crossing several species, in order to continuously grow. Later on they want to sell the milk and meat, but for now the animals have a breadwinner role. The farmer, like the other farmers in his village, thinks about launching new agriculture-related activities, for example he wants to create a fish pond and currant plantations. Currently, the farmer from Miercurea Ciuc grows walnuts on 3 hectares; plums, apples and pears on half hectares. The novelty of the economy lays in the production of walnut varieties, like Franquette and Merinéz, besides that he plants walnut seedling. For now he is selling the plum, apple and pear in the form of brandy and he has only one walnut tree. Later he wants to sell the walnut in form of walnut kernel, walnut oil and the dried fruits. The farmer from Cristuru Secuiesc has a cattle ranch; he keeps forty animals, twenty dairy cows, steers and calves. The fodder is entirely produced by the farmer, he does not buy it from others, he even produces corn and wheat for selling. One part of the milk can be sold in the village and from the other part they make cheese. In the summer when the milk has greater yields the farmer takes it to the marketplace. The other farmer from Cârța, B. Sz., cultivates blackcurrant on more than two hectares. He deals with twelve different varieties of currants, including Swedish, Polish, Dutch, Romanian and Hungarian. From the harvest he makes syrup and currant wine, later on he will even make currant juice. They sell their products in the village, but they want to expand their customer circle.

4.1. Starting conditions

During the interviews I also asked the farmers about the conditions of their start-up. All the four farmers' ancestors, most of them the parents and grandparents were engaged in agricultural activities. Two farmers currently pursue the same activity which their parents told them to follow. We can say that agriculture is a kind of tradition inherited from generation to generation. "*We have very large areas, we are cultivating on 15 hectares, we produced a lot of potatoes, we have a very large basement, but when we saw that the business is not profitable, my dad had this idea to grow currants. I thought a lot about this concept, if we really wanted to do this, to switch to currants, but in the end we did all by ourselves, imagine that we had to surround two hectares of land to make a fence. We worked a lot, then we started to plant, so we planted slowly...*" (B.Sz.). In the case of the four farmers, we can talk about a shift within agriculture, in the case of the family from Cârța they switched from potatoes to currants, in other cases the small-scale family self-sustaining farming was narrowed down to the breeding to only one specific animal (goat, cattle) or plant (walnut, currants). "*Grandparents ceased to deal with agriculture, so smaller areas remained, which we didn't want to sell or leave that way, so we bought more areas near them, and that's why we start all of this.*" (O.Zs.). *"My parents were also involved in farming, my grandparents even more. I inherited some land from my grandparents, I even bought more so I could do something in the years to come. My parents were dealing with cattle, I learned from them a lot, and I kept in mind the things I want to develop further"* (B.Zs.). It was not only the form of farming that was inherited in some cases, but also the accumulated experience and knowledge that young farmers began to learn from an early age, which was not difficult since agriculture had a significant role in their

everyday life. During the interview, I thought it was important to ask the subjects what motivated them to deal with agriculture. All four farmers started their own type of farming deliberately, and the love for this kind of activity inherited from their parents and grandparents. "*Well, you know, most of us deal with this, but I was always attracted to agriculture because I like the tractors for example, I like to do this, really, I like to be on the field*" (B.Sz.). I also asked the interviewees where the idea of the current agricultural activity came from. Some said that the idea came from other people, others said that it was their own idea. "*There is a pharmacist from Zagon, friend of my father, who said <Ernő, if you want to do something, start with this, because you can make a living out of that.> My father considered it, he went back and gave him a currant plant.* So we started doing this, and slowly we got so excited that now both we know what we have to do. Farmers agreed, without exception, that it was difficult to start, and even today they have difficulties in sustaining the business. At the point of starting all of the four farmers had a certain size of land, some of them inherited it from grandparents or even bought more. *"Well, nobody really helped me, I don't come from a wealthy family, but there were the lands which I inherited from my grandparents, this was quite a big help, I didn't have to buy that many lands that I imagined. Yes I inherited but we bought even more. If you want, you can do it, but you need time and money, too. I bought more land by myself, I traveled abroad, I worked in Germany quite a lot..."* (B.Zs.). Land was provided to the farmers, they only had to decide what to do with it. In three cases, parents played a strong role in helping young farmers, because they supported them. In two cases, young farmers continue to pursue a form of farming that was started by their parents. "*Actually my parents started it, I just took it over*" (B.Sz.). Out of the four farmers only one applied for grants and his proposal was rejected. The call for EU funds would significantly facilitate the work of the farmers, especially the amount of tender for young farmers. The tendering system is bureaucratic and difficult. The farmer from Cristu Secuiesc asked for the help of a tender writer in exchange of material benefits, but even so his tender was rejected. *"Yes, I completed the sub-measure 6.1 tender, 50 000 Euro start-up support for young farmers. Because the tender didn't meet up with certain formal requirements it couldn't be sent from Miercurea Ciuc to be evaluated. I hope to succeed, because without this it wouldn't make sense, you can make a living in agriculture, a lot of cows can support a family, in this system you cannot move forward without applications. As long as the corn costs 0.50 RON and the milk 1 RON it's not possible. We need to access some EU funds"* (H.F.). The farmer who grows walnuts doesn't even want to try to apply for funding, because he thinks that even if it were to be a successful application the accounting and checks would make things harder for him. *"I didn't apply, at this time I don't want to. There are no applications that would suit me. I don't think that I have a chance. For example the land certificate is not on my name, so this is the primary consideration that they take into account and I don't have it. I think that the accounting and the whole project management, and from the agricultural point of view it wouldn't be worth it. Not only the accounting, but the application writing system and then the supervisions..."* (O. Zs.). *"You have to pay attention who you ask to write the project, because it is important how the dossier is composed. I just came back from the Executive Agency, there were many applications, but 85% was rejected because the tender dossier was not correctly put together*" (B.Zs.). As a summary for this section I can draw the conclusion that neither of the farmers had an easy way to start their business, and even when they tried to make their business work they ran into difficulties. Among the starting conditions all the farmers had a certain size of land, the love for farming inherited from parents, grandparents and the prior knowledge and experience. Regarding the tendering procedure, which can significantly facilitate their work, they have negative opinions and experience, because it's hard to put together a tender dossier in such a way to be successful. In all cases the accounting and check of the winning applications to some extent impedes the farmer's work, it creates an unnecessary burden.

4.2. Gaining knowledge

In this chapter I summarize the answers related to the young farmers' knowledge gaining. Among other things, I was interested in the farmer's qualifications, where did they hear about the concept of innovative agriculture, whether they had any prior knowledge in this field, how did they get the knowledge needed to sustain their business, if they trained themselves professionally, if they took up any courses, if they contacted any person who is engaged in an activity that is similar to his own business for the purpose of obtaining information. The farmers' qualifications are not or only tangentially linked to agriculture. The two farmers from Cârța have 10 and 12 classes; the other two are college graduates, food engineering and public administration. During their training years, farmers did not acquire the knowledge which could have provided them with actual help in the pursuit of their agricultural activity because in this case they should have studied to be veterinarian or horticulturist. Therefore the information had to be obtained from somewhere else. The farmer who grows walnuts, for example, heard about the innovative farming in Hungary. *"First I heard about this topic at the Ministry of Agriculture in Hungary, and took part in a course organized by the Pro Agriculture foundation. I thought to become familiar with the ministry, the opportunities of tendering and Hungarian applications, beside this I meet farmers. I found this important because of exchange of experience"* (O.Zs.). Farmers gain a large part of their knowledge from specialized books in an autodidactic way, as there were no credible sources in the area from which they could be informed, they tried to acquire the necessary knowledge from outside the region, from places where these innovative agricultural forms worked well and have a history. "*When we started, first we read two books to find out what we have to do, even now we have five books*" (B.Sz.).

All four farmers have been exceptionally open to training. According to their opinion their current knowledge is not enough for development and expansion. Farmers have a thirst for learning, acquiring professional skills; their short-term goals include participation in various trainings. *"Of course I don't have the appropriate qualifications but I would like to enrol in the agricultural school if possible. In Dănești is going to start something, I don't know the date, an agricultural school, I would like to enrol, if possible. It helps a lot if someone studies something related to the domain in which he works, this way he has more experience"* (B.Sz.).

"I take part in all related courses. On the one hand, at these kinds of courses it is important to acquire knowledge and acquire as many new things as possible, ideas and plans" (O.Zs.). Courses are important not only for obtaining knowledge, but also from the point of view of building relationships. Farmers with similar interests sign in for different types of farmer courses, and this is a good time to get to know each other, which creates friendships or co-operations. The farmers' openness is also manifested in the way they make contact with the farmers who are pursuing similar activities and trying to gain more information and seek opportunities to move forward. All of the four farmers said that they would be happy to help, if someone asked them for information. *"Yes, there are many people who are pursuing similar activities; there are people who started before or after me with the help of my idea. There is a farmer in Odorheiu Secuiesc with who I keep in contact, he started before me. Even within the settlement many farmers started to plant walnut trees and contact me*" (O.Zs.). "*We live in a community where there are no small farmers, there are two or three larger farms around here and luckily there's a young guy who walks in the same shoe as I am, but he is a few years ahead, he completed the start-up support for young farmers and he applied for machines, so he does exactly what I want to do in a few years, I only ask him for help and he already knows the solution, he knows where he made a mistake, what he did right and I try to learn from him*" (H.F.). "*The pharmacist from Zagon wrote his doctoral thesis about this, if we were to get stuck he would help, it's not that difficult to grow*"(B. Sz.). On the basis of the interviews it can be concluded that they are open to receiving new information, and they make efforts to make their business work, they take courses and they establish new relationships. Most of the information they obtained themselves from specialist books and they were introduced to innovative forms of farming abroad. They are forced to do so because neither of the farmers' qualifications is closely related to agriculture.

5. CONCLUSION

The first aspect of my analysis was mapping the starting conditions. The emergence of agricultural innovations is a bottom-up process. This process was largely influenced by the love for farming, which was inherited from parents and grandparents who were engaged in traditional farming. In the life of farmers, an external effect can be discovered that has proved to be a turning point in the launch of farms. This usually requires access to information that has not been owned so far. In the case of the farmer from Cârța, for example, the discovery was that you can cultivate currant in such a way to bring income. All the four farmers had an economic capital that laid the foundation of their innovative business. The farmers obtained the land and agricultural machinery through inheritance, so they had an initial help. For all four businesses, family plays an important role, as they were supportive towards young farmers and in this sense, family members are a major resource. Start-up innovative farming would be greatly facilitated by the accessing EU funds, but only one of the four farmers was successful in this field. Farmers pointed at the bureaucratic nature and the non-transparency of the system. The launch of innovative farming is a serious challenge, problems arise from the beginning. However, the love of farming and the existing economic capital compensated for the difficulties. The second aspect presented by the present paper was the knowledge acquisition process of young farmers. Farmers don't have an agricultural education, so they have to obtain information and knowledge needed to run their business. Their learning process was organized and supervised by themselves. Studying abroad, as well as the access to information from books and the Internet, have contributed to get reach and obtain information. Their knowledge usually comes from a region where innovative forms of farming are already a good practice. Farmers are open to acquire further knowledge, they often engage with similar activities, training and exchanging experience. The innovative farmers build an invisible relationship system and they take full advantage of this. From the rural development perspective, the innovation process is a key pillar of the local economy. Studying the actors of the Szeklerland agriculture, including the knowledge of young farmers in the region, is an important area of research, as this is the social group that has the opportunity to reorganize, renew and revitalize the regional agricultural sector.

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CORRELATED EQUILIBRIUMS OF GAMES WITH POSSIBILITY PREFERENCE

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Abstract

In this paper we consider bimatrix game with fuzzy payoff. We define the concept of correlated equilibrium, if the preference relation is generated by the degree of possibility and we investigate the relation between this concept and the Nash equilibrium strategy concept defined by Maeda (2000). We also show the geometry of this relation.

Keywords: correlated equilibrium, Nash equilibrium, fuzzy game, fuzzy number, Degree of possibility.
Ams: 90C70, 91A05

1. Introduction

In many practical problems, the quantities can only be estimated. In case when the quantities are coefficients of the bimatrix games, they may be characterized with fuzzy numbers. In this paper we consider bimatrix games with fuzzy payoffs. For any pair of strategies, a player receives a payoff represented as a quasi-triangular fuzzy number. For example, when a payoff matrix of a game is constructed by information from a competitive system, elements of the payoff matrix would be ambiguous if imprecision or vagueness exists in the information. The research on fuzzy games has been developed by Aubin (1981) and Butnariu (1978). Recently new approaches have emerged for studying fuzzy bimatrix games (e.g. Bector and Chandra, 2005; Larbani, 2009; Yu and Larbani, 2009).

In game theory, a correlated equilibrium is a solution concept that is more general than the well-known Nash equilibrium. It was first discussed by Aumann (1974). The idea is that each player chooses his action according to his observation of the value of the same public signal. A strategy assigns an action to every possible observation a player can make. A joint distribution π is defined to be a correlated equilibrium if no player can ever expect to unilaterally gain by deviating from his recommendation, assuming the other players play according to their recommendations. The set of correlated equilibria is a convex polytope, described by finitely explicit linear inequalities (see for example Lo, 2002; Papadimitriou and Roughgarden, 2009; Stein et al, 2011; Forgó, 2011; Jiang and Leyton-Brown, 2013). One of the advantages of correlated equilibria is that they are computationally less expensive than are Nash equilibria. This can be captured by the fact that computing a correlated equilibrium only requires solving a linear program whereas solving a Nash equilibrium requires finding its fixed point completely (Goldberg and Papadimitriou, 2005). The geometry of correlated equilibriums and Nash-equilibriums was studied by Nau et al in 2003 and Stein et al in 2011.

Since the elements of payoff matrices are fuzzy numbers, the expected payoff of the game should be fuzzy-valued. There are no widely accepted concepts of equilibrium strategy. So, it is an important task to define the concepts of equilibrium strategies and investigate their properties.

In this paper, we define the concept of (α, β)-correlated equilibrium by using the concept of (α, β)–Nash equilibrium defined by Maeda in 2000, and we prove that the intersection of (α, β)-correlated equilibriums polytope with saddle of distributions independent between players is a subset of the (α, β)-Nash equilibriums set.

2. Correlated equilibrium

Let G denote a finite non-cooperative game, let n be the number of players. Each player $k \leq n$ has a finite set of strategies, S_k, with $|S_k| \geq 2$. The utility or payoff function of player k is a function u^k. The set

$$S = \prod_{k=1}^{n} S_k$$

is called the set of all joint strategy profiles, and $N = |S|$ denote the number of outcomes.

We shall denote by

$$S_{-k} = \prod_{q=1, q\neq k}^{n} S_q.$$

Let $u^k(s)$ be the payoff of player p when joint strategy s is played, and let $u^k(d_k, s_{-k})$ denote the payoff to player p when he chooses strategy $d_p \in S_p$.

The game G is non-trivial if there exist a player k with $s \in S$ and $d_k \in S_k$ such that $u^k(s) \neq u^k(d_k, s_{-k})$.

Definition 1. *A correlated equilibrium of G is a distribution p on S such that for all players k and all strategies $i, j \in S_k$ the following is true:*

Conditioned on the k-th component of strategy profile drawn from p being i, the expected utility for player k of playing i is no smaller than that of playing j, i.e.

$$\sum_{s\in S_{-k}} u_{is}^k \, p_{is} \geq \sum_{s\in S_{-k}} u_{js}^k \, p_{js}. \tag{1}$$

The condition that p is a joint distribution on S define an $N-1$ dimensional simplex, henceforth denoted as Π, consisting of all probability distributions on joint strategies. The set of all correlated equilibrium distributions determined by (1) is a convex polytope, henceforth denoted as C, which is a proper subset of Π, if the game is non-trivial. The polytope C is of full dimension if it has dimension $N-1$, same as Π.

The set I of all joint probability distribution that are independent between players is defined by a system of nonlinear constraints, i.e. I is the set of all joint distribution p on S for which there exists marginal probability distribution x_k on S_k such that $p = \prod_{k=1}^{n} x_k$.

In 2×2 game, Π is a 3-dimensional tetrahedron, I is a 2-dimensional saddle (see figure 2) and C is a 3-dimensional convex polytope (see figure 1). The set of Nash equilibrium is the intersection of C and I (see figure 2), which is nonenmpty by virtute of Nash's (1951) existence proof.

Theorem 1 [Nau et al., 2003]. *In any finite, non-trivial games, the Nash equilibriums are on the boundary of the correlated equilibrium polytope. If the polytope is of full dimension, the Nash equilibriums are on its relative boundary.*

(i) In any finite, non-trivial bimatrix game, if (u, v) *is a Nash equilibrium strategy, then the joint distribution* p*, where* $p_{ij} = u_i v_j$ *(*$i = \overline{1,m}, j = \overline{1,n}$*) is a correlated equilibrium.*

(ii) In any finite, non-trivial bimatrix game, if the joint distribution p *is correlated equilibrium and there exists a marginal distributions* (u, v) *such that* $p_{ij} = u_i v_j$ *(*$i = \overline{1,m}, j = \overline{1,n}$*), then* (u, v) *is Nash equilibrium strategy.*

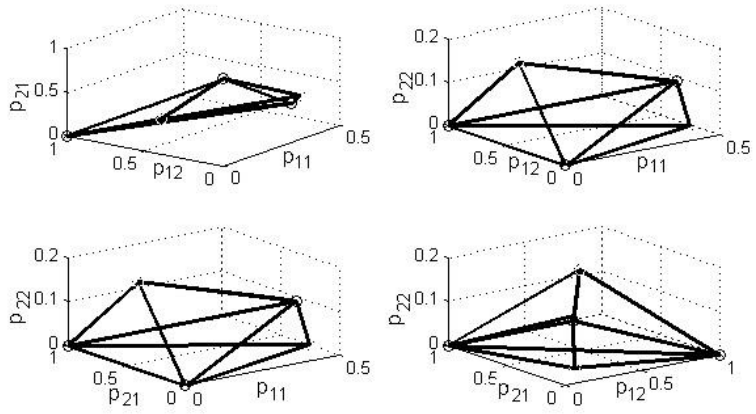

Figure 1: The polytope of correlated equilibriums in Example 1 in the different 3-dimensions reference frames.

Example 1. The chicken games has 2 players (think of them as very competitive drivers speeding from different streets to an intersection), each with two strategies: $S_1 = S_2 = \{Stop, Go\}$. The utilities, tabulated below, reflect the situation (in the format $u_1(s), u_2(s)$, where the strategies of player 1 are the rows and of player 2 the columns):

	Stop	*Go*
Stop	(6, 6)	(2, 7)
Go	(7, 2)	(0, 0)

The correlated equilibrium is a distribution

$$p = \begin{bmatrix} p_{11} & p_{12} \\ p_{21} & p_{22} \end{bmatrix}$$

satisfied the following inequalities:

$$\begin{cases} 6p_{11} + 2p_{12} \geq 7p_{11} + 0p_{12} \\ 7p_{21} + 0p_{22} \geq 6p_{21} + 2p_{22} \\ 6p_{11} + 2p_{21} \geq 7p_{11} + 0p_{21} \\ 7p_{12} + 0p_{22} \geq 6p_{12} + 2p_{22} \\ p_{11} + p_{12} + p_{21} + p_{22} = 1 \\ p_{ij} \geq 0,\ i,j = 1,2 \end{cases} \quad (2)$$

The following five distribution are correlated equilibriums in the chicken game

$$SG = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}, GS = \begin{bmatrix} 0 & 0 \\ 1 & 0 \end{bmatrix}, MNash = \begin{bmatrix} 4/9 & 2/9 \\ 2/9 & 1/9 \end{bmatrix}$$

$$p_1 = \begin{bmatrix} 2/4 & 1/4 \\ 1/4 & 0 \end{bmatrix},\ p_2 = \begin{bmatrix} 0 & 2/5 \\ 2/5 & 1/5 \end{bmatrix}$$

The first two are pure Nash equilibriums, the third is mixed Nash equilibrium. The fourth and fifth are only correlated equilibriums. The Figure 1 and Figure 2 show the geometry of this game.

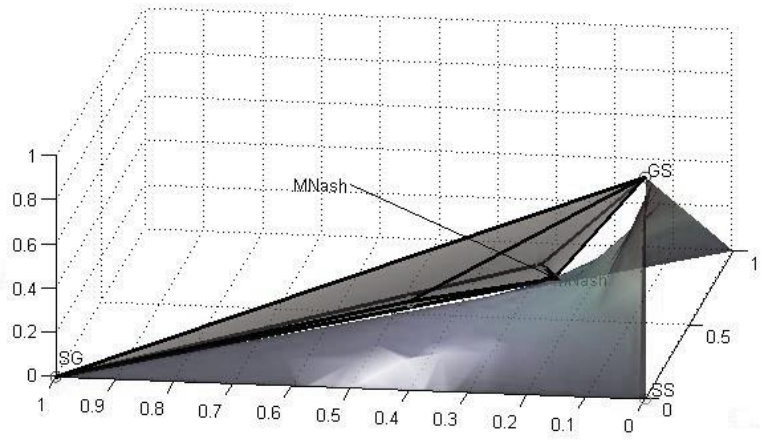

Figure 2: The geometry of the Example 1: the polytope is the simplex of correlated equilibriums (the set *C*); the saddle is the set of distributions independent between players (the set *I*); and the three intersection points (SG, GS, MNash) which are Nash equilibriums.

3 Fuzzy numbers

The fuzzy set concept was introduced in mathematics by Menger in 1942 and reintroduced in the system theory by Zadeh in 1965. Zadeh introduced this notion to measure quantitatively the vague of the linguistic variable.

Definition 2. *Let X be a set. A mapping $\mu: X \to [0,1]$ is called membership function, and the set $\bar{A} = \{(x, \mu(x)) : x \in X\}$ is called fuzzy set on X. The membership function of $\bar{A}$ is denoted by $\mu_{\bar{A}}$.*

The collection of all fuzzy subsets of X we will denote by $\mathcal{F}(X)$. We place a bar over a symbol if it represents a fuzzy set. If $\bar{A}$ is a fuzzy set of X, then $\mu_{\bar{A}}(x)$ represents the membership degree of x to $\bar{A}$.

The empty fuzzy set is denoted by $\bar{\emptyset}$, where $\mu_{\bar{\emptyset}}(x) = 0$ for all $x \in X$. The total fuzzy set is denoted by $\bar{X}$, where $\mu_{\bar{X}}(x) = 1$ for all $x \in X$.

Definition 3. *Let X be a topological space. The α −level of $\bar{A}$ is defined as*

$$\bar{A}^{\alpha} = \begin{cases} \{x \in X : \mu_{\bar{A}}(x) \geq \alpha\} & if \quad \alpha > 0, \\ cl(supp\bar{A}) & if \quad \alpha = 0. \end{cases}$$

where $cl(supp\bar{A})$ is closure of the support of $\bar{A}$.

A fuzzy set $\bar{A}$ on vector space X is convex, if all α -levels are convex subsets of X, and it is normal if $[\bar{A}]^1 \neq \emptyset$.

A convex, normal fuzzy set on the real line $\mathbb{R}$ with upper semicontinuous membership function will be called fuzzy number.

In order to use fuzzy sets and relations in any intelligent system we have to perform arithmetic operations. In fuzzy theory the extension of arithmetic operations to fuzzy sets was formulated by Zadeh in 1975.

Let $\bar{A}$ and $\bar{B}$ be two fuzzy numbers. Then the membership function of fuzzy set $\bar{A} * \bar{B} \in \mathcal{F}(\mathbb{R})$ is

$$\mu_{\bar{A}*\bar{B}}(z) = \sup_{x*y=z} \min \{\mu_{\bar{A}}(x), \mu_{\bar{B}}(y)\}, \tag{3}$$

for all $z \in \mathbb{R}$. If we replace "$*$" with operations ”$+$”, ”$-$”,”$\cdot$”, or ”$/$”, then we get the membership functions of sum, difference, product or fraction.

The fuzzy number can also be considered as possibility distributions (Zadeh, 1978). If $\bar{A}$ is a fuzzy number and x a real number, then $\mu_{\bar{A}}(x)$ can be interpreted as the degree of possibility of the statement ”x is in $\bar{A}$”, namely $Pos(\bar{A} = x) = \mu_{\bar{A}}(x)$ for all $x \in \mathbb{R}$.

Definition 4. *Let $\bar{A}$ and $\bar{B}$ be fuzzy numbers. The degree of possibility that the proposition ”$\bar{A}$ is less than or equal to $\bar{B}$” is true we denote by Pos$(\bar{A} \leq \bar{B})$ and we define by the extension principle of Zadeh as*

$$Pos(\bar{A} \leq \bar{B}) = \sup_{x \leq y} \min \{\mu_{\bar{A}}(x), \mu_{\bar{B}}(y)\}.$$

Let $p \in [1, +\infty]$ and $g: [0,1] \to [0, \infty]$ be a continuous, strictly decreasing function with the boundary properties $g(1) = 0$ and $\lim_{t \to 0} g\,(t) = g_0 \leq \infty$.

Definition 5 [Kovács, 1992]. *The set of quasi-triangular fuzzy numbers is*

$$\mathcal{N}_g = \{\bar{A} \in \mathcal{F}(\mathbb{R}) : \; there\ is\ a \in \mathbb{R}, d > 0\ such\ that \tag{4}$$

$$\mu_{\bar{A}}(x) = g^{[-1]}(|x - a|/d)\ for\ all\ x \in \mathbb{R}\} \cup$$

$$\{\bar{A} \in \mathcal{F}(\mathbb{R}) : \; there\ is\ a \in \mathbb{R}\ such\ that$$

$$\mu_{\bar{A}}(x) = \chi_{\{a\}}(x)\ for\ all\ x \in \mathbb{R}\},$$

where χ_A *is characteristic function of the set* A. *The elements of* $\mathcal{N}_g$ *will be called quasi-triangular fuzzy numbers generated by* g *with center* a *and spread* d *and we will denote them with* $\langle a, d\rangle$.

The quasi-triangular fuzzy numbers satisfy following properties (see for example Keresztfalvi and Kovács, 1992; Fullér, 1998; Makó, 2006).

Proposition 2. If $\langle a, d\rangle, \langle b, e\rangle, \langle a_i, d_i\rangle, \langle b_i, e_i\rangle \in \mathcal{N}_g$, $\alpha \in [0,1]$, $u \geq 0$ and $x_i, y_i \geq 0$ for all $i = 1, \ldots, n$ then

$$\langle a, d\rangle + \langle b, e\rangle = \langle a + b, d + e\rangle,$$

$$u \cdot \langle a, d\rangle = \langle ua, ud\rangle,$$

$$Pos(\langle a, d\rangle \leq \langle b, e\rangle) = \begin{cases} 1 & \text{if} \quad a \leq b, \\ g^{[-1]}\left(\dfrac{a-b}{d+e}\right) & \text{if} \quad a > b, \end{cases}$$

$$[\langle a, d\rangle]^{\alpha} = [a - dg(\alpha), a + dg(\alpha)],$$

$$Pos(\langle a, d\rangle \geq \langle b, e\rangle) \geq \alpha \;\Leftrightarrow a + dg(\alpha) \geq b - eg(\alpha), \tag{5}$$

$$Pos\left(\sum_{i=1}^{n} x_i \langle a_i, d_i\rangle \geq \sum_{i=1}^{n} y_i \langle b_i, e_i\rangle\right) \geq \alpha \;\Leftrightarrow$$
$$\sum_{i=1}^{n} x_i [a_i + g(\alpha) d_i] \geq \sum_{i=1}^{n} y_i [b_i - g(\alpha) e_i].$$

4 The bimatrix game with fuzzy payoff

In this section, we shall consider bimatrix games with fuzzy payoff. Let $S_1 = \{1,2, \ldots, m\}$ and $S_2 = \{1,2, \ldots, n\}$ the sets of all pure strategies of players 1 and 2. We denote the sets of all mixed strategies available for players

$$U = \left\{ (u_1, u_2, \ldots, u_m)^T \in \mathbb{R}^m : u_i \geq 0,\ i = 1, \ldots, m,\ \sum_{i=1}^{m} u_i = 1 \right\},$$

$$V = \left\{ (v_1, v_2, \ldots, v_n)^T \in \mathbb{R}^n : v_j \geq 0,\ j = 1, \ldots, n,\ \sum_{j=1}^{n} v_j = 1 \right\}.$$

By $\bar{a}_{ij} = \langle a_{ij}, d_{ij} \rangle$ and $\bar{b}_{ij} = \langle b_{ij}, e_{ij} \rangle$ we denote the payoffs that player 1 and player 2 receive when player 1 plays the pure strategy i and player 2 plays the pure strategy j. We call this game a fuzzy bimatrix game and we denote by $F = \langle S_1 \times S_2, \bar{A}, \bar{B} \rangle$ where

$$\bar{A} = \left[\bar{a}_{ij}\right]_{\substack{i=1,\ldots,m \\ j=1,\ldots,n}} \text{ and } \bar{B} = \left[\bar{b}_{ij}\right]_{\substack{i=1,\ldots,m \\ j=1,\ldots,n}}$$

are the player's payoff matrices.

Since the elements of payoff matrices are fuzzy numbers, the expected payoff of the game should be fuzzy-value. There are not concept of equilibrium strategy to be accepted widely. So, it is an important task to define the concepts of equilibrium strategies and investigate their properties. In this paper, we consider the the concept of (α, β)– Nash equilibrium defined by Maeda in 2000.

Definition 6 [Maeda, 2000]. *Let* $\alpha, \beta \in [0,1]$ *be any real numbers. A point* $(u^*, v^*) \in U \times V$ *is said to be an* (α, β)*– Nash equilibrium strategy if and only if*

$$Pos(u^{*T} \bar{A} v^* \geq u^T \bar{A} v^*) \geq \alpha \quad for\ all\ u \in U,$$
$$Pos(u^{*T} \bar{B} v^* \geq u^{*T} \bar{B} v) \geq \beta \quad for\ all\ v \in V.$$

Proposition 3 [Maeda, 2000]. *Let* $\alpha, \beta \in [0,1]$ *be any real numbers. A point* $(u^*, v^*) \in U \times V$ *is an* (α, β)*– Nash equilibrium strategy if and only if*

$$u^{*T} A_R^{\alpha} v^* \geq u^T A_L^{\alpha} v^* \ and\ u^{*T} B_R^{\beta} v^* \geq u^{*T} B_L^{\beta} v$$

for all $u \in U$ *and* $v \in V$, *where*

$$A_L^{\alpha} = \left[a_{ij} - d_{ij} g(\alpha)\right]_{\substack{i=1,\ldots,m, \\ j=1,\ldots,n}} \quad A_R^{\alpha} = \left[a_{ij} + d_{ij} g(\alpha)\right]_{\substack{i=1,\ldots,m \\ j=1,\ldots,n}}$$
$$B_L^{\alpha} = \left[b_{ij} - e_{ij} g(\alpha)\right]_{\substack{i=1,\ldots,m, \\ j=1,\ldots,n}} \quad B_R^{\alpha} = \left[b_{ij} + e_{ij} g(\alpha)\right]_{\substack{i=1,\ldots,m. \\ j=1,\ldots,n}}$$

We introduce the concept of (α, β)– correlated equilibrium strategy in the similar way.

Definition 7. *Let* $\alpha, \beta \in [0,1]$ *be any real numbers. A joint distribution* p *on* $S_1 \times S_2$ *said to be an* (α, β)*– correlated equilibrium strategy if and only if for all* $i \in \{1,2,\ldots,m\}$ *and* $j \in \{1,2,\ldots,n\}$ *we have*

$$Pos\left(\sum_{j=1}^{n} \bar{a}_{ij}\, p_{ij} \geq \sum_{j=1}^{n} \bar{a}_{kj}\, p_{ij} \right) \geq \alpha \quad for\ all\ k \in \{1,2,\ldots,m\},$$

$$Pos\left(\sum_{i=1}^{m}\bar{b}_{ij}\,p_{ij}\geq\sum_{i=1}^{m}\bar{b}_{il}\,p_{ij}\right)\geq\beta\quad for\ all\ l\in\{1,2,\dots,n\}.$$

From the properties of quasi-triangular fuzzy numbers (Proposition 2) follows.

Proposition 4. *Let $\alpha,\beta\in[0,1]$ be any real numbers. A joint distribution p on $S_1\times S_2$ is an (α,β)– correlated equilibrium strategy if and only if for all $i\in\{1,2,\dots,m\}$ and $j\in\{1,2,\dots,n\}$ we have*

$$\sum_{j=1}^{n}\left(a_{ij}+g(\alpha)d_{ij}\right)p_{ij}\geq\sum_{j=1}^{n}\left(a_{kj}-g(\alpha)d_{kj}\right)p_{ij}\quad for\ all\ k\in\{1,2,\dots,m\},$$
$$\sum_{i=1}^{m}\left(b_{ij}+g(\beta)e_{ij}\right)p_{ij}\geq\sum_{i=1}^{m}\left(b_{il}-g(\beta)e_{il}\right)p_{ij}\quad for\ all\ l\in\{1,2,\dots,n\}.$$

Proposition 5. *Let $\alpha,\beta\in[0,1]$ be any real numbers. A point $(u^*,v^*)\in U\times V$ is an (α,β)– Nash equilibrium strategy if and only if there exits r^* and t^* real numbers such that (u^*,v^*,r^*,t^*) is a solution of the following system of inequalities*

$$\begin{cases} u\in U,\\ v\in V,\\ A_L^{\alpha}v\leq r1^m,\\ u^TB_L^{\beta}\leq t1^n,\\ u^TA_R^{\alpha}v=r,\\ u^TB_R^{\beta}v=t. \end{cases}\tag{6}$$

Proof. Let (u^*,v^*,r^*,t^*) be a solution of the system (6). Then $A_L^{\alpha}v^*\leq r^*1^m$ and $u^{*T}B_L^{\beta}\leq t^*1^n$ From where it follows that $u^TA_L^{\alpha}v^*\leq u^Tr^*1^m=r^*=u^{*T}A_R^{\alpha}v^*$ and $u^{*T}B_L^{\beta}v\leq t^*1^nv=t^*=u^{*T}B_R^{\beta}v^*$ for all $u\in U$ and $v\in V$.

If (u^*,v^*) is an (α,β)– Nash equilibrium strategy then $u^TA_L^{\alpha}v^*\leq u^{*T}A_R^{\alpha}v^*$ and $u^{*T}B_L^{\beta}v\leq u^{*T}B_R^{\beta}v^*$ for all $u\in U$ and $v\in V$. Let $r^*=u^{*T}A_R^{\alpha}v^*$ and $t^*=u^{*T}B_R^{\beta}v^*$.

If $u=(0,\dots0,1_{i^{th}},0,\dots0_{m^{th}})^T$ and $v=\left(0,\dots0,1_{j^{th}},0,\dots0_{n^{th}}\right)^T$ $(i=\overline{1,m},\ j=\overline{1,n})$, then we obtain that $A_L^{\alpha}v^*\leq r^*1^m$ and $u^{*T}B_L^{\beta}\leq t^*1^n$.

Theorem 6. *Let $\alpha,\beta\in[0,1]$ be any real numbers. If the joint distribution p is an (α,β) – correlated equilibrium and there exists a marginal distributions $(u^*,v^*)\in U\times V$ such that $p_{ij}^*=u_i^*v_j^*$ $(i=\overline{1,m},\ j=\overline{1,n})$, then (u^*,v^*) is an (α,β) – Nash equilibrium strategy of the game F.*

Proof. We denote by $r^*=u^{*T}A_R^{\alpha}v^*$ and $t^*=u^{*T}B_R^{\beta}v^*$. Then the i^{th} element of $A_R^{\alpha}v^*$ is

$$\sum_{j=1}^{n}\left(a_{ij}+g(\alpha)d_{ij}\right)v_j^*,$$

and the j^{th} element of $x^{*T}B_R^{\beta}$ is

$$\sum_{i=1}^{m}\left(b_{ij}+g(\beta)e_{ij}\right)u_i^*.$$

By multiplying the above expression with u_i^* and v_j^*, respectively, we obtain

$$\sum_{j=1}^{n}\left(a_{ij}+g(\alpha)d_{ij}\right)v_j^*u_i^*=\sum_{j=1}^{n}\left(a_{ij}+g(\alpha)d_{ij}\right)p_{ij}^*,$$

and

$$\sum_{i=1}^{m}\left(b_{ij}+g(\beta)e_{ij}\right)u_i^*v_j^*=\sum_{i=1}^{m}\left(b_{ij}+g(\beta)e_{ij}\right)p_{ij}^*.$$

Since p^* is correlated equilibrium, we have

$$\sum_{j=1}^{n}\left(a_{ij}+g(\alpha)d_{ij}\right)u_i^*v_j^*\geq\sum_{j=1}^{n}\left(a_{kj}-g(\alpha)d_{kj}\right)u_i^*v_j^*\quad\text{for all } k\in\{1,2,\ldots,m\},$$
$$\sum_{i=1}^{m}\left(b_{ij}+g(\beta)e_{ij}\right)u_i^*v_j^*\geq\sum_{i=1}^{m}\left(b_{il}+g(\beta)e_{il}\right)u_i^*v_j^*\quad\text{for all } l\in\{1,2,\ldots,n\}.$$

From where it follows

$$r^*=\sum_{i=1}^{m}\sum_{j=1}^{n}\left(a_{ij}+g(\alpha)d_{ij}\right)u_i^*v_j^*\geq\sum_{i=1}^{m}\sum_{j=1}^{n}\left(a_{kj}-g(\alpha)d_{kj}\right)v_j^*u_i^*$$
$$=\sum_{j=1}^{n}\left(a_{kj}-g(\alpha)d_{kj}\right)v_j^*\ \text{for all } k\in\{1,2,\ldots,m\}.$$

In the similar way we can obtain

$$t^*\geq\sum_{i=1}^{m}\left(b_{il}-g(\beta)e_{il}\right)u_i^*\ \text{for all } l\in\{1,2,\ldots,n\}.$$

Hence, we receive that (u^*,v^*,r^*,t^*) is a solution of system (6). Therefore (u^*,v^*) is an (α,β) – Nash equilibrium strategy of the game F.

Example 2. We consider the chicken game with the following fuzzy payoff matrix

	Stop	*Go*
Stop	⟨6,0.5⟩, ⟨6,0.2⟩	⟨2,0.3⟩, ⟨7,0.3⟩
Go	⟨7,0.3⟩, ⟨2,0.1⟩	⟨0,0.2⟩, ⟨0,0.1⟩

The (α, β)- correlated equilibrium is a distribution

$$p = \begin{bmatrix} p_{11} & p_{12} \\ p_{21} & p_{22} \end{bmatrix}$$

satisfying the following inequalities:

$$\begin{cases} Pos(\langle 6,0.5\rangle p_{11} + \langle 2,0.3\rangle p_{12} \geq \langle 7,0.5\rangle p_{11} + \langle 0,0.2\rangle p_{12}) \geq \alpha \\ Pos(\langle 7,0.5\rangle p_{21} + \langle 0,0.2\rangle p_{22} \geq \langle 6,0.5\rangle p_{21} + \langle 2,0.3\rangle p_{22}) \geq \alpha \\ Pos(\langle 6,0.2\rangle p_{11} + \langle 2,0.1\rangle p_{21} \geq \langle 7,0.3\rangle p_{11} + \langle 0,0.1\rangle p_{21}) \geq \beta \\ Pos(\langle 7,0.3\rangle p_{12} + \langle 0,0.1\rangle p_{22} \geq \langle 6,0.2\rangle p_{12} + \langle 2,0.1\rangle p_{22}) \geq \beta \\ p_{11} + p_{12} + p_{21} + p_{22} = 1 \\ p_{i,j} \geq 0,\ i,j = 1,2. \end{cases}$$

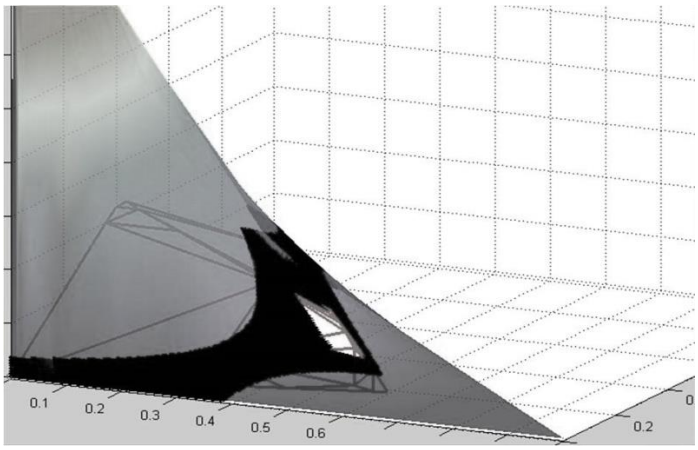

Figure 3: The geometry of the Example 2: the (α=0.8, β=0.8)-correlated equilibrium polytope; the (α=0.8,β=0.8)-Nash-equilibriums is colored by black; the sadle of distributions independent between players (the set *I*) is colored by gray; the intersection of the surface *I* with the correlated equilibrium polytope is colored by white.

This is equivalent to the following system of inequalities

$$\begin{cases} [6 + 0.5g(\alpha)]p_{11} + [2 + 0.3g(\alpha)]p_{12} \geq [7 - 0.5g(\alpha)]p_{11} + [0 - 0.2]p_{12} \\ [7 + 0.5g(\alpha)]p_{21} + [0 + 0.2g(\alpha)]p_{22} \geq [6 - 0.5g(\alpha)]p_{21} + [2 - 0.3g(\alpha)]p_{22} \\ [6 + 0.2g(\beta)]p_{11} + [2 + 0.1g(\beta)]p_{21} \geq [7 - 0.3g(\beta)]p_{11} + [0 - 0.1g(\beta)]p_{21} \\ [7 + 0.3g(\beta)]p_{12} + [0 + 0.1g(\beta)]p_{22} \geq [6 - 0.2g(\beta)]p_{12} + [2 - 0.1g(\beta)]p_{22} \\ p_{11} + p_{12} + p_{21} + p_{22} = 1 \\ p_{i,j} \geq 0,\ i,j = 1,2. \end{cases}$$

This system is a parametrized relaxation form of the system (2). In the Figure 3 we show the geometry of $(\boldsymbol{\alpha}, \boldsymbol{\beta})$-correlated equilibriums and $(\boldsymbol{\alpha}, \boldsymbol{\beta})$-Nash equilibriums of Example 2. We drew by color black the set of $(\boldsymbol{\alpha}, \boldsymbol{\beta})$-Nash equilibriums, by color gray the saddle of distributions independent between players (the set $\boldsymbol{I}$) and by color white the intersection of the polytope of $(\boldsymbol{\alpha}, \boldsymbol{\beta})$-correlated equilibriums with saddle $\boldsymbol{I}$. We can observe that this set is a subset of $(\boldsymbol{\alpha}, \boldsymbol{\beta})$-Nash equilibriums set.

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DUAL TRAINING FROM THE STUDENT PERSPECTIVE

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Abstract

The new form of higher education is dual training, which was launched at Kaposvár University, as BSc training in September 2015. The aim of our research is to get acquainted with the experiences and opinions of students participating in this training. Based on their choice of this form of training, our examination also covers how they have been able to participate on the labour market and what tasks they are given, how they can reconcile education and practice, learning and working at the same time. Is there any difficulty in integration, how satisfied they are with the chosen workplace, and whether they consider it a potential job?
The primary research method is a focus group interview with the participants in this training. Our expected results are indicative to help identify potential weaknesses and possibilitities offered by this training programme. Similarly to traditional practices, it is also necessary to harmonize training and practice. By using effective marketing, this form of training can also be a competitive advantage in higher education.

Key words : higher education, practice, experience, labour market

1. INTRODUCTION

The prerequisite for preserving European and Hungarian economic competitiveness is the condition that education should be able to meet the needs of professionals in such a way that the purpose and potential of education should meet the economic expectations. This challenge also affects higher education. Labour market expectations should also be met by higher education institutions, which will lead to the introduction of the dual training system.
Dual training is a new direction in higher education, it provides students with the opportunity to gain experience, practice in the world of work, and develop their labour market and professional competencies and corporate socialization in parallel with their theoretical knowledge and experience. A graduate student can thus enter workforce as an experienced employee. Dual training is an alternative form of education in the higher education system that is beneficial to all members of society concerned (Duális Képzés Tanács [Dual Training Council], 2015).
The strategic target system for dual training can be seen in Figure 1 below. In the target system of the training, they appreciate the practical skills, provide the labour supply, in cooperation with the corporate sector, emphasize the quality of the training and presuppose flexibility on both sides. This form of training is more flexible, and can possibly reduce labour migration by meeting local needs (Kovács, 2017).

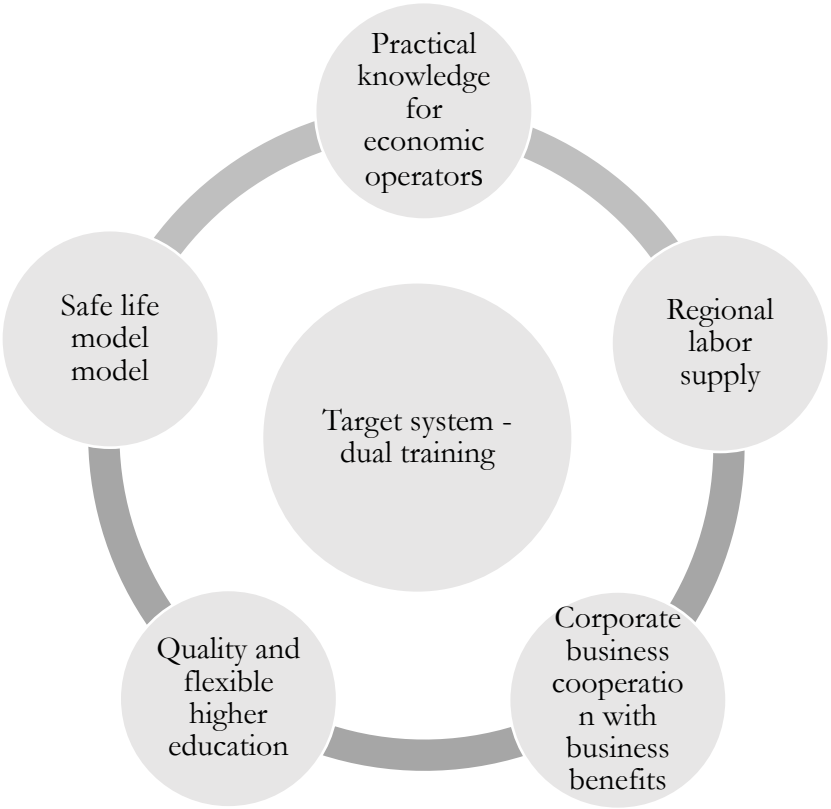

Figure 1: A dual training Strategic Objectives

Source: Kovács, 2017. 4. p. based on own editing

Higher education has become the main driving force of economic competitiveness, supported by policy research (OECD, 2008). Nowadays, the transformation of higher education into 3GU (Third Generation University) continues, as Deés (2011) defined it as a "sustainable entrepreneurship university". The use of knowledge is an opportunity for entrepreneurship as well as teaching and research work. Industry, corporate players, R & D institutions, financiers and affiliates all work together in a spiral of knowledge.
The third mission of the universities is to open up to society. While they used to live in isolation in their ivory towers, their function widened, they want to influence their environment as a control tower. Their role becomes more complex functioning as lighthouses by radiating their core values (Hrubos, 2012).
Many researchers have argued that the task of teaching is not just to acquire more knowledge, but to develop self-reliance as a skill, and to provide quick instruction between information (Herneczky and Marselek, 2009), for which practical trainings provide a good opportunity. A special form of training has also spread in Hungary since 2014, dual training.
Expectations concerning dual training according to Török (2017):
For the society it offers a flexible, quality, relatively short (3-4 years) training meeting local needs at local level, reducing labour migration. From the educational side, it strives to harmonize academic knowledge and practical knowledge. As far as industry is concerned, it offers competitive workforce, professional experience, "soft skills" as a communication skill, negotiation technique, foreign language knowledge, presentation technology, group work.
The essence of this form of training is that it is based on cooperation between higher education and economic operators. It is a special, practice-oriented form of education where students are already experiencing the world of work during their university years. They can become part of different workflows; spend more time acquiring professional competencies. Their theoretical training is at the higher education institution, and their practical training is at the cooperating company or institution. They receive full-time payment during their training based on student contract (Lengyeltóti and Szekeres, 2017).

The legal framework is regulated by the Act on National Higher Education, CCIV 2011 (Act XXXVI of 2014), which was incorporated in 2014 by the Act on Article 40 (1) of the Act. The numbering has been amended by Section 37 (1) of Act CCVI of 2015). It can be observed that the practical training is gaining ground compared to education during the time of training and it makes organizations be interested in participating in it, to the expense of vocational training.

One of the biggest advantages of dual training is that the participants get a lot more experience than their traditional counterparts. They have a bigger job market chance after finishing it, but it's a challenge for them, but in return they are guaranteed an attractive job offer. Businesses benefit from the fact that, after completing the training, there is a qualified workforce coming from higher education who can enter the world of work immediately. They do not have to train fresh graduates, saving time and money (Lengyeltóti and Szekeres, 2017) in the spirit of sustainability.

Why is this training good for companies? Because they aim to shape their future employees even before they graduate, according to their own needs. As they provide professional training for their students, young people get acquainted with corporate culture, tasks and jobs, so when they are recruited as a fresh graduate student, there will be no need for expensive further training and they will not lose their time with integration. The institution has the advantage of being able to provide more marketable skills, thus increasing their graduation to a successful career. In addition, the leadership of the university is constantly in touch with the dual partner companies who also give feedback on the curriculum and also suggestions for the development of knowledge provided. Cooperation in dual training deepens relationships between companies and institutions, which can also be fruitful in R & D and innovation (dualisdploma.hu).

A recent research also underpins the fact that the third mission of higher education has a major impact on education and research, and that is why it is necessary to renew the structure, content and methods of training, to reinforce dual training, transdisciplinarity (Inzelt, 2018).

Students enrolled in a dual traning system have better learning performance, based on a pilot study, they achieve a higher credit index, more credits, fewer drop-outs, and they are more motivated than their traditional counterparts. The author also found that institutions and business organizations cooperate, but the implementation of coordinated, quality education is hampered (Berényi and Kraiciné, 2017).

There is a growing tendency for young people who are practically well-trained for the profession, and some industrial companies are spontaneously involved in training in order to have professionals who meet their needs and to immediately become fully-trained engineers. Our training can be seen on Figure 2.

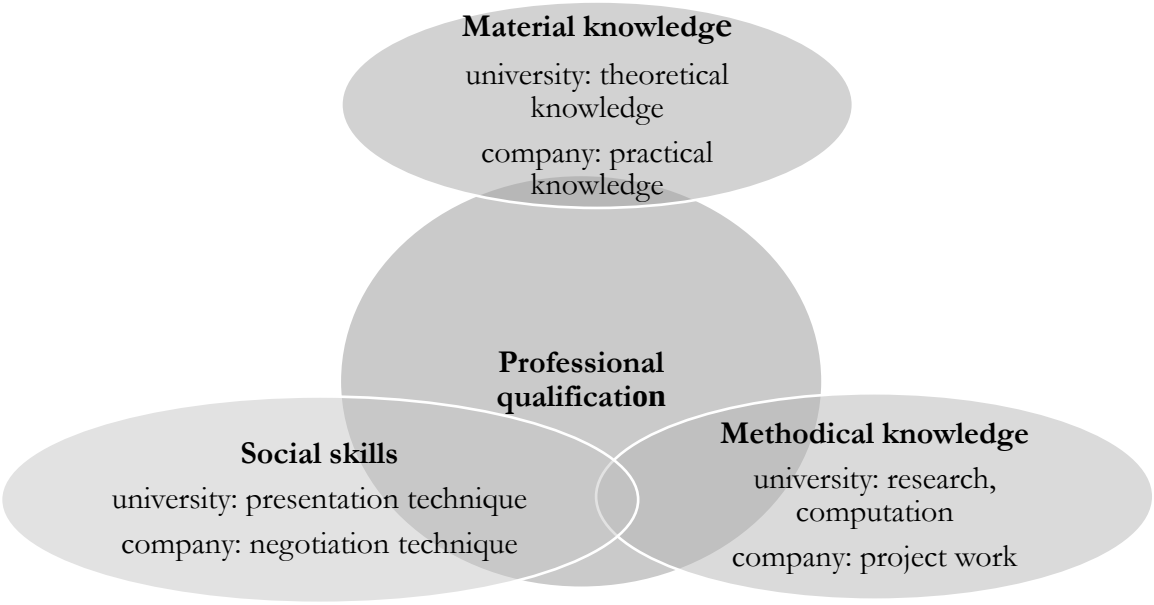

Figure 2: Distribution of educational functions of the dual training between partners

Source: Belina, based on his own editing in 2017

The training is shared between the university / college and the companies, as they are much better able to train practitioners who practice the theory day-to-day (Figure 2).
In dual training, students can learn the most up-to-date technologies in real life, requiring commitment, adequate human resources and infrastructure from the corporate side (Belina, 2017).
Dale A. Martin, CEO of Siemens in Hungary believes that the key components of future education are: global thinking, complexity and flexibility. They strive for high-level dual education to acquire competitive knowledge, qualifications and language proficiency, and provide them with a sure future for them (Temesvári, 2017).
Dual training is beneficial for all actors. It increases the reputation of the business organization and provides the company with the opportunity to train people for the company to meet its own needs. On the institutional side, it can mean a rise in popularity and student numbers, while the workforce gains from the work experience of the students (Berényi and Kraiciné Szokoly, 2017).
There is an increasing interest in dual studies. However, many studies highlight significant challenges. The shortcomings of the system can be observed at the Helmut Schmidt University in Hamburg, mainly as regards training in companies, as well as cooperation with higher education institutions and companies. A quarter of the students would not pursue dual studies again, mainly because of the negative experiences gained in the business. Another 11%, though, would choose this form again but would not go to the company where they currently work. "The point is, 37% are dissatisfied," Hesser summarized the results of online questionnaire surveys (Hesser, 2018).
The above mentioned reasons motivated us to examine our newly introduced dual training at our university.

2. MATERIAL AND METHOD

Both primary and secondary research methods for collecting information were used. As a secondary research, we have studied relevant literature in the subject, analysing journals and web resources.

Using qualitative research method as a primary research we conducted a focus group interview with the students of Kaposvár University, Faculty of Economics in April 2018. The interview was recorded on a voice recorder and analysed by question groups. Our goal is to get acquainted with the students' expectations and experiences and thus explore opportunities to increase the efficiency of the training provided.
Given the fact that they chose this form of training, our study also covers how well they fitted in the world of work, the tasks they were given to reconcile the teaching and practice - the simultaneous pursuit - studying and working. Are there any difficulties in integration, how satisfied they are with the chosen workplace, and whether they consider it a potential job.
The qualitative research method is a guiding, good basis for carrying out quantitative studies in the future.

3. RESULTS

Our results are presented on the basis of the interview questions, which are:

- The motivation to choose the form of training,
- Work,
- Coordination of education and practice,
- Project tasks,
- Their satisfaction,
- SWOT table creation.

In order to focus on the subject, we have been tempted to think about what they associate with the term "dual training". Based on their responses we made a word cloud (Figure 3).
The figure shows that most of them mentioned *experience*, *super*, *cool*, but lots of them said *money*, *work*, and *opportunity*. It is important to look at their point of view of their overall impression of this new form of training.

Figure 3: Association for dual training

We were interested in their motivation for choosing a dual education programme when applying for admission to higher education. Many responded that they could finance their university studies and become self-sustaining, so the financial benefits they receive are decisive factors for them. Those who had been recruited for cost reimbursement and wanted to move to a state-funded training form thought that

this would be a competitive advantage and they rewarded it with an extra point. There was one person who said "I love the challenge, and I feel good to be part of something new, in a new form of training".
We were also interested in students' opinion regarding their decision, whether they think it is a benefit or a disadvantage to be a dual student? They treated it as a clear advantage, but they considered it a disadvantage in the exam period.
Based on their judgment, advantages are:

- gaining experience ,
- money earning opportunity,
- looks well in your resume, reference,
- potential job.

Their disadvantage is that:

- constancy,
- less leisure time,
- greater burden,
- stressful.

We were also interested in their choice of the place of their practice. In the framework of a card collation they could choose what the influencing factor was and what was beyond. On a blank card, they had the opportunity to write new factors besides the listed ones, and then rank them. Factors on cards were: Be on the spot or nearby - corporation - institution - foreign language skills required - trading company - friendship - SME. The most important aspect of choosing a corporate site is its proximity, preferably local. The nature of the company's communication was also important for them, whether they received an answer to their application or not, how much time did it take for the company to respond, and how they felt during the admission conversation, how seriously they were taken. Whether the target place is a company or institution depends on the major of the student. With regard to the Faculty of Economic Science in Kaposvár University, the respondents belong to three majors: Agricultural and Rural Development Agribusiness BSc, Finance and Accounting BA, and Sales and Marketing students. Foreign language use was not a factor influencing them.
Our interest was also directed at the nature of the students' work. What kind of tasks they received, whether they did independent work, are they encouraged, do they receive an invitation for meetings, events, and how they judge the mentoring program.
Their work-related responses vary by practice. As the two practical stages are not of the same duration, 8 weeks in the first semester and 12 weeks in the second semester, they find that they are getting more serious tasks after the second semester because they have already acquired some skills, and there is a longer time available for independent work. There is also a case where the student was trusted and had to do the same work as those who work there, but it also happens that they are only doing auxiliary work at a company stage, sorting, scanning, etc.
They are usually invited to meetings and conferences from the 3rd semester. They are invited to community events, but they do not always attend.
The effectiveness of mentoring shows a very variable picture. Companies usually count on students' work, and students are given different tasks to complete. There is also a positive example that a student managed to complete the task fully which was entrusted to hime and ever since he has been given that task and this gives a feeling of honour and pride. They feel that most of them were accepted by the workplace collective.
Our questions on education included how to reconcile education and practice? Is this a problem, how teachers relate to this? According to them, it was difficult to reconcile first, but they have already got used to it. They have a greater burden, but they have been forced to deal better with time. The exam period is difficult but generally flexible for these companies, and university instructors also offer an extra opportunity upon request.
The project tasks that they have to make every semester are still worrying. They suggest that they have greater choice and that consultation between the corporate and university mentors requires further

communication. Respondents also mentioned that they could imagine merging theory and the practice they are doing and develop it as part of their thesis, which would be even more efficient.
According to their opinion, they are better students than their non-dual-educated counterparts, as shown in Table 1.

Table 1

Comparison of study results on KE GTK

Degree, grade	**cumulative average is dual**	**cumulative average is not dual**
Finance and Accounting BA, 1st year.	4.46	3.45
Finance and Accounting BA, II. Vol.	4.48	3.63
Finance and Accounting BA, III. Vol.	3.97	3.76
Agricultural Economics and Rural Development BSc, II. Vol.	3.92	3.39
Agricultural Economics and Rural Development BSc, III. Vol.	3.81	3.54
Commerce and Marketing BA, III.Vol.	4.08	3.32

Better learning outcomes may also result from being more motivated and possibly having a higher score in the institution, but this is just an assumption, we have not confirmed it.
They are also more interested in participating in the ERASMUS Mobility Program. Two thirds of them have a language exam; the others in year 2 and 3 are also aiming for it.
We were also curious about the student's satisfaction. We were interested to what extent did this training program meet their expectations, the place of choice and whether they consider it as a potential job - and will they accept it if they get a job offer.
Many said that their expectations had been exceeded. At the beginning of this form of training, there was still little information available for the current 3rd year students due to the novelty of the training since it was first introduced in 2015.
Regarding the potential job offer they provided different answers. There are students who are satisfied, but feel that they would like to move on. There are some other students who might consider accepting a job offer depending on the type of job or the position they are offered, so they would accept only an offer that is suitable and matches their qualifications. They are becoming more and more conscious labourforce.
Finally, we prepared a SWOT analysis (Figure 4).

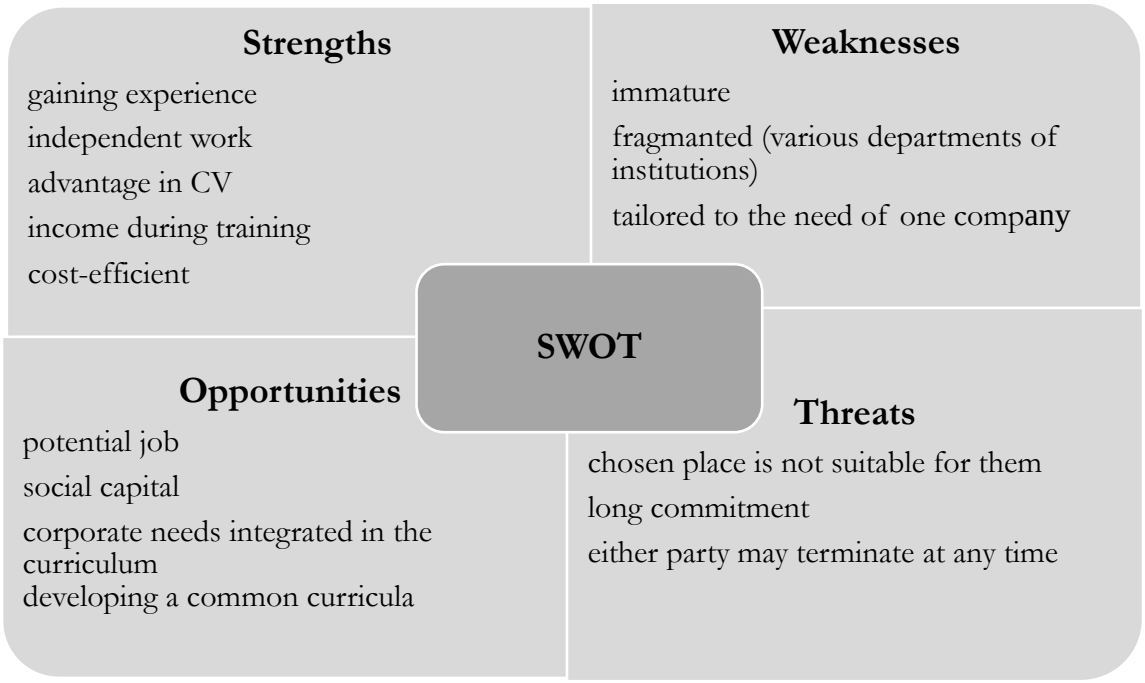

Figure 4: SWOT table in the dual training

Finally, we asked the students if they would choose this training again. Their answer was a definite yes, which is a proof of being considered a good opportunity.

4. CONCLUSIONS, RECOMMENDATIONS

Secondary research has clearly shown the necessity of dual training and the importance of training on the BSc level. The dual form of training has largely contributed to meeting the labor market expectations.
Based on our results, students enrolled in dual training are more motivated and have a better performance, which increases their chances of finding a job, similarly to earlier research (Berényi and Kraiciné Szokoly, 2017).
Dual work experience means a potential job opportunity, but based on our survey there is no guarantee that the student will not move on. As consumers of today are becoming more and more conscious, our students are more and more conscious workers as well.
The satisfaction of the students is reflected in the fact that they would choose this form of training again. Students' asnwers suggest increasing the efficiency of communication between the corporate and the university. There is a need for back-to-back links to approach the parties' expectations and experiences. There is a need for closer co-operation between mentors, mutual co-ordination of project tasks. Forums and the involvement of a hands-on party in higher education training and research can increase the chances of increasing co-operation to a higher level. It is desirable to incorporate the enterprise needs and suggestions into the curriculum and to jointly carry out curriculum development. We recommend the training of professional trainers and trainers.
This form of training can be good for satisfying the local needs of graduates.
Similarly to traditional practices, training and practice must be established in the same way. By using effective marketing, this form of training can also be a competitive advantage in higher education.
The methodology chosen for our research gave us guiding results. It pointed out the areas to be improved, based on student opinions. It serves as a good basis for continuing research, examining the opinions of the other side, the companies operating as place of practice, and the experiences of the co- foundations in order to make it more effective.

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THE ROLE OF THE LOCAL GOVERNMENTS' TAX POLICY IN THE LOCATION CHOICE OF SMES[11]

Zoltán András Dániel - Gábor Molnár - Szilvia Zaránd

Abstract

There is an increasingly important trend in the life of settlements to exploit various development opportunities, and the most promising development tool appears to be companies and local businesses, therefore the local government supports their establishment and operation through various subsidies and benefits.
In the scientific literature there is a difference in the number of publications connected to urban and rural areas. Regarding the latter, the number of scientific works is negligible, therefore we believe that the present study is reliable and our results can be used at any level to contribute to the development of the local economy.
In the literature review the concept of local economic development is described along with the system of local governments, their developments and tax systems. In our work we are examining whether there is a more active economy in those settlements, where the local government provides tax relief or benefits from its own resources.
During the analysis, 72 settlements of the "Balaton Kiemelt Üdülőkörzet" region were examined. All of them are located in Veszprém County.
Quantitative and qualitative methods were applied during the analysis, for which the data are publicly available in the KSH and TEIR databases. As a primary research, we conducted structured interviews with town leaders to explore good and bad practice examples.
Based on the results it can be concluded that is essential for the local governments, irrespectively of their size or their tight financial resources, to support local economic organizations in order to develop local economy. Our research has shown that the existence of various benefits for businesses has a positive impact on the operation of local businesses and has a role in the process of location choice.

Key words: *local economic development, local government, business organisation, tax relief, choice of location*

1. INTRODUCTION

Local economic development is becoming more and more important for both local governments and business organizations. Although the methods and instruments found in the Hungarian and international literature offer many opportunities to promote the development of local areas, however, their simple methodological adaptation, without taking into account the specific needs of the settlement and region, does not guarantee success. In Hungary, the use of development opportunities in the life of settlements is becoming more and more accelerating, because creating a beneficial context for the local companies are the most promising tool for local businesses, which highly influences the development of the given settlement.
Our paper examined the extent of local business tax (later HIPA) levied by local governments and the tax revenues related to the tax, within the Veszprém county, for the enterprises operating in the "Balaton Kiemelt Üdülőkörzet" region (later referred to as BKÜ).
The paper can be divided into three main parts: a literature review, an analysis and an evaluation section. In the literature section, the concepts and definitions related to the subject are discussed. In the second part of our paper, we present the results of our research, based on information gathered from the National Spatial Planning and Regional Planning Information System (TEIR) database, STADAT tables of the

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Central Statistical Office (KSH) and the National Legislation Regulatory Framework. We finalize our research by discussing the results of the semi-structured interviews conducted and presenting our fieldwork experiences.

2. LITERATURE REVIEW

The aim of the present section is to clarify the concept of local economic development. Nevertheless, in order to handle this conceptual framework correctly, it is essential not only to define it as a local, micro-level activity, but to make a brief outlook, to its role and location in the global economy.

The concept and process of globalization nowadays is well-known to everyone. There is a significant body of literature dealing with the issue of globalization. In his 1991 work, a British sociologist, Anthony Giddens, defines it as follows:

"*Globalization is an increase in the intensity of global social interactions that make remote locations interconnected so that events at one location are influenced by processes that take place many kilometres away.*"

Jan Aart Scholte has elaborated a much more detailed definition of globalization in four different interpretations. Day by day we are confronted with rapidly changing economy; globalization processes are driving the global economy. We cannot influence these processes, maybe only to a small extent or in many cases at all. The only option is localization, the fastest and most effective local adaptation to globalization trends. Local activities, local level initiatives, which provide the basis for local economic development, also play an important role (Bajmócy, 2011). When we mention local, local levels in the context of economic development, we mean settlements, their micro and micro-regions. This is the environment, the locus, which constitutes the spatial unity of the socio-economic sphere and the spatial unity of our workplace (Mendöl, 1963).

Turning to one of the basic topics of our paper, local economic development initiatives behind the written, unpublished development strategy of local governments, it is also necessary to get to know the concept itself.

In 2006, Cecília Mezei separated and organized them along four dimensions, using a wide range of Hungarian and international literature. The four dimensions are as follows: the motivators of development, the necessary resources, the purpose of intervention, their spatial scope. The importance and necessity of local government involvement is unquestionable in the successful completion of the development. According to Éva G. Fekete (2005), the most important feature of development is that it needs to be based on real needs from the bottom, so that successful local economic development can be achieved with the effective cooperation of local governments and local actors (beneficiaries).

One of the indispensable elements of our thesis is the formation and evolution of HGF. The beginning of HGF's application dates back to the 1960s and 1970s when it became apparent to the stakeholders that the driving force of the economy was not constant in capital, time and space. There are constant movements between different areas, towards the increasingly advanced, more favourable areas (Swinburn, 2006).

The direction of local economic development focuses on two target areas in Hungary, one of which is the development and action directly affecting the local economy. The other are tools indirectly influencing the economy, which have a multiplicative effect (Csizmadiáné - Sáriné Csajka, 2013). The tax policy of direct economic incentives is the central topic of our study. Local governments can create their own local tax policies and comply with certain legal constraints, which, according to our assumptions, can be shown to have an impact on the SME sector operating there and thus the functioning of the local economy.

The act for small and medium-sized enterprises was established in 1999 (Parragh, 2010), which defined the concept of enterprises and their developmental support according to the number of employees of enterprises, their turnover, their balance sheet total and their ownership autonomy.

It can be said that in Hungary before the change of the regime large business organizations, i.e. companies and cooperatives predominated, and the SME sector was missing. However, the SME sector plays a major role in the economy today. Researchers called this structure a "reverse pyramid," where small enterprises

dominated the peak of the pyramid, while large corporations occupied the lower part (Laki M., 1998 and Laky T., 1998).
In Hungary, since the change of the regime, there is a duality in the structure of the economy: fewer export-oriented companies are found, and small and medium-sized enterprises (KSH-ST, 2013) play an important role in the local economy.
The increasing number of enterprises slowed down in the 2000s, and the activity of enterprises decreased significantly. According to GEM's research, while Hungary was second in entrepreneurship in 2001 in Europe after Ireland, it fell below the European average by 2004 (Szerb, 2010).
SMEs play a decisive role in the Hungarian economy, especially in job creation, but in many cases they are underdeveloped compared to domestic large companies and to EU advanced states. One of the reasons for this is that SMEs only assume the minimum risk; they do not intend to invest in larger volumes and increase their staff (Czakó 2006, 2011).
Similar conclusion is reached by Inzelt (2011a, b) and Inzelt-Szerb (2003) that the overwhelming majority of Hungarian SMEs avoid their own research opportunities, know-how, the purchase of a patent or license and no plans to develop a sales network or technological innovation.
This is due to the fact that inter-agency or inter-institutional cooperation is extremely important in the field of innovation, and the domestic system is only slightly reaching out to SMEs (Csizmadia, 2008, Inzelt, 2011a, b). Furthermore, the bureaucratic operation of domestic tender systems is greatly hampered by the innovation activity of the SME sector (Bartha et al., 2009; Bruszt-Vedres, 2010; Inzelt, 2011a, b).
The performance of SMEs could not be recovered until 2013, since the crisis in 2008 weakened the sector's performance since 2009. Over the last few years, the value of the various indicators is strongly fluctuating - 90% of 2008 values - such as the number of SMEs, or employment.
According to the various surveys, domestic businesses mention the administrative burden and high tax and contribution burden as the main obstacle to their growth. According to the WEF Global Competitiveness Report 2013-2014, inadequate access to finance, the unpredictability of regulation, high taxes, the impossibility of tax rules and the inefficient bureaucracy are among the barriers to growth in the first place.
In Hungary, from 1990 on, we can speak of a settlement municipal government system, since Article IX of the Constitution and the Act LXV of year 1990 (Baán-Horváth, 2004). The tasks and power of the local authorities, as well as their scope, are determined by the constitutional principles and provide assistance to the organization of the local public affairs. Local governments can engage in business activities and engage in economic activities. In carrying out the tasks, the local government can act in two ways: in a direct and indirect way. We can speak of direct way if a representative body takes action, directly, even if a local referendum is proclaimed in the settlement (Szántó, 1994).
The work-sharing system based on the dominant positions held by the county councils was triggered by a model based on free access to tasks and competences, in which all settlements could have a fair chance, besides the tasks, the resources and the administrative size of the settlement (Pálné 2008).
One source of revenue from local governments is the collection of local taxes, so it is important to present them in our paper. These taxes are governed by Act C of 1990 on Local Taxes, which gives municipalities the option to introduce, modify or abolish any of the taxes listed here within the scope of the local self-government. Among the local taxes, on the basis of the above mentioned legislation, we can distinguish wealth-type, communal and local business tax that can represent a significant part of the municipality's total income. In addition, municipal taxes can also be included here. The different tax types and their legal regulations are presented below. While in the case of asset-type taxes, the useful floor area of a building or site calculated or the adjusted value of the building / plot is the tax base, the private tax payer is the natural person (Act C of 1990). The purpose of the introduction of communal taxes was that the municipality could get the financial resources necessary for infrastructural developments and environmental tasks through taxation. One of the above-mentioned communal tax types is the tourist tax. Since tourism is no longer limited exclusively to certain parts of the country, but it affects almost every settlement in the territory (both urban and rural tourism), so the possibility of introducing a tourist tax is beneficial for all local governments (Molnárné Barna -Papp, 2017).

The use of income from local business tax is regulated by law, as it can be used by the local authorities to finance social benefits related to the statutory competence of the municipal body and the provision of local community transport services in accordance with Section 36 of Act C of 1990.
All entrepreneurial activities that are carried out in the area of competence of the local government, regardless of whether they occur on a permanent or temporary basis, are taxable. The tax base is the net revenue, minus the cost of the goods sold (COGS), the value of the mediated services, the cost of materials and the direct costs of basic research, applied research, experimental development recorded in the tax year. The part of the tax base derived from activities carried out in a foreign establishment is exempt. From the method of calculating the tax base, it can be seen that small and medium-sized enterprises (SMEs) do not necessarily pay a small amount of tax, since they can only adjust their net sales by almost material-related expenditures and many cannot manage it.
The local government can provide tax exemptions and tax allowances for taxpayers. At this point, it can be said that this tax relief can only be applied to those entrepreneurs whose tax base (enterprise level) does not exceed the HUF 2.5 million threshold, but the local government may also set a lower value than the determined 2.5 million HUF. In this context, it is also important that the scope and extent of exemption or reduction should be the same for all entrepreneurs (Act C of 1990).
Article 39 / C (5) of Act C of 1990 on the exemptions and discounts, classifies the exemption and the grant as a "de minimis" aid, which is covered by Articles 107 and 108 of the Treaty on the Functioning of the European Union No 1407/2013 on the application of Article XXVIII of the EC Treaty to small grants. According to the law, an exemption from tax can be granted in case of employment increase. In this case, the tax base decreases by HUF 1 million per annum for the increase of the average annual statistical staff calculated on the basis of the months of the fiscal year, as a result of the increase in the average number of staff compared to the previous fiscal year (Act C of 1990).

3. MATERIAL AND METHODS

Research setting involves the analysis of 72 settlements of Veszprém County within the "Balaton Kiemelt Üdülőkörzet" region. In our analysis, the database was downloaded from the National Spatial Planning and Territorial Information System (TEIR), the Central Statistical Office's website, the STADAT database and the National Regulatory Office. The data were analysed for the period 2009-2014. We looked at the number of operating companies, the rate of local business tax and the amount of revenue they have. To illustrate temporal changes, we used a geometric mean, which was used to calculate the average rate of change of the observed phenomenon (Molnár, 2007). Due to the territorial differences, we also examined the so-called Dual Index (Index Éltető-Frigyes), which shows the distribution and dispersion of the given parameter of the different settlement data as a quotient of the mean above and below the average (Molnár, 2015)
The benefits granted by local governments have an impact on businesses. To answer this question, we used the variance analysis method. The method is based on the formulation of the basic and alternative hypotheses (Barna et al., 2006).
Two variable regression analyses were used to examine the number of operating companies, the HIPA rate and its revenue correlation.

4. RESULTS AN DISCUSSION

We analysed the number of enterprises operating in 72 settlements. The number of active enterprises ranges from 6500 to 7000 units during the period under review. In 2013, a slight downturn can be observed, but overall, the data are stagnant (Ksh.hu). The following figure

shows the trend in revenue, it can be observed that HIPA revenues show an increasing tendency since 2009. Growth rates take on average about 7% (6.71%) per year.

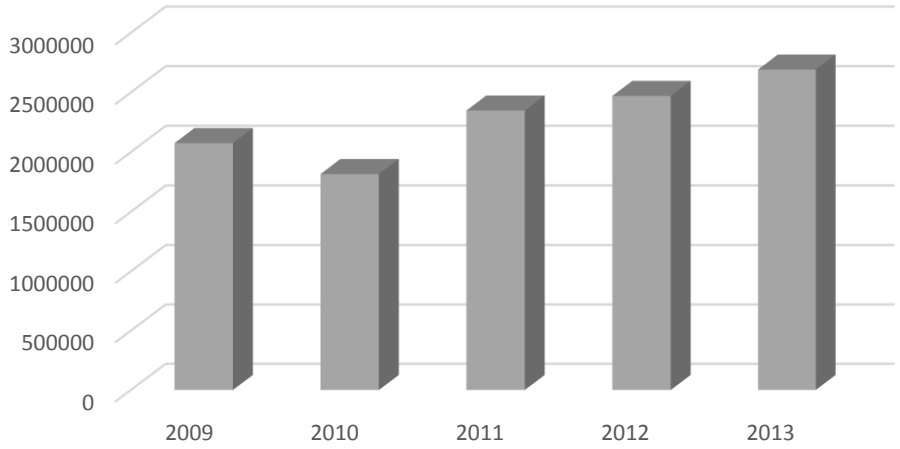

Figure 1: All HIPA revenues in the area of BKÜ between 2009 and 2013 (thousand HUF)

Source: own editing based on TEIR database, 2009-2013

We also examined how the average size of the HIPA for all settlements (mainstream) will change during the period under review. The downturn in 2011 is likely to be attributed to a change in the economic performance of businesses.

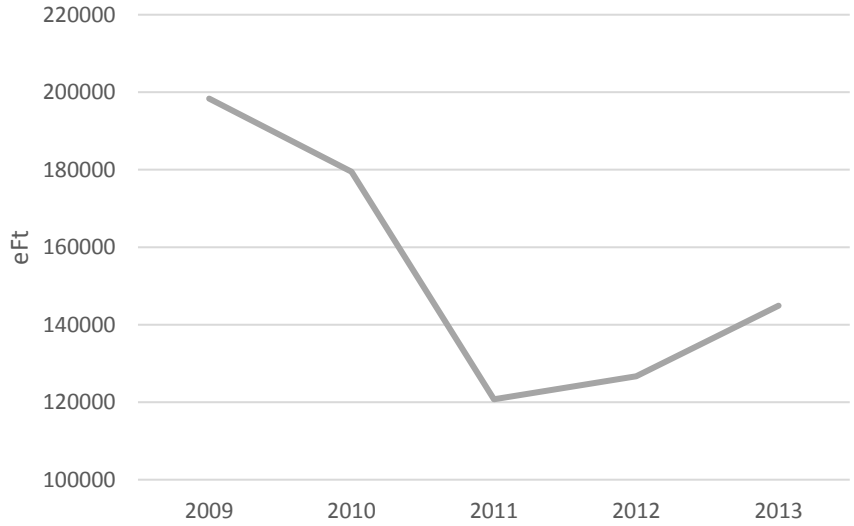

Figure 2: Change in average HIPA revenue between 2009 and 2013

Source: own editing basis of TEIR database, 2009-2013

In the literature section we have already mentioned that the law gives municipalities free hand, both in determining the tax rate and in the taxation of tax benefits. As a result, we examined the local tax regulations for all 72 municipalities and found that most of the municipalities (73%) did not provide tax relief, even though this could be a good tool for preventing businesses' 'migration'.

The number of businesses is one of the factors that greatly influence the amount of revenue from HIPA, so we thought it important to set a ranking for the number of 1 thousand people. Based on the results we can state that the composition of the ranking compiled on HIPA payments did not change during the period under review.

Following the ranking of thousands of people, we have also found the size of the HIPA income per thousand. When comparing the results, we found that the number of enterprises per thousand and the paid HIPA size rankings in most cases do not match: Only Tihany and Balatonfüred can be found in both rankings. In addition to the paid HIPA, it can be observed that the number of settlements has changed since in 2013, the metric average reaches up to 276%, which means that in the settlement it is 176% HIPA

revenue increased from 2009 to 2013. This major change is characteristic of the entire data. There might be two main reasons for this: either the number of enterprises or the increase in the level of HIPA.
For examining the territorial differences, we also examined the so-called Diabetes Index, which represents the distribution and scattering of the given parameter of the different settlement data as a quotient of the mean above and below the mean (Molnár, 2015).

Table 1: Paid HIPA Dual Index Between 2009 and 2013

	2009	2010	2011	2012	2013
Dual Index	42	37,7	11,24	11,36	11,79

Source: own editing basis of TEIR database, 2009-2013

Based on the values shown in Table 1 above, in 2009, the largest and the smallest number of HIPA-paid settlements have 42-fold differences in the settlements of BKÜ, which shows an average decrease in the examined period. From all these it can be concluded that different HIPA revenues from the main series of data (positive and negative) are close to each other. By examining the database, we can say that the average HIPA revenue is growing on average this year, because the average value of the DUI indicator drops over the interval.
In our analyses, we also sought to find out whether the benefits granted by local governments have an impact on businesses. To answer this question, we used the variance analysis method. The method is based on the formulation of the basic and alternative hypotheses.
Our two hypotheses:
H_0: We assume that the number of "settling" businesses in the local governments is not affected by the HIPA tax relief granted by local governments.
H_1: We assume that the number of 'settling' businesses in the local governments is influenced by the HIPA tax relief given by local governments.
We have examined the average number of enterprises where there is no discount in the given settlements and those where the local government gives the HIPA discount. We have found that the average number of enterprises where the settlement lives with the HIPA tax allowance is higher. This suggests that tax incentives influence businesses in their location choice. The result of the variance analysis justifies this assumption. Based on the comparison of the empirical F value (1985.262) and the critical F value (8.808647), the hypothesis H_0 must be rejected. H_1 hypothesis was therefore accepted as follows:
The number of 'settling' businesses in the local governments is influenced by the HIPA tax relief granted by local governments.
Then we also looked at settlements where there is no discount, to see how the degree of HIPA influences the location of the site. Regression analysis method was used to find the relationship between the number of enterprises and the degree of HIPA settlement. During the study linear, power-exponential, exponential functions were inserted. The significance level ($p \leq 5\%$) is still acceptable for the power factor and the exponential function, but for all three functions the relative fitting error ($VSe \leq 10\text{-}15\%$) exceeds the permissible level, which means that the original points too far from the theoretical points of the function, so no objective conclusion can be drawn. This suggests that businesses are not affected by the size of the HIPA.
Based on the variance analysis and the results of the regression, it can be said that ***the degree of HIPA is not significant in the case of enterprises, but rather the presence of HIPA influences the decision-making of firms regarding their location. Enterprises are established in a settlement where there is no HIPA at all, or the local government provides some benefits.***

5. CONCLUSIONS

The above presented empirical research has partly demonstrated our practical experience. At the Pannon University's Faculty of Economics, the Helyben a Hely(i)ért group (founded by students and teachers) was established in 2015. We conducted primary data collection on a similar subject in a number of settlements.

In the last 2 years, we conducted an entrepreneurial survey in Nemesvámos, Keszthely and Tamási. In semi-structured interviews with approximately 150 companies, HIPA's discount, availability and potential gave a positive impression to the interviewees, but the specific rate of the tax is not the most decisive factor in the company's choice of location.

The majority of the examined settlements do not take advantage of the statutory freedom to make sufficient tax allowance, but we believe that even though this might be a good tool for preventing "emigration" of businesses, it can play a major role in promoting the establishment of companies.

Based on our investigations we can say that in the case of companies, the degree of HIPA is not significant, but rather the presence or absence of HIPA influences the decision-making process of the company. Enterprises are established in a settlement where there is no HIPA at all, or the local government provides some benefits.

Further research needs to be carried out, an extensive quantitative research including other tax budgets, to better elaborate existing qualitative results as well as primary data collection in the affected areas and territorial extension.

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IMMIGRATION, COMPETITIVENESS AND THE ROLE OF LOCAL GOVERNMENTS

Tünde Patay

Europe has experienced waves of immigration in the last decades. Migratory movements shape the performance of the labour market, the social-economic structure of the society can accelerate the development of urban areas. The linkages between immigration and competitiveness have been becoming even more important for the economic agents and the political platform as well – with special emphasis to the dynamic and innovative milieu.

The aim of this study is to explore the challenges, roles and possibilities of local governments in this environment taking into consideration the controversies of the theories on the one hand, and the aspects of the local employees on the other hand. The first section of the paper compares thus the results of relevant studies and theories focusing on three key points such as immigration and innovation, triple helix approach, and multilevel government. The second part presents the outcomes of an empirical study based on in-depth interviews with immigrants living in different federal states of Austria.

Keywords: competitiveness, human factor, immigration, innovation, local government

1. Introduction

Over the last two centuries Austria has participated in various forms of international migration and now it is a classical host country. Regarding the modern migratory era, on average – apart from the current issues of asylum – 120 thousand newcomers arrive to Austria yearly in the last 25 years, and now almost 20% have a migratory background as first or second-generation migrants, according to the data of the National Statistic Office. The rates of immigrants from Romania and Hungary also began to increase steeply in 2013. Students, jobseekers, family members choose Austria as migratory destination, often changing their settlement purpose as entrepreneurs, finding a new future in the competition of the Austrian market.

Austria is one of the first countries that have developed a national innovation strategy in order to announce the cooperation among industry, government, science and society. It is still an enormous challenge for the national and subnational authorities, how to involve local governments and how to rule and motivate the other local stakeholders. The responsibilities are mostly delegated by the national government (Federal Constitutional Law 1930). The local authorities also have to work to ensure that the local environment serves the economic growth relying on the traditional tools: regulations and administrative tasks (Koos, Lados 2008). Innovation has an influence on the future of cities and their environments given that their primary goal is improving competitiveness (Rechnitzer 1998).

Studies related to endogen theories point out that regional development has a number of local factors beyond external impacts. One of these key factors is the quality of the human capital. Regarding the human capital, migration is one of the main factors that shape the development of urban areas, although the migratory movements and the reactions of local stakeholders present a mixed picture in the European regions. Labour force with migration background, foreign-born students or immigrant entrepreneurs can make significant contributions to development at national and local level, but on the

other hand, flows of immigrations bring about negative effects. The question of regional and local responsibility has also acquired particular importance over the recent decades (Patay 2016).

2. Material and methods

The aim of this study is to explore, how immigrants perceive and evaluate the roles of the federal and the local governments. The first section compares relevant studies and theories focusing on three key points such as the linkages between immigration and competition, the triple helix approach and the multilevel government. It also summarizes the migratory characteristics of Austria, from historical and economic perspectives. The statistical data and the political documents were only evaluated up to the year of 2014 (or 1st January 2015) in order to exclude the current issues of asylum and the relevant indices as outliners. This paper does not intend to discuss the asylum seekers of today, since this topic should receive a particular attention and a separate study.

The second part presents the outcomes of an empirical research. In-depth interviews were conducted among first-generation immigrants in Austria. The in-depth interviews aim to explore the importance of multi-level governance from the viewpoint of the immigrants: how they perceive and interpret the responsibility of these two levels, which level has more influence on the migratory challenges. Another targeted aspect of this study was, how immigrants explain the innovation, the innovative environments and the challenges the local government meets. The interviews were conducted in two phases between October 2013 and September 2014, in all the provincial capitals of Austria, with 27 immigrants living in big cities, and with additional 13 persons living in small towns (5 municipalities).

Malhotra points out, that this method offers a high response rate and the possibility for observing the environment, but the willingness is low in case of sensible issues, and additional charges can also arise (2001). During each interview I focused on 2nd and 3rd phases of Seidman methodology (2002), the phase of current life experience and the phase of reflection. The target-oriented method of sampling resulted in a heterogeneous base with representatives of the main immigrants' groups. This way of sampling is therefore only recommended for use in exploratory or additional researches (Patton 1989). Analysing the answers, I relied on the methodology of Schleicher (2007): condensation (summary), categorisation (grouping) and further interpretation (of the verbal and non-verbal answers).

3. Results and Discussion

S*ummary of the theoretical background*

Innovation plays an important role in local economic development. Local authorities, combining city marketing elements, can attract new stakeholders and widen the possibilities of the local elite community (Danos, Patay 2016). Etzkowitz and Leydesdorff proposed the model of a Triple Helix of university–industry–government relations for explaining structural developments in local economies (1995). The Quadruple Helix describes the importance of integrating the perspective of the public, well configured for the local society (Carayannis, Campbell 2009). This vision encompasses the creative destruction that appears as natural innovation dynamics, emphasized already by Schumpeter (1980). Beside the responsibility of subnational levels, in the development of the competitiveness the ability for

cooperation plays an important role (Rechnitzer 1993), as well as the good integration of decision-making mechanisms and measure-processes (Risse-Kappen 1996).

Mobility can have positive and negative impacts on the competitiveness of the host country or host region. The interference between migration and competitiveness should basically be analysed after two categories: welfare and well-being of the local inhabitants, however, research studies generally focus on certain elements of either of these two aspects (Haas 2009), highlighting in most of the cases the fiscal effects and the cultural diversity (Hahn 2012). Dealing with diversity is a matter for society as a whole, and a challenge not only for state institutions or large companies, but also for each individual. The intensity and structure of migration can, however, vary. Temporary immigration, which plays a significant role in innovation, is basically regulated by the interests of the economies (Carrera, Hernandez Sagrera 2009), thus, as stated by Wickramasekara, it also keeps the integration costs of local authorities lower (2011). The European Union also considers that the impacts of these forms of immigration are important, but it calls attention to this issue in its communication first in 2007 (COM 248/2007).

According to the theory of Morales and Giuni (2011) migration management can be defined on 4 levels: macro, mezzo, micro level and the level of individuals. From the practical point of view, however, most experts have focused on the national context in their studies. This is maybe because the range of citizenship and immigration policies is always defined at national level. Global competitiveness motivates provinces and cities to attract and retain the creative and flexible human capital (Florida 2005). Some countries with migratory experiences all have programs to attract the best they want (Gafner, Yale-Loehr, 2010). According to the European Union, not only highly qualified immigrants, but migrant entrepreneurs also bring about positive characteristics (flexibility, capability, creativity) and thus diversity can also stimulate the innovative power of the society (European Economic and Social Committee 2012). The roles of municipalities have gained importance in recent years, though experiences have shown different types of evolution of modernisation (Torma 2003). Local governments experience first challenges relating to ethnic, cultural and social diversity that immigration causes (Rogers, Tillie 2001). But this was also based on the policy of subsidiarity (Balazs 2003). As for migration and migration policies, local level has also more direct effects. In this way regional or local authorities provide support in strengthening the linkage between migrants and natives (Penninx et al. 2004). One of the newly important elements of modern governance is the ability for cooperation (Schedler, Proeller 2000). Matschek and Wirth point out that it is the local level that has been getting more and more tasks over the decades, since there is a need for solutions for demographical challenges and social conflicts (2013).

Austria as a host-country

Austria, differently as Hungary or Romania, is a federal republic, made up of 9 states. The administration of the provinces lies in the hands of the provincial governments. The 3rd autonomic administrative level belongs to the 2.100 local authorities. According to the Federal Constitution, the 3 administrative levels have to function under good cooperation (Bundesverfassungsgesetz 1930). The state performs its tasks first through its own units, or, delegating the functions, in regional or local offices, e.g. the local immigration offices – as direct or indirect state administration (Rehak, Schattauer 2007). The current structure of the decentralisation had only been fully fledged by 1990.

After the breakdown of the Austro-Hungarian Monarchy the history of migration has also developed in the successive states in different ways. By now Austria has become a nation with a mixed population, which means, that approximately 12% of the inhabitants are foreign residents. Immigrants from Eastern and South-Eastern European countries have taken the place of migrants from the traditional countries (Turkey and ex-Yugoslavia). In 2013 the number of immigrants from Romania and Hungary began to increase steeply.

In case of long-term migration, legal consequences appear usually after a 12-month-period, e.g. regarding legal equality, labour market and as an entrepreneur or self-employed (Kováts 2014). Immigrants have different career possibilities. In a situation of insufficient population growth and by slower developing intensity the international competition for qualified migrants and for innovative entrepreneurs is becoming more and more intense. The economic growth in Austria was, according to the indicators of the National Statistic Office, rather low in the last years (approx. 1%). On the basis to the Figures of the National Employment Service (2010-2016), the demand on skilled labour force remain intensive in the fields applied mathematics, informatics, natural sciences and technology. But, innovative ventures still remain limited, primarily due to the heavy burden of taxation and social charges on employed and self-employed labour. These features weaken the innovative strength of the Austrian regions.
Approximately 30 per cent of the non-Austrian population has an upper school-leaving certificate or a degree, and more than 40 per cent, if we only analyse the young employees on the base of the yearly Austrian statistics between 2005-2014. These percentages were among the Austrian population 21 and 25 per cent. The level of the qualification of persons first entering a labour market is generally higher in the European countries than those who are before retirement, and this is partly due to the current migratory movements, according to the OECD data (2016). Furthermore, the labour force without migration background on the Austrian labour market has better chances at any level of qualification regarding career opportunities (Patay 2015).

As for the labour market participation of immigrants between 2005-2014, it is almost at the same level in Austria as that of non-immigrants according to the Austrian Statistics, however there are differences by region, age, country of origin or skills. In Vienna, Salzburg and in Burgenland this value is still higher than in the other regions. Female immigrants contribute to this high market participation level in general with 56%, while male immigrants with more than 70%. Citizens from the EEA have in larger proportion a job in Austria than 3rd country nationals. But entrepreneurs and self-employed persons are not only from the EU Member States but also with higher per cent from countries (China, Vietnam, Egypt, Israel, Russia, Serbia), where entrepreneurial mind-sets have traditions or for which other options for immigration are limited.

Migrants are also well represented at institutions of higher education. Almost 25% of all students in Austria are foreign nationals; this percentage is continuously increasing. After 2010 35 thousand newcomers arrive yearly with educational purpose – 70% of these students from the EU, mainly from Germany, approx. 11,000 students from third countries (20% of total immigration yearly). But a relatively high number of foreign students leave Austria after completing their studies because of the administrative obstacles (application procedures, limited career chances etc.) In the recent years more than 10% of all immigrants are persons with limited contract or are researchers and assistant professors. Other short-term seasonal workers accounted for 12% of immigration, and only 2% of the new residence permits were granted for key workers from 3rd countries.

4. Outcomes of the in-depth interviews

During the interviews, only a few people emphasized consciously that an innovative milieu serves beyond the local companies, the local community and the whole region as well. But through particular examples, most of the interviewees mentioned some extensive advantages of supporting innovation: income growth, improvement of the regional infrastructure, extended public services, relief in social tensions, training and employment possibilities. Almost all respondents emphasized the bureaucratic procedures and the deficiencies in the flow of information as a difficulty in relation to either settlement or the daily routine as immigrants. This concerns the mobility with educational or research purpose and the entrepreneurship with migration background as well.

After analysing and comparing the results of the interviews, there can be set three clusters based on the answers and detailed opinions: basic settlement experiences, the main tasks that immigrants expect from the state and local authorities, and issues related to innovation and business (Fig. 1).

Figure 1
The 3 clusters based on the answers of the semi-structured in-depth interview project (2013-2014, Austria)

Input	Answers and reactions of 40 first-generation immigrants in selected cities during guided conversations, focusing on innovation, entrepreneurship, immigration and the roles of the governance		
Output	Basic experiences during and after permanent settlement	Responsibilities of the actors regarding immigration	Challenges in the immigration policy relating to innovation

Source: own elaboration

1. *Basic experiences during and after settlement*

All the respondents found the procedure of settlement difficult, either for temporary or long-term purposes. The state requirements often do not overlap the local experiences. More than 70 per cent said that in case of important questions (document preparation, housing issues, labour, taxation, social subsidies, education, health, social life, political integration) they cannot always count on the assistance of the administrative units, they mostly need to use other help (Internet, diasporas, other friends, employers, consulting organizations, local institutions). However, these solutions can cause complications, as for the quality of secondary sources of information. A half of the surveyed persons, particularly from Vienna, Upper Austria and Burgenland found, however, the co-operation readiness of local authorities excellent. They pointed out two issues: "family" (public education, youth protection, family integration, employment / training of women) and "starting a business" (information on requirements, supports and on the relevant business environment).

More actors (stakeholders) were mentioned beyond the government regarding preparation and support of settlement or smoother integration in everyday life. These roles are consulting organizations, the diaspora, family members in Austria and in the sending country, employers (including universities), chambers and associations, political parties, and the immigrants themselves with their full responsibility. A third of the persons considered the role of the local Austrian population, especially of volunteers, important, and on the other hand the influence of the sending country.

The majority of the respondents believes that real positive changes could be observed in the last 5 years in the field of starting an entrepreneurship, labour market management, training and retraining, and furthermore, in public safety. The majority also emphasized the surprising acceptance of their own culture (art, cuisine, traditions, history) among the local residents, as well as the language skills and social sensibility of public servants.

However, nearly three-quarters of the surveyed still feel the hard labour market competition, and immigrants of any group still have to fight against financial difficulties in both business and private life. Further problems immigrants meet are the conditions of German language courses and, secondly, the development of their existing companies. Almost all respondents noted that the local Austrian tradition

no longer receives much emphasis in the governmental communication, and that the number of newcomers is rapidly growing - which can also lead to social friction and challenges on the labour market.

2. *The roles of national and local level in migration and integration management*

More than the half of the respondents seems to know the influence of other stakeholders in developing the legislative conditions: the institutions of the EU, Austrian political parties, churches, trade unions and big international companies.

The interpretations of the tasks at local level are not really homogenous. As for the labour market, almost one half of the interviewees do not perceive the responsibility of the local authority. The tasks of the local government appear in five areas by more than half of the respondents: recognitions of foreign labour experience and education, equal career opportunities including over qualification, local training and retraining possibilities, information transfer, and discrepancies in the field of work ethic, workplace value systems or corporate culture. In the area of social inclusion and cultural differences, on the one hand the inefficient system of German and integration courses, on the other hand, the need of supporting the youth were emphasized by the majority of the respondents, particularly the role of educational institutions and local volunteers. Safety also belongs to this question, including public safety, the safe daily life and the trouble-free future of the youth.

Another general opinion on the local government is that the local/regional information transfer should be improved. It means gathering, analysing, transferring information from and towards the other actors, as well as the readiness to cooperate. Furthermore, it is also the local level that should effectively govern in financial questions, such as increase in the number of immigrants thus the increased demands of urban development and the difficult conditions of the financial subsidies. On the other hand, the immigrants who already live and work here should be supported to be able to participate in the local competition with equal chances.

The opinions regarding national instruments and tasks were surprisingly more homogenous. Both the development of the legal framework and the relevant financial cover are considered to fall under the responsibilities of the state. According to more than 70%, local solutions could be more effective with stricter legal rules and state control, and beyond this, with extended financial background. Here there were particularly issues related to family (educational and health institutions, grants, housing problems of the youth), and the labour market (young employees, retraining, grants). In addition, the state should be considered a mediator regarding transnational opportunities, so that the population with migration backgrounds can develop further external relations, intercultural lifestyle or business. It also means intensive international relations with other states and organisations, reduction of administrative barriers for "old" immigrants and legal control against discriminatory attitudes.

3. Immigration and entrepreneurship in an innovative environment

Regarding innovation, a half of the respondents either hardly know the actors in the region, or the issue itself was a strange topic for them. However, they managed to explain their opinions after a short off-task, general conversation.

According to the majority of respondents not only the local entrepreneurial resources and the region's higher educational institutions seem to be innovative, but some departments of the local authorities,

several civil organizations, and even the way of thinking of some "ethnic" groups as well. As for the connection between immigration and innovation, beside the federal state the following stakeholders were emphasized: subnational authorities, local entrepreneurs, other big companies interested in the market, students and staff of the regional higher educational institutes and the local labour force with a migration background. Only some of the respondents mentioned the local population, the trade unions, and the European Union as powerful influence on the local development.

Besides, almost all of the respondents expect specific restrictive measures from the state in connection with border crossing, new settlement with the purpose of employment or setting up a business as an immigrant: selective policy, fewer new companies, and limited long-time labour force. According to more than half of the interviewees, state supports (administrative and financial) towards the local stakeholders should also have a priority, particularly for start-up models, innovative business development, and co-operation possibilities. Local governments have rather an important role in organising cooperation opportunities, ensuring information flow as well as in the maintenance of business incubators / industrial parks. It also means attracting the appropriate work force and economic operators in the area. It was also specifically pointed out that foreign company owners and self-employed businessmen should better benefit from the stimulating and supporting role of the government.

The inefficient proactive communication of the universities /colleges was also mentioned. The universities themselves could do much more for their students or employees with foreign citizenship, so that they can build up connections in the area or with the home country. This would facilitate more innovative decisions and simplify the sound bureaucratic proceedings, too. Diversity management should be widely implemented; local companies should also be encouraged to communicate their readiness for cooperation. It was, however, also pointed out, that because of the high number of the foreign students, the high level of scientific quality of the universities is now questionable.

Summary

This paper aimed to explore the need of multilevel governance in migration management, with particular focus on innovation and innovative environment. Austria, a classic host country served in this study as a model. The focus was set on the roles of state and local governments, taking into consideration the relevant theories and the aspects of the local employees as well. The outcomes of the empirical study based on in-depth interviews with immigrants present these aspects.

To sum up, the respondents emphasized, that the main roles of the state are firstly to support the local level, and secondly the regulatory, supervising, intervening roles. As for immigration, the conditions for newcomers should be more restrictive and selective. The Austrian cities, as good examples, could derive a long-term benefit from effective combinations of educational investments, innovation management and immigration policy. They should gain additional financial and operational support from the state, in order to boost the innovative strength. In such a developed country, there should be a definitive focus on the immigrants, who are already settled here and contribute to the local development. This concerns the higher education, the attitudes of the local government, a flexible labour market, but also the continuous information flow among the actors. Furthermore, while there is a noticeable improvement in the last five years, the proactivity is still restrained at local level, including cooperation, communication and networking. This might be derived from the limited financial background and the difficult division of roles.
The interference between migratory movements and innovation-based local development seems to be an interesting but yet largely unexplored area. This paper intends to serve as a base for further research at local level, focusing on both governmental and corporate aspects.

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THE ROLE OF AGRICULTURE IN LOCAL DEVELOPMENT THROUGH THE EXAMPLE OF KÖRÖSFŐ (ROMANIA)

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Abstract

The role of endogenous resources has been emphasized since a long time by the literature of territorial and rural development. However, the role of agriculture in local employment has significantly decreased in the last few decades. The Institute for Regional Economics and Rural Development (IRERD) of the Szent István University Gödöllő conducts regular research in traditionally farming rural villages to analyse the possible role of agriculture in local development strategies.
The primary sector has had a big importance for centuries in the life of Körösfő (Izvoru Crișului) village located near to Bánffyhunyad (Huedin). At the same time, the general tendencies, growing importance of local craft industry and the decreasing farming opportunities have affected the settlement's local economy as well. During a summer research camp in 2017, an empirical research was organized by the IRERD to analyse the role of agriculture as an endogenous competitive factor in long term local development in this settlement. Results show that agriculture has lost its previous significant role in the life of Körösfő caused by the changing economy of the village (trade and craft) and the unfavourable natural conditions. All in all data reveal that the sector offers limited possibilities in the local development of Körösfő.

1. INTRODUCTION

The increasing globalization of the economy, the intensifying territorial competition, and the importance of a more complex business environment creation are emphasizing the need to develop and implement local (economic) development strategy that builds on local, endogenous resources (see e.g. Áldorfai and Czabadai, 2014; Áldorfai et al., 2015; Moseley, 2003; Tóth and Káposzta, 2014 among others). This can be interpreted particularly from a rural development point of view, since according to the Union's rural policy, "*measures for a wider rural economy should preferably be implemented through local development strategies"* (EC 2005: 5).
According to rural development experts these developments can be effective if - while linking to regional and global networks (see Lowe et al., 1995), they give space to local participation and local initiatives (Cernea, 1992) and they are clearly based on the local (natural, economic, human, cultural) resources of the given area (see Kulcsár 2017, Ploeg and Dijk 1995). Meanwhile, self-sustaining development will reduce dependence on external aid in the long run and serve sustainable development (Murdoch, 1995). According to Kulcsár (2017) the importance of local activities and local actors, as well as the integrated approach, are decisive in addition to local resources.

An important element of the changing global economy and society, the new role of "rural" - the strengthening, transformation, and the fulfilment of a new role, as the concept of the countryside has developed for a long time in developed countries into a completely new social and economic dimension. Through the objectives and actions of the European Union's Common Agricultural Policy (CAP), the EU attributes a multifunctional role to agriculture and rurality. According to the basic idea of multifunctionality, the income of the rural population is not only derived from primary activities, such as food and industrial raw material production, but from fulfilling cultural and environmental tasks as well (Kopasz 2005).
In the European model, multifunctional agriculture and rural areas - besides food production - also perform ecological, environmental, societal, economic, social and cultural functions. These include the

creation of the basic conditions of recreation and tourism; support for small and medium-sized enterprises; nurturing rural communities; the maintenance of landscape and cultural heritage; cultivating traditions, agri-environment protection, etc. (Madarász, 2004). Naturally it is still about a competitive agriculture that adapts to the world market and globalization to provide farmers with a decent standard of living and stable income. Among the features are highlighted food products, their gastronomic events and a close relationship with tourism (see e.g. Bakos and Topa, 2016; Nagy et al., 2012). The role of tourism is also highlighted by the literature on rural development (see e.g. Urbánné et al., 2017 or Némedi et al., 2016).
At the same time, the trends that derive from the changing agriculture, as the former backbone of rural economy cannot, be ignored. After the change of regime in the Eastern European countries the land use and ownership in agriculture radically changed, and the organizational structure and operating structure of the farms also changed. Parallel to changes the sector's role in the national economy (GDP) and particular in employment significantly decreased. The latter is particularly problematic for small rural villages (see Oláh - Urbánné 2016).

These changes are, to a large extent, a general tendency present in the EU and in the developed countries, but because of the change in spatial structure and the spatial nature of the economy they affect different areas in different ways.
Based on the above, the question then arises what is the role of agriculture in an originally agricultural community after a shift to craftsmanship and trade, what role does it play in local development strategies.

2. MATERIAL AND METHOD

The Institute of Regional Economics and Rural Development of Szent István University (SZIU) annually organizes village research camps targeting settlements characterized by special situation from a rural development point of view. In the summer of 2017 the camp was organized in the commune of Körösfő (Körösfő, Kalotanádas, Sárvásár, Nyárszó - see Figure 1) in Transylvania, located in Kalotaszeg region, near Bánffyhunyad. The research camp was attended by lecturers, students and PhD students of SZIU, Török Ignácz High School of Gödöllő and the University of Kolozsvár.

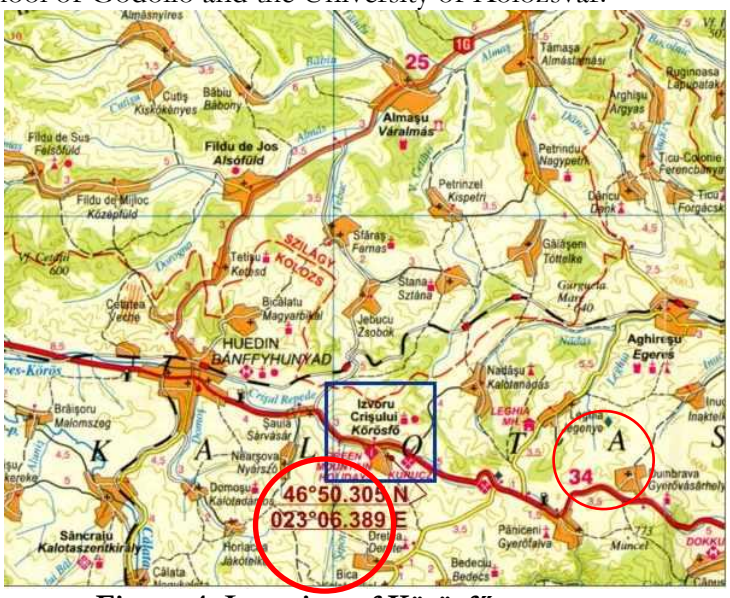

Figure 4: Location of Körösfő commune

Notes: □ Körösfő village itself ○ Kalotanádas, Sárvásár and Nyárszó villages, as the part of Körösfő commune
Source: www.varak.hu

During the village camp a questionnaire-based primary research was conducted complemented by structured in-depth interviews focusing specifically on the role of agriculture. The thematic questions of the questionnaire tried to examine the population's general "agricultural exposure", while the opinion and

perspective of major agricultural entrepreneurs, primary producers, farmers and the settlement leaders and other key persons were collected through in-depth interviews. Nearly half of households filled in the questionnaire with directed sampling, while the selecting of the interviewees was targeted.
For a long time, agriculture has played an important role in the lives of the inhabitants of Körösfő and its surrounding settlements. However the changes noted above - the transformation and typical agricultural tendencies did not leave the village untouched. The main goal of the research and of this article is to explore the role of farming in the life of the village, the opportunities that can be attached to the longer-term developments and the differences in the agricultural economy with regard to the four villages forming the commune. The most important results of the primary research (questionnaires and interviews) are presented below.

3. RESEARCH RESULTS

The agricultural characteristics of Körösfő village are not ideal. This applies in particular to the quality of soil; the situation in the other villages of the municipality is somewhat more favourable. Nevertheless in the previous centuries farming played an important role in the local economy. According to Sebestyén (1998) farming was almost unchanged for centuries, and the community was completely self-sufficient. In the 18-19 century, the size of the cultivated lands and grasslands were steadily increased, while in the second half of the 19th century peasant farming was modernized. At the beginning of the 18th century locals also dealt with grape vine cultivation, but fruit production was moderate in the Kalotaszeg region. In addition, people from Körösfő were also famous for their livestock breeding. The cattle was the most valuable animal of the farm (also because of its tensile force), pig - the favourite livestock of the Kalotaszeg villages - was important for providing food; sheep farming was popular because of the wool's attractiveness on the markets. The number of horses was also relatively high in Körösfő (Sebestyén, 2007). Buffalo appeared in the second half of the 19th century, which was a good workforce and brought prosperity to milk production. The area soon became buffalo filled countryside. Animals were also taken regularly by the people of Körösfő to fairs: Kolozsvár, Nagyvárad, Bánffyhunyad and even the national cattle markets (Péntek, 2014). In the traditional society, forest was an important factor in peasant farming. In the 17-18 century, Körösfő was surrounded by large forests; however deforestation in the 19-20 centuries left only their memories preserved by place names (Sebestyén, 2007).

Significant change in agricultural employment was caused by the making of tailored goods and the start of craftsmanship and wood carving at the end of the 19th century. Thanks to poor conditions, the hard, but unprofitable farming, many people turned to the more profitable handicrafts and the related trade, which was specifically attributed to Körösfő village. The role of agriculture in other villages has changed much more gradually and to a lesser extent, which is still noticeable in current conditions.

In the change of agricultural employment, the construction and the characteristics of the socialist economy also showed their effects. Due to technical development and the productivity gains brought by the cooperatives in Kalotaszeg region, the proportion of people employed in agriculture significantly decreased. The labour force dropped out of agriculture did not leave the villages of Kalotaszeg because they turned to craft industry (Keszi, 1977).

According to the interviews, besides the changes affecting Kalotaszeg, the liquidation of the socialist cooperative farms further reduced the agricultural activity of the examined village. After the liquidation of the local cooperatives in Körösfő, locals continued plant production for a couple of years, but they gradually abandoned it because of the harsh conditions and the "large-scale shepherding" that became characteristic of the time. By the second decade of the 2000s, livestock farming in Kőrösfő also fell considerably, and it is estimated that currently only around 20-25 households keep livestock. Cows and buffalo can be found only in 4-5 households (only 20-30 animals compared to the earlier 800), and pigs have almost disappeared from the village. Shepherding - which although significant in number (about 5-

6000 animals, without lambs) - means subsistence only for a handful of local farmers. People employed in sheep production are predominantly not locals but they are typically from Moldavia or other parts of Romania.

In case of the other three settlements, agriculture is more predominant in the life of households, serving commercial production and also subsistence. Domestic or horticultural production can be found almost everywhere, and while livestock farming is still declining, pigs, rabbits and mainly poultry are still present in many places. Cattle breeding and sheep breeding are quite notable in these villages; in Nádas is the largest number of cattle. In addition, there are about 500 goats in Nyárszó, which are not typical of the area. Bigger orchards (especially apples) can be found in Nyárszó too, but since it was owned by the council and it did not cultivate or managed these orchards the production ceased, nature has taken it over.

There is also a difference in terms of cooperation between Körösfő and the other three settlements. While there is no cooperation in Körösfő, and there is always "something to quarrel", in the other three community landowners, association (Sárvársar, Nyárszó) or the church community (Nyárszó) helps to work on common interests, common cultivation, very typical leasing for local livestock farmers. It is also characteristic of local land (this is typical in Romania generally) that ownership rights are not settled or completely clarified by documentation due to the nature of privatization, the everyday administration and the deficiencies of the administration (that is why it is possible to have private, council and ecclesiastical property in the settlement at the same time).

In the questionnaire households were asked about the available land (own and rented), the land cultivation method, the agricultural products they produce, the number of animals they kept, how and where they sell/use them, and how many family members are involved in farming. Based on the survey of about 230 households who answered the questionnaire and the results of the interviews, the following conclusions can be drawn.

The first important fact to be mentioned, based on the experience of the primary research, is that there can be significant differences in the case of the four settlements forming the municipality when examining the role of agriculture. While in Körösfő agriculture has lost much of its former significance and not only as a main source of living, but also by complementary activities due to the weaker conditions and the related handicraft industry and commerce, in the other three villages agriculture is much more pronounced. According to the interviews, in the order of agricultural exposure, Nádas leads, followed by Nyárszó and Sárvásár, till Körösfő characterized by "demolished peasantry" closes the line. Nevertheless, in the latter, many traces of traditional village life can be discovered in various places, as stables and barns are still present in a number of courtyards.

When exploring the state of agriculture, we first inquired about its base, that is, the existence of land. As a basic approach we asked about the size of the land owned. According to the results (Figure 2), one-fifth of the respondents do not have any cultivable land (hence no kitchen garden).

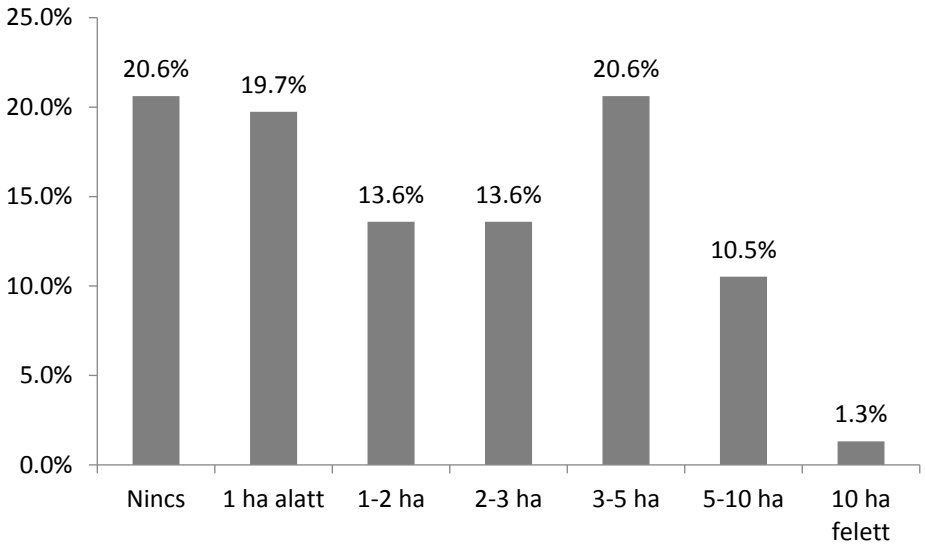

Figure 5: Proportion (%) of participant households by the size (ha) of the land they own
Source: Own data and elaboration, 2018

Nearly one fifth of the respondents have an area below 1 hectare, while one quarter has land between 1 and 3 hectares. Ownership over 10 hectares is very rare, and this category was rated by slightly more than 1% of the households surveyed. In the case of the four villages, the proportion of those who did not have any land was the highest (36%), while this ratio was the smallest in Nádas, where only 5% indicated that it had no land (14 and 15% was the value in Nyárszó and Sárvásár). In the case of Nádas, the proportion of those with more than 5 hectares (almost 21%) was the highest.

The investigation also considered additional land rented by households for cultivating. Based on the results only 4% of the respondent households are renting their lands, 70% of them occupy 1 and 5 hectares, while 30% rent more land than 5 hectares. In particular, larger land leases are linked to livestock farmers and grazing (shepherding). Within the declining agriculture, the weight of animal husbandry in Körösfő is shown that most of the people who have rented areas are living there, while the renter of the largest land is located in Nádas.
We had to take into consideration the type of the lands as well because poor soil can be used only for grazing and then after grazing it is difficult to use the land for other types of cultivation or agricultural activity due to the damage caused by animals (more people reported that it was easier to lease the land for the livestock holders than argue or quarrel with them).

In the following, we tried to find out who have their own land or rent properties, how they cultivate it by themselves or by others (Figure 3). Based on the results, slightly more than half of the households owning land have their own land, most of which (44.8%) are cultivated for family food supply and are not reported as core activities.

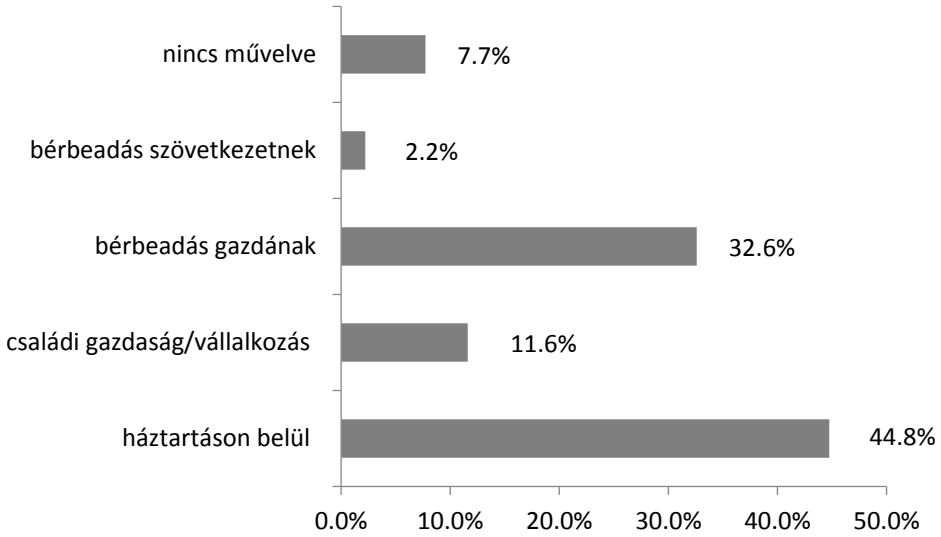

Figure 6: Proportion of the owned land by the way of cultivation (%)

Source: Own data and elaboration, 2018

The proportion of those households who are farming in the form of a family business as a primary activity is a bit more than 11%. More than one third of households lease their land, and nearly 8% of their land is not used either for their own purpose or for rent.

In the following we asked about the products (including plant and animal products) that are typically produced in the examined settlements. This question was asked for every household, because for example, to keep animals does not necessary mean to own land. Almost 40% of the households surveyed do not produce any plant products (Figure 4).

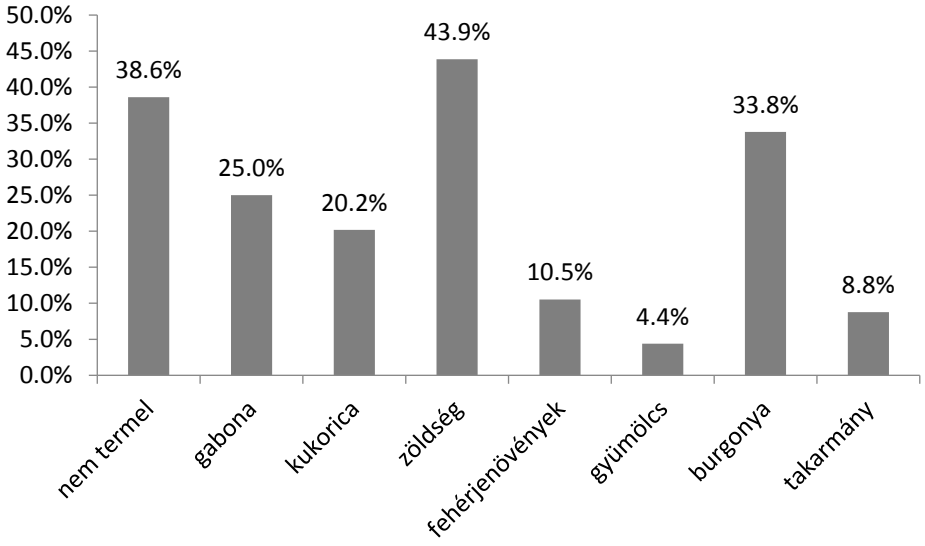

Figure 7: The proportion of the most typical products produced by the participant households (%)

Note: The three most important products could be indicated

Source: Own data and elaboration, 2018

Results also show how much traditional self-subsistent farming has diminished. In this case however, the differences between the four surveyed settlements can be shown, as 72.7% of the households who did not produce crops were from Körösfő. This ratio for Sárvásár was 12.5%, for Nádas 9.1% (the main reason for abandoning farming was aging), and 5.7% for Nyárszó. Among the respondents, the most important crops included different vegetables and potatoes.

On the one hand these crops play an important role in self-sufficiency and on the other hand, they are important from trading aspects. In the case of those with a larger area, grain and corn are already present (one quarter or one fifth of households), and often due to animal husbandry, protein and forage species are also present in nearly 10-10%. Cultivation of fruits was indicated by slightly more than 4% of the respondents.

In relation to animal husbandry, it can be stated that most of the households surveyed (almost 37%) are not doing this activity today (Figure 5). Where animals are still kept, the most commonly occurring is poultry (which is found in almost every second household) or pig (almost every third house). The formerly famous cattle and buffalo holdings have considerably declined (the latter is seen only at a single owner in Körösfő), and horses and sheep are less typical at the households than before.

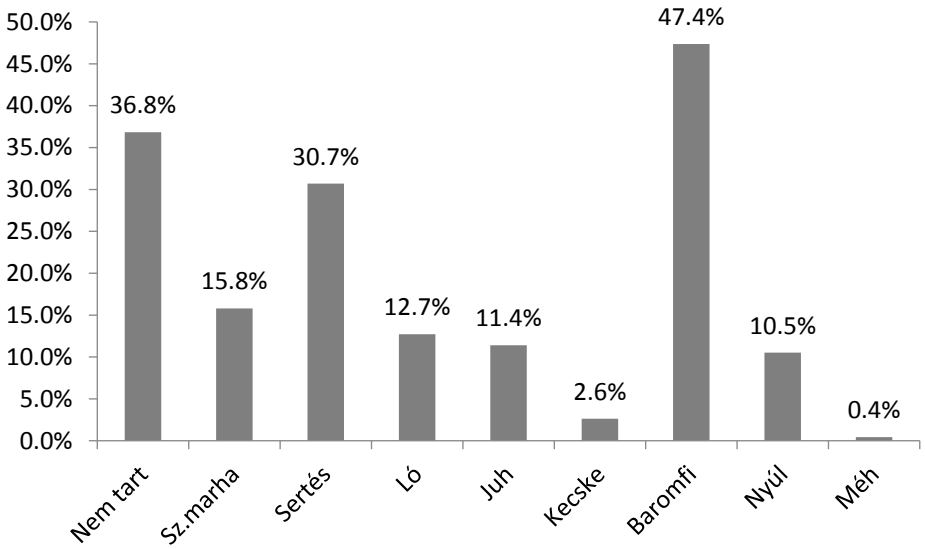

Figure 8: The proportion of participant households by stock-raising (%)
Source: Own research and edition, 2018

The actual number of animals kept (cattle or sheep) did not necessarily drop (but even occasionally increased), but there is a concentration of their keeping. This means that people generally quit raising livestock, but there are entrepreneurs and businesses whose main activity is stock-raising.

As regards livestock farming, it is also possible to detect a significant decrease in the agricultural exposure of Körösfő as in crop production. Of the households that do not hold animals 66.7% are from there. The ratio is 11.7% in the case of Nádas, 10.7% in Sárvásár, 9.5% in the case of Nyárszó.

During the research we also examined how the produced products are utilized. Are they fully producing for self-sufficiency or for selling, and if they are sold, what proportion of the production do they sell? Based on the responses, there are no families that would produce exclusively for sale (Figure 6).

According to the responses, self-sufficiency is the most important motivation to continue farming, as more than four fifths of households do not sell the crop. 12,7% of the households, which was mainly from

Nyárszó és Nádas, sell a smaller proportion of their produced goods, while there is only 2% of the farmers who sell most of their products.

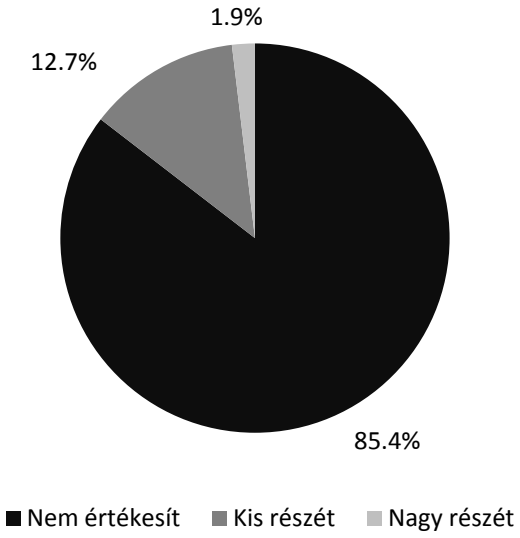

Figure 9: The proportion of participant households by the quantity of sold products (%)
Source: Own data and elaboration, 2018

We were also curious about how and where people sell their goods and products. In the largest proportion the market of Bánffyhunyad was highlighted (Figure 7) where 40% of the farmers take their products.

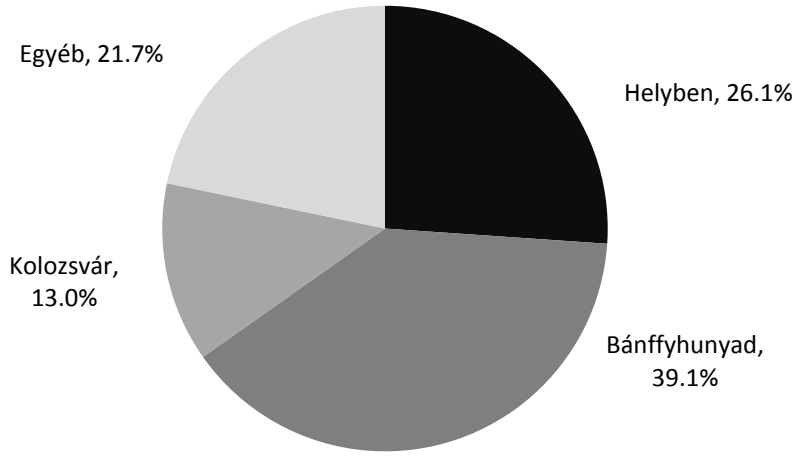

Figure 10: The proportion of the participant and trading households by place of selling (%)
Source: Own data and elaboration, 2018

The role of direct sales is also significant, which was reported by a quarter of respondents. The role of Kolozsvár can also be mentioned, but this is less significant due to its distance, and only 13% of the sellers take their products there regularly. In previous cases sales are specifically for local retail purposes. In the case of one fifth of producers (21.7%), however, other forms of sales means selling to wholesalers, purchasers and larger companies. This is particularly true for those who grow cereals and arable crops, as well as for larger livestock holders.

Traditional rural farms have produced a significant, sometimes full amount of their necessary food. This traditional self-sufficiency has however transformed due to the socio-economic changes affecting the countryside. For this reason, in our research we also examined the households who produce agricultural products focusing on the amount of their own food consumption that they can provide.

Based on the answers (Figure 8) we can conclude that traditional self-sufficiency is not typical of the examined village either. Only 11% of families indicated that their own products completely cover their own consumption. These families are typically found in Nádas and can be characterized both by plant cultivation and animal husbandry.

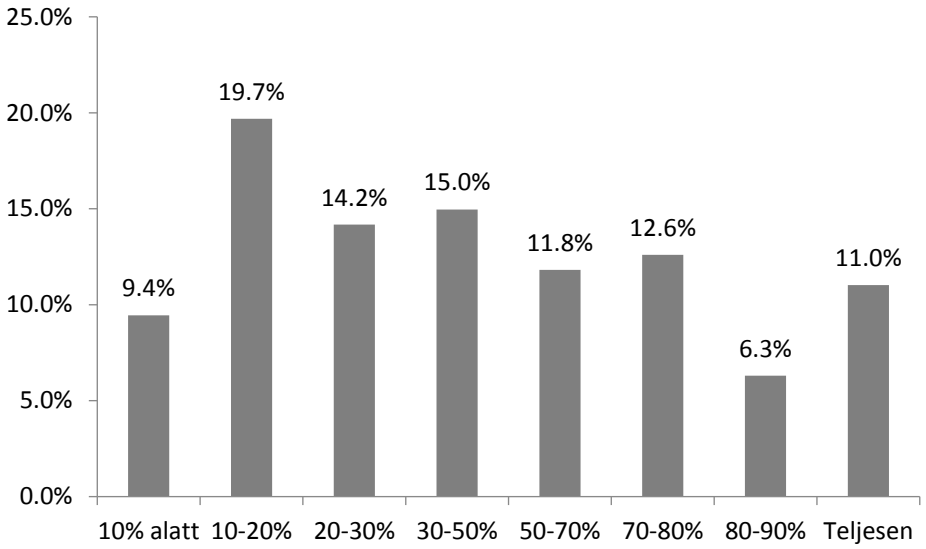

Figure 11: Proportion of participant farming households by the rate of self-sufficiency (%)
Source: Own data and elaboration, 2018

Nearly one-tenth of the producers can cover less than 10% of their own food necessities. 10-50% of the consumption can be covered in case of half of the respondents, while one-third of them can satisfy 50-90% of their needs.

The weight of agriculture is also represented by the number of family and household members involved in agricultural activities. The number of family members involved can be related to many factors, such as the nature, size, mechanization of the activity, etc. At the same time, the number of involved people shows the extent to which agriculture affects the life of a settlement, region, and household. For this reason, we investigated how many members are involved in farming within the participant households (Figure 9).

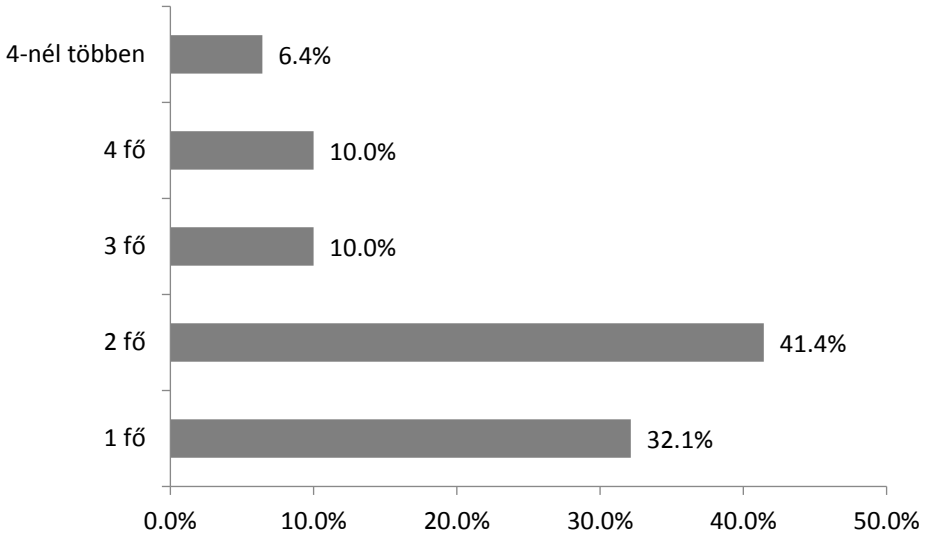

Figure 12: Proportion of participant farming households by the number of family-members involved in farming (%)

Source: Own data and elaboration, 2018

The largest proportion (41.4%) is the regular occupation of two members of the respective households. In one third of the cases, one person in the family carries out agricultural activities, while 10 to 10% three or four people are engaged in agricultural work. With more than 4 family members engaged were selected by just over 6% of the respondents.

Summary

This summary is based on the results of the questionnaires, the interviews conducted with the main actors, the opinion of the population and the observations made during the research. Summing up the research, the decline of agriculture is outlined in recent decades, but this does not equally affect the local community which was surveyed.

A general tendency is shown in rural research studies that the decreasing agricultural production is basically typical for the older generation, while the young people are already turning away from agriculture and are not pursuing farming because of other opportunities and further education. This has been a characteristic in Körösfő for decades, with the exception that not only agriculture but also further education have been abandoned as a result of craftsmanship. Based on the interviews - due to the narrowing of the possibilities of the local craft industry - further education has become the main feature of young people in recent years. Nevertheless it can finally be stated that in Köröfő agriculture is extremely decreased and its role in self-sufficiency and full-time function is limited.

However it should be pointed out that farming is even more pronounced in the other three settlements, with almost every household carrying out some kind of backyard activity and some degree of self-sufficiency. In addition, commercial production and sales are also better identified. According to the interviews, the "attitudes" of the younger generation are also more positive, on the one hand, they are involved in farming, on the other some of them expressly plan to continue this activity later, even in full-time.

Regarding the role of agriculture in the local strategy, in Körösfő it can only be mentioned - in present circumstances - as a minor role. This means that in this settlement only a few households or families can have a long-term strategy or livelihood, and this involves practically animal husbandry. Dealing with

tourism - as explained below - is also possible in the region, but it is relatively limited to the circumstances offered by Körösfő, compared to the other settlements.

In the other three villages farming can provide an alternative or produce direct incomes in the long run for a much broader population and for the community as a whole. Farming means an alternative regarding self-sufficiency or for side business, direct income can be obtained with full-time farming. The environmental conditions and circumstances are more favourable, the limitations of other possibilities (notably the handicraft industry) have caused agricultural traditions to survive, and agriculture is also a "common ground" for the community. There are a number of potentials in agriculture which could create opportunity (and jobs) for the whole community like its combination with tourism, diversification and food processing. Rural accommodation, local - good quality and special - foods (e.g. milk, sheep and goat cheese, meat products, organic vegetables and fruits etc.), the quality of environment, the cultural heritage and the local crafts industry all form the basis of this. In Nyárszó such an initiative has already been found.

To sum up there is a clear separation between the four settlements on the basis of the weight, current and future role of agriculture. The reasons for this can be clearly traced back to the environmental conditions, the formation and flourishing of the crafts industry in Körösfő, and the question of the transmission of the agricultural traditions. At the same time by developing an appropriate level of cooperation, exploiting the local industry, agriculture and tourism opportunities, it would be possible to develop a complex development strategy that would bring prosperity for the whole municipality.

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THE ANALYSIS OF HUNGARIAN AGRICULTURAL ENTERPRISES IN THE LIGHT OF AGROFORESTRY

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The study analyses the Hungarian agricultural businesses from a financial point of view, based on the Agricultural Research Institute's database. The analysis works with the statistically closed 2006 – 2015 period. The article presents important characteristics of the database. Finally, we introduce the factors of profitability such as agroforestry. The study also analyses the Hungarian agricultural price gap during the period between 2006 and 2016. Investigating the profitability of agriculture is a key issue for the development of the sector, price gap one of the most important components of agro-business development. The publication analyses the situation of Hungarian agricultural enterprises in terms of profitability. In our point of view, the agricultural financing system needs to focus on agroforestry.

1. INTRODUCTION

Besides many other factors, the agricultural price trend also affects the profitability of farming (Széles et al., 2014). Nevertheless, a special case can be observed during the period under review, that some of the Hungarian farmers permanently suffer negative agricultural price gap, while others permanently enjoy positive effects. It is important to examine what influences this paradox.
In the last 10 years, however, the profitability of crop production was higher, especially when we compared cereals and vegetables to animal husbandry (AKI, 2017).

1. Table 1 Agricultural producers' productivity and forestry profitability between 2006-2015

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	mean	dispersion
Arable crop production ROA	10%	13%	12%	6%	9%	16%	15%	12%	11%	10%	12%	2,8%
Grape Production Profitability ROA	5%	8%	5%	2%	2%	5%	4%	7%	5%	5%	5%	1,8%
Fruit growing ROA	2%	1%	3%	3%	4%	9%	8%	14%	6%	7%	6%	3,9%
Outdoor vegetable growing ROA	10%	10%	17%	12%	17%	17%	18%	25%	21%	18%	17%	4,7%
Vegetable Drives ROA	13%	13%	15%	5%	26%	7%	12%	17%	14%	14%	14%	5,7%
Mixed Economy ROA	9%	8%	8%	4%	6%	12%	10%	7%	10%	7%	8%	2,2%
Milk producers ROA	7%	8%	9%	6%	8%	12%	11%	10%	12%	7%	9%	2,2%
Breeding livestock ROA	5%	5%	6%	5%	9%	13%	12%	10%	10%	10%	9%	3,0%
Pork ROA	4%	0%	2%	4%	4%	7%	7%	-1%	4%	-1%	3%	2,8%
Poultry holders ROA	2%	1%	6%	4%	4%	7%	9%	7%	10%	13%	6%	3,7%
Total ROA	8%	9%	10%	5%	8%	13%	12%	11%	11%	9%	10%	2,2%
Forest area / total area> 5% ROA	6%	5%	6%	4%	6%	10%	11%	8%	8%	6%	7%	2,2%

Source AKI 2017

Because of the sticky prices, this segment deserves particular attention to changes in product prices. Agricultural price gap is not only an economic but also a legal task. According to 1997 CXIV law, paragraph 4 "... it must be tried to close agricultural price gap ". The law aims to fulfil this task with the agricultural subsidies, other regulatory instruments and market regulatory instruments.
In calculating agricultural price gap, the agricultural producer price index is divided by the agricultural expenses price index. The indices are calculated according to the Laspeyres formula, so the prices calculated by value ratios of sales outside agriculture in the year of 2000.
Agricultural expenses price index includes price indices of products and services not only for industrial but also for agricultural products (seed, feed, sales price of feed mixtures, fertilizers, plant protection products). The indices are calculated using the Laspeyres formula (KSH, 2016). Figure 1 shows the evolution of agricultural price gap in Hungary.

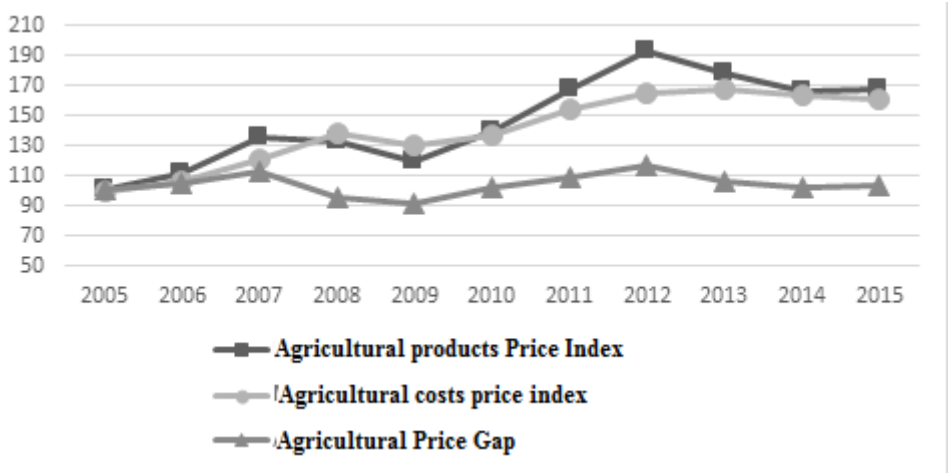

Figure 1: Changes in agricultural price gap in Hungary 2005-2015 (%) 2004 = 100%
Source: KSH, 2016

Figure 1 does not show a full picture because the agricultural price gap position was not indicated in 2004. But it was continuously open until 2004, with minor counter-movements. The analysis of a longer time series also raises the problem of comparability (for example, the change in sales tax does not play role directly in this area, because the KSH agricultural price gap does not contain it, but the change in sales tax or producer prices can affect demand volatility).

In the 1990s and early 2000s, agricultural price gap was varied. Farmers also responded to this, similarly to many other negative external influences, by trying to manage the least deterioration of efficiency in the changed circumstances (Kozma, 1993).

However, in the period under review, agricultural price indexes, - except for the years 2008 and 2009- were well-developed: agricultural price gap did not open further. "We can make a basic finding about agriculture that the sector has not been in a favourable economic condition over the past three decades than the past three years. It cannot therefore be said that the fundamental structural problems of the sector would have been solved; only agriculture had a financially stable period in 2011-2014. However, the reasons for this were only partially due to internal influences. True factors are: the rise in the price of agricultural products, and the EU support system" (Kapronczai, 2014: 73).

It is worth examining which agrarian segments suffer from the impact of agricultural price gap. Here, we will separate the examined area into its sub-elements. The global agricultural price gap conceals different picture of crop production and livestock farming. Therefore, it is worth examining the trend of agricultural price gap according to production type (Figure 17).

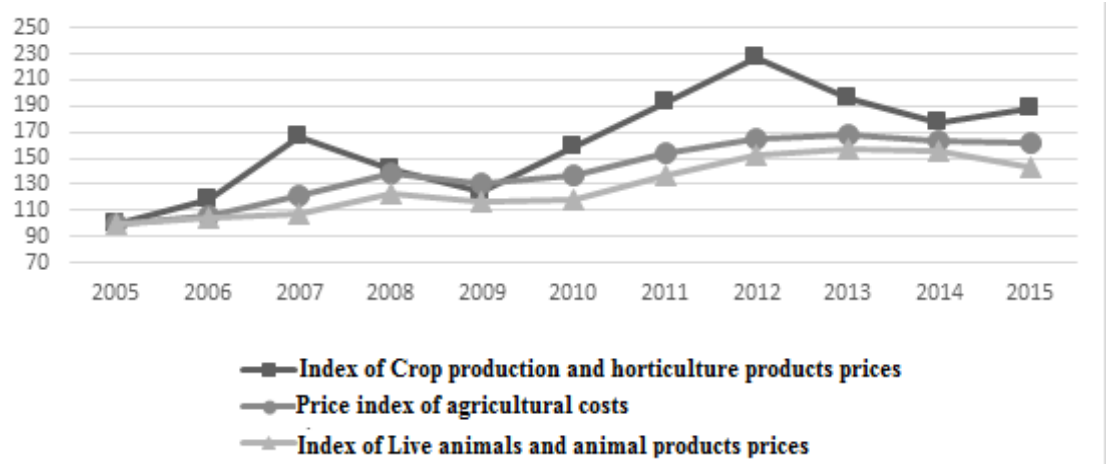

Fig 2: Changes in agricultural price gap in Hungary according to production type 2005-2015 (%)
Source: KSH, 2016

The index of agricultural producer prices has been broken down into the index "crop and horticultural producer prices", which includes cereals, industrial crops, vegetables, fruits, and "producer prices for live animals and animal products". As can be seen from Figure 2, crop prices and horticultural producer prices are fairly hectic but favourable. During the examined period the averages increase in price level of the expenses: industrial goods used for agricultural production was lagging behind the increase in the producer prices of agricultural products related to crop production.

Conversely, the increase in producer prices for live animals and animal products remained below the agricultural expenses price index. The source of internal financing is insufficient for accumulation due to the opening agricultural price gap, and the financing requirement for current production cannot be satisfied without significant external resources (Borszeki, 2001).

As in the case of livestock farming, the opening of agricultural price gap has been present for many years, it has only further accelerated, thus it can be said that there is a strong positive relationship between opening of agricultural price gap and profitability. Further deterioration of price ratios causes further profitability decrease.

To test this, we used linear regression for each activity type to examine how close the link is between agricultural price gap and profitability between 2006 and 2015. Sectorial Total Capital to Profit ratios data based on AKI data for arable crops, vine growing, fruit cultivating, vegetable growing, mixed farms, dairy farmers, grazing, pig farming and poultry breeding.
To allocate prices to the sectors as accurately as possible, we did not use aggregated agricultural price gap, but based on the data of the Hungarian Central Statistical Office (KSH), we calculated the price indices of crop and horticultural products. We examined the relationship between annual change in the prices of agricultural crops / annual changes in the price indices of agricultural inputs and the profitability of the crop and horticultural producers. In case of livestock farmers we used the sectorial agricultural price gap of "Live animals and animal products" (annual change in the price indices of live animals and animal products / annual changes in the price indices of agricultural inputs) and the profitability of the production type.

2. PROFITABILITY OF AGRICULTURAL ENTERPRISES

Based on our results, the profitability of plant-producing companies in the production direction was not significantly influenced by the change in the agricultural price gap. However, there was already a moderate

relationship between the profitability of the livestock sector and the sectorial agricultural price gap of livestock and livestock products.
The price of milk was steady between 2010 and 2014 as a result of worldwide demand growth, but in 2015 the price dropped by 20%, it comes with the relative stagnation of agricultural price indices (KSH, 2015). Among other things, the profitability of enterprises between 2010 and 2014 was 10% above the profitability of total capital, but fell to 7% in 2015. Figure 3 shows the values of the two variables in the years under review.

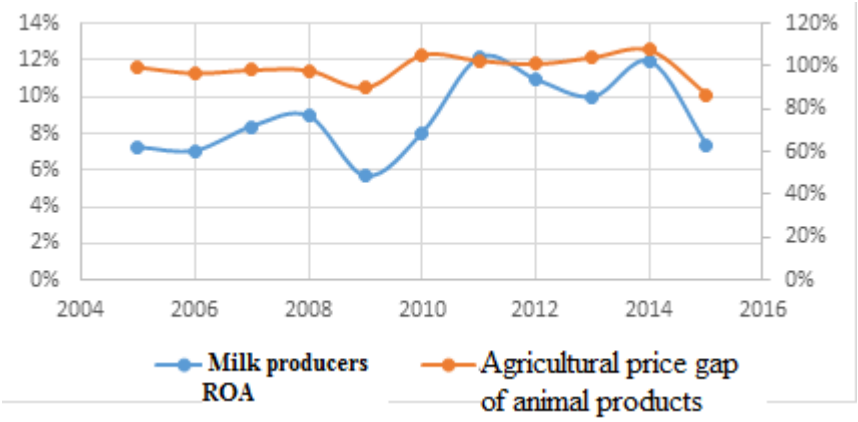

Figure 3: The average return on the assets ratio of the dairy farms in Hungary (ROA, left axis in %) and the agricultural price gap of animal products (right axis in %, base = previous year) in Hungary 2005-2015
Source: own calculations based on KSH and AKI data

Previous data are represented on horizontal and vertical axes in Figure 4, the points designate the years. At this time, we cannot see a time series but the relationship between the two variables. Is there linear relationship between profitability and agricultural price gap compared to the previous year? If there is a positive relationship, there is an upward trend. In the case of milk producers, a moderate positive correlation can be observed between the annual change in agricultural price gap and the return of assets (Figure 4).

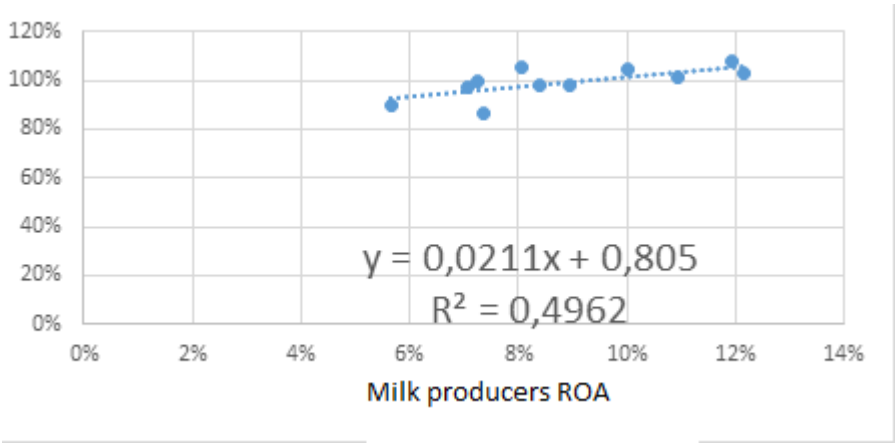

Figure 4: Relationship between milk-producing domestic agricultural enterprises' average ROA in the year-to-year ratio (ROA) and the agricultural price gap of animal products (vertical axis in%, base = previous year) Values indicated the years
Source: own calculations based on KSH and AKI data

The average producer price for raw milk in 2015 was about 12% lower than in 2014 (Mándi & Nagy, 2015). While crop production prices increased, this is not favourable for livestock farmers. Thus, the dairy farms' most important cost component of milk production is the feed cost, which accounts for 43-50% of the total cost of the Hungarian farms (Geszti & Borbély, 2005).

Figure 5 shows the average asset-based profitability of the domestic agricultural businesses engaged in grazing livestock farming and the agricultural price gap of live animals and animal products.

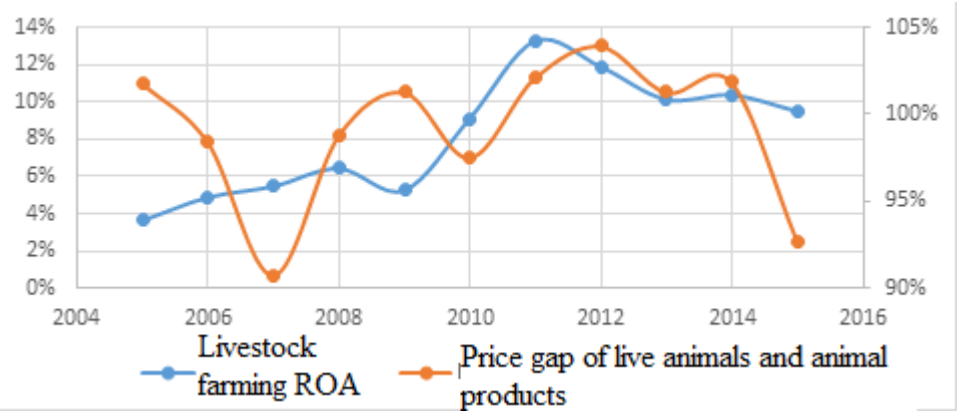

Figure 5: Hungarian agricultural enterprises in grazing livestock farming on average annual return on assets (ROA, left axis in%) and agricultural price gap of live animals and animal products (right axis in%, base = previous year) in Hungary 2005-2015

Source: own calculations based on KSH and AKI data

The trend line and the R-square in Figure 6 both show that we can see in this production type only a weak positive relationship during the examined period.

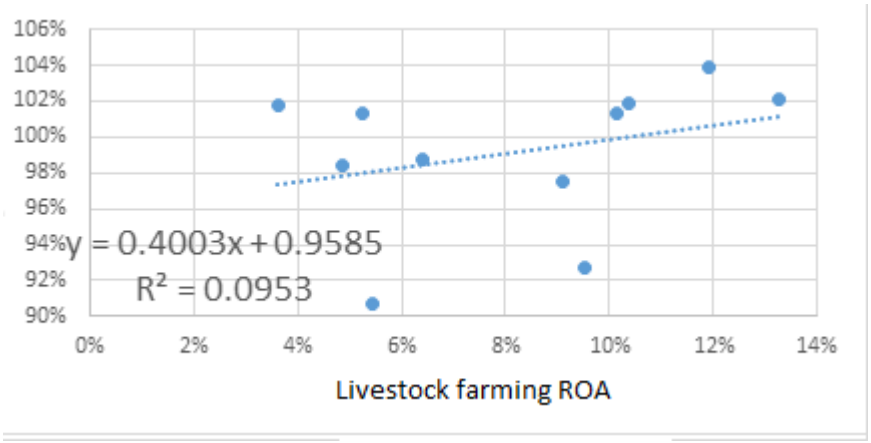

Figure 6: Relationships of agricultural agribusinesses in grazing livestock farming (ROA,% of horizontal axis) and the relationship between agricultural price gap of live animals and animal products (vertical axis in%, base = previous year) Values are years

Source: own calculations based on KSH and AKI data

However, the profitability of pig farming businesses has a strong relationship with agricultural price gap. For example, in pig production, the producer price of domestic pig production was six and a half per cent lower in 2015 than in 2014 (Egri, 2015). At the same time, the average profitability of these companies in the production direction fell from 4% to 0% in 2015.

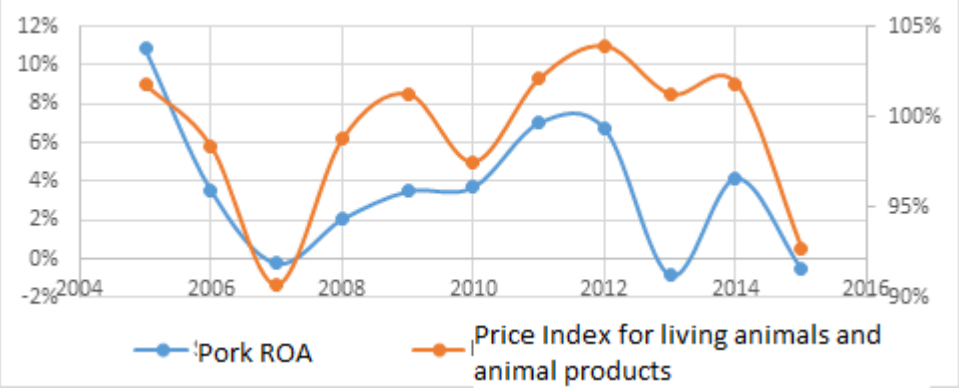

Figure 7: Hungarian pig production enterprises average annual return on assets (ROA, left axis in%) and agricultural price gap of live animals and animal products (right axis in%, base = previous year) in Hungary 2005-2015

Source: own calculations based on KSH and AKI data

This effect can be deduced from the linear regression line and its formula in Figure 8.

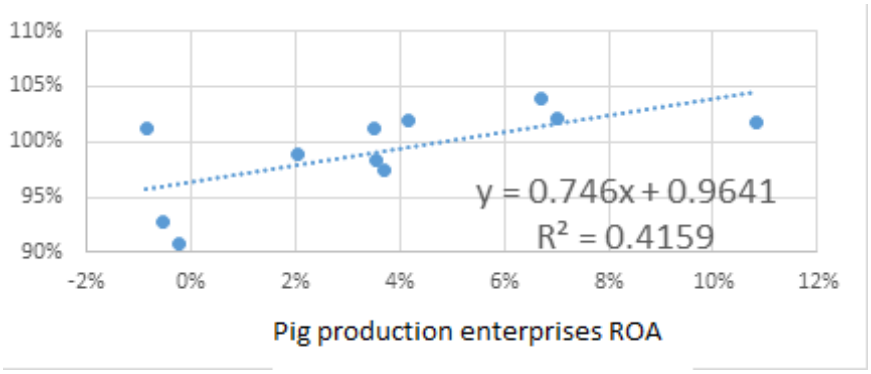

Figure 8: Relationship between the pig production enterprises' average annual return on assets (ROA,% in horizontal axis) and agricultural price gap of live animals and animal products (vertical axis in%, base = previous year) Values are years

Source: own calculations based on KSH and AKI data

In the case of poultry holders (Figure 9), the relationship is much weaker when we examine the entire period, but "The prices of live animals decreased by 5.6% and the fall of animal products price was also significant in 2015. But opposite effect also shown: Egg prices increased by 6.9% in 2015 compared to a year earlier" (KSH, 2015).

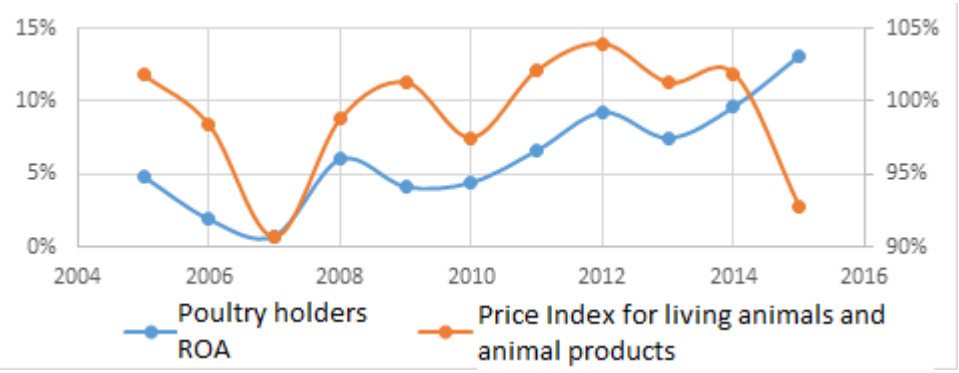

Figure 9: Hungarian poultry farming enterprises' average return on assets (ROA, left axis in%) and the agricultural price gap of livestock and livestock products (right axis in%, base = previous year) in Hungary 2005-2015

Source: own calculations based on KSH and AKI data

If we exclude the extreme year of 2015, and analyse only between 2005 and 2014, there is a strong positive relationship between the profitability of poultry holders and agricultural price gap.

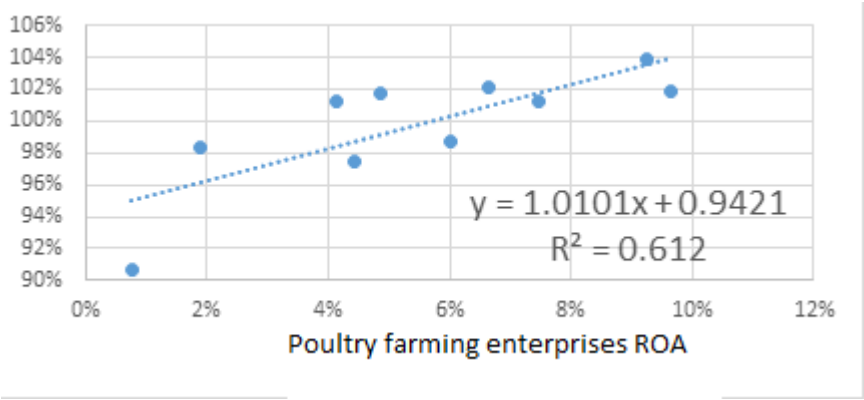

Figure 10: Relationship between Hungarian poultry farming enterprises' average return on assets (ROA,% in horizontal axis) and agricultural price gap of live animals and animal products (vertical axis in%, base = previous year) Values are years
Source: own calculations based on KSH and AKI data

The improvement in the price ratio is in close connection with profitability or in our case it is just the opposite since the agricultural price gap of animal products deteriorated. When the price of the expenses increases more than the price of the sold products, in the case of livestock farmers, the decline in agricultural price gap and the deterioration of profitability shows a close relationship.

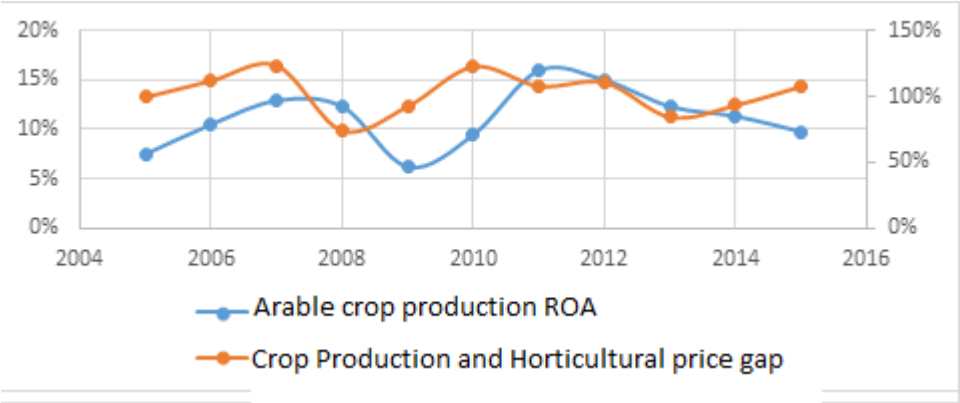

Figure 11: Field Plantation ROA (ROA, left axis in %) and agricultural price gap (right axis in%, base = previous year) in Hungary 2005-2015
Source: own calculations based on KSH and AKI data

In the case of arable land farms there is a weak positive relationship between agricultural price gap and the profitability as can be seen from Figures 11 and 12.

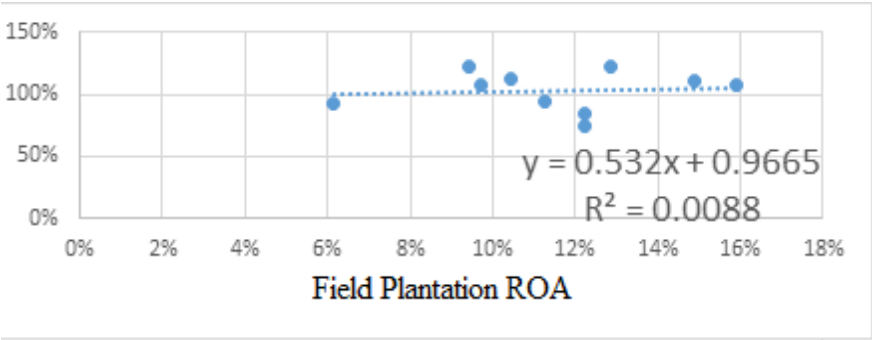

Figure 12: arable land farms profitability (%) agricultural price gap of crops and horticultural products (vertical axis in%, base = previous year) Values indicate years (ROA, horizontal axis %)
Source: own calculations based on KSH and AKI data

There is also a weak relationship between the fruit growing farms' ROA and the agricultural price gap of fruit products, but it has a negative direction, so there is no effect on the possible deterioration of the agricultural spoilage on profitability. This is shown in Figure 13, especially in the years of 2005-2019 and in the year of 2011 as well.

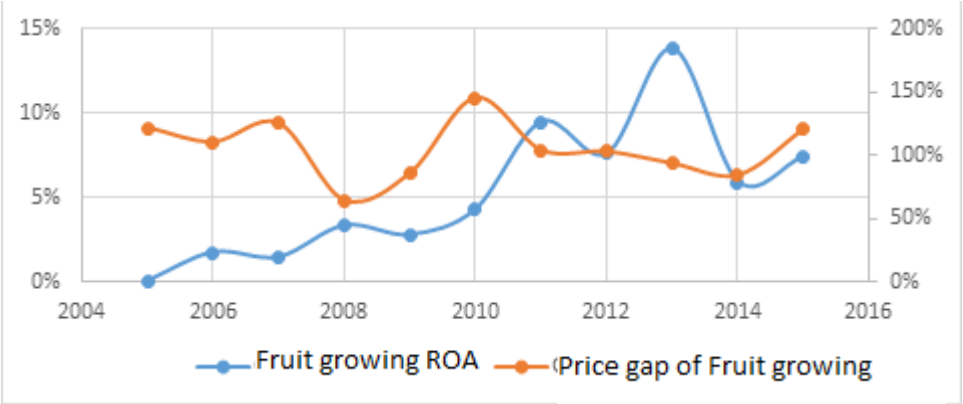

Figure 13: Hungarian fruit enterprises ROA (ROA, left axis in %) and the agricultural price gap of fruit products (right axis in%, base = previous year) in Hungary 2005-2015
Source: own calculations based on KSH and AKI data

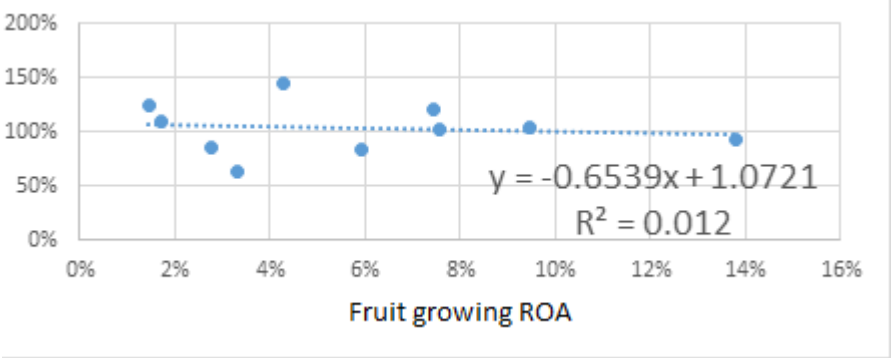

Figure 14: Fruit production farms' ROA (ROA, horizontal axis in %) and fruit products' agricultural price gap (Vertical Axis in%, Base = Previous Year) Values indicate years
Source: own calculations based on KSH and AKI data

The relationship between average agricultural profitability of agricultural businesses in the field of vegetable growing and agricultural price gap of vegetables, as well as other plant growers, are weakly positive.

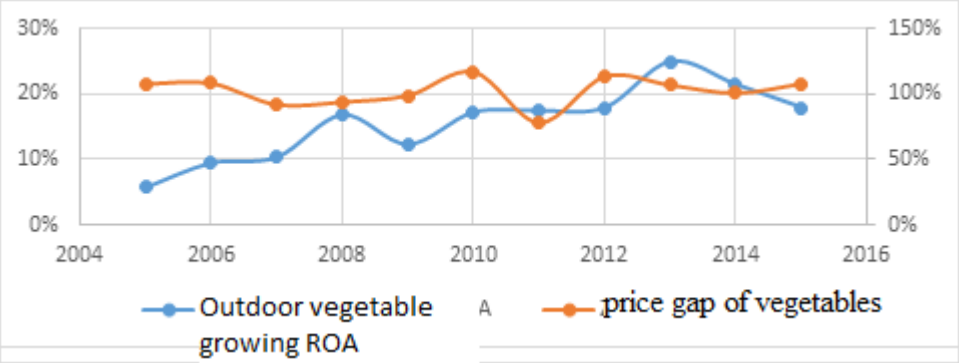

Figure 15: The average return on assets (ROA, left axis in%) of agricultural enterprises in the field of vegetable production in Hungary and the agricultural price gap of vegetables (right axis in%, base = previous year) in Hungary 2005-2015

Source: own calculations based on KSH and AKI data

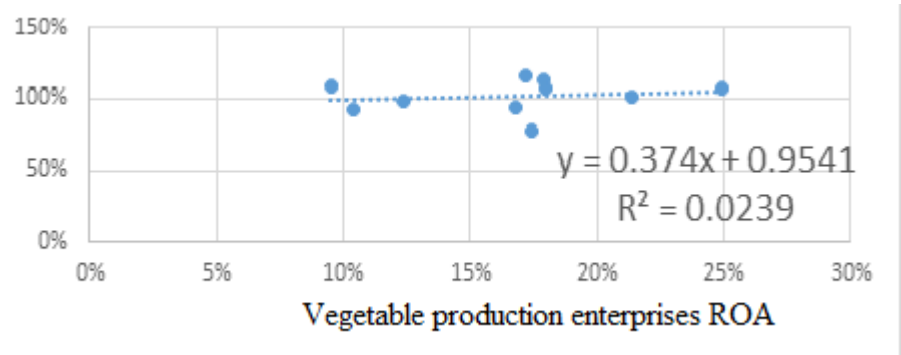

Figure 16: Relationship between Hungarian vegetable production enterprises' ROA (ROA, % in horizontal axis) and vegetable agricultural price gap (vertical axis in%, base = previous year) values indicate years

Source: own calculations based on KSH and AKI data

In Figure 17, there is no specific production type but the part of whole sample, for which Hungarian agricultural enterprises have more than 5% forest area / total area ratio. It also shows average annual return on assets and the agricultural price gap of crop and horticultural products. In Table 1, it was already clear that the profitability of farms with agrarian potential was slightly below the average, but the spread of profitability was lower.

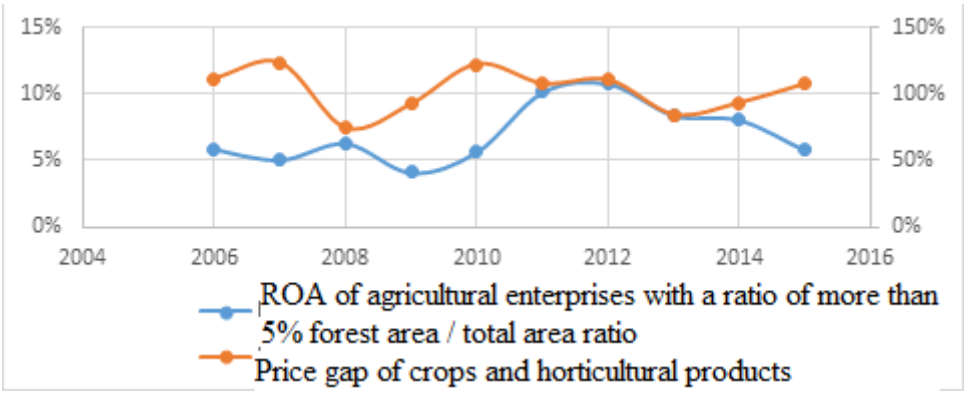

Figure 17: Hungarian agricultural enterprises with a ratio of more than 5% forest area / total area ratio to the average annual return on assets (ROA, left axis in%) and agricultural price gap of crops and horticultural products (right axis in%, base = previous year) in Hungary 2006-2015
Source: own calculations based on KSH and AKI data

Figure 18 shows that there is a weak negative relationship between domestic agricultural enterprises with a ratio of forest area / total area of more than 5% ROA and the agricultural price gap of crop and horticultural products. Thus, although the improvement of agricultural price gap affects less profitability it is less likely to suffer losses in the years of worsening agricultural price gap.

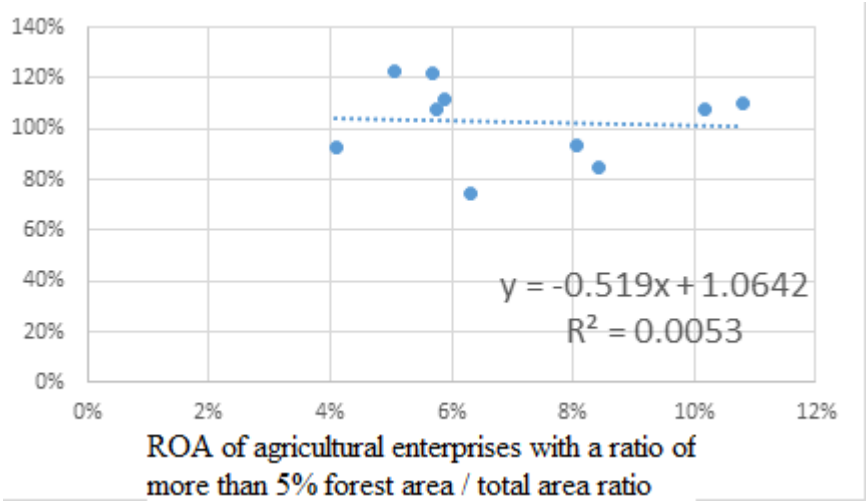

Figure 18: Relationship between Hungarian agricultural enterprises' ROA with a ratio of forest area / total area above 5% (ROA, horizontal axis per cent) and agricultural price gap of crops and horticultural products (vertical axis in%, base = previous year) Values indicate years
Source: own calculations based on KSH and AKI data

3. CONCLUSION

Agrarian potentials have a kind of risk-reducing diversification effect on farms, which can reduce the agricultural price gap. Of course, agricultural price gap is worth for a research with broader perspective. Aggregate agricultural price gap shows a favourable picture over the last decade. But there is still a significant negative impact on the agrarian farms, especially in the livestock sector. The opening of the agricultural price gap is a sort of consequence of economic growth, which is a compulsion to adapt to the livestock farming enterprise. Lower agricultural prices introduce farming constraints in agriculture, which can be partly solved by agroforestry. The key question here is whether this sector can revive.

4. SUMMARY

The study analysed the Hungarian agricultural businesses focusing on agroforestry and Hungarian agricultural price gap during the period between 2006 and 2016. In the period under review agricultural price gap did not open further, which was a favourable economic condition over the few years. But when we separated agricultural price gap into its sub-elements it turned out that global agricultural price gap provides a different picture of crop production and livestock farming price indicator. The index of agricultural producer prices has been broken down into the index "crop and horticultural producer prices", which includes cereals, industrial crops, vegetables, fruits, and "producer prices for live animals and animal products". As in the case of livestock farming, the opening of agricultural price gap has been present for many years, however it has accelerated and there is a strong positive relationship between the widening of agricultural price gap and profitability because further deterioration of price ratios causes further

profitability decrease. We used linear regression for each activity type to examine how tight is the relationship between agricultural price gap and profitability between 2006 and 2015. Our results showed there is still a significant negative impact on the agrarian farms, especially in the livestock sector. However, agroforestry can partly solve this risk.

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FACTORS DETERMINING THE PROFITABILITY OF HUNGARIAN AGRICULTURAL FARMS IN 2015

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Abstract

The study analyses the Hungarian agricultural businesses from a financial point of view, based on the Agricultural Research Institute's database. The analysis works with the statistically closed 2015 period. In the period examined 1 965 farms were included in the sample, which is representative for the country's 110 618 farms. Firstly, the article presents the important characteristics of the database. Then, this study investigates the relationships between different indicators of profitability. Our hypothesis was that, liability structure, liquidity and especially agricultural subsidies are closely related to profitability. Based on our results our hypothesis was confirmed.

1. INTRODUCTION

Hungary's agricultural strategy is extremely uncertain after 2020, because of the size and content of the next EU subsidization strategy. It is questionable how exactly the Common Agricultural Policy will develop, as it is certain that Britain is the second largest net contributor to the European Union budget, and it is uncertain whether the Brexit will be compensated for by the other member states.

It is unlikely that the agricultural subsidies will be completely eliminated, however, we believe that the Common Agricultural Policy might be transformed, so making production as competitive as possible is very important.

Research is based on data from the Agricultural Accountancy Data Network (FADN), operated by the Agricultural Research Institute (AKI), which can be used to determine the most important factors affecting profitability. For example, how liquidity, capital structure, and agricultural subsidies influence the profitability of agricultural enterprises.

Small and medium-sized enterprises have great importance in the Hungarian economy as they represent a significant proportion of enterprises registered in Hungary. Yet, basically, these businesses are characterized by low capital, risk aversion and lack of external resources. The financial resources of SMEs are generally only the property of the owner. This greatly narrows their growth potential and productivity. The agricultural subsidies policy of recent years has largely shifted the funding of enterprises to non-refundable subsidies from the European Union's cohesion funds. This significantly distorted the market decisions and investment structure. However, Sarudi and his colleagues pointed out that the content of the application programs was almost solely determined by the European Council and / or the

Commission's proposals, so there was relatively little scope for enforcing domestic features (Sarudi & Horváth & Bertalan, 2016).

Following the entry into the Treaty of Rome, the agricultural policies of the Member States were defined by the Community. As a consequence, the co-decision has come into effect in the area of the common agricultural policy. The basic reason for its creation is that the products produced by agriculture are free to move under State interference, for this reason, national intervention mechanisms are incompatible with the common market. The objectives have remained unchanged since the Treaty of Lisbon, many reforms have been introduced since then, but the foundation stones are still valid today (Massot, 2016).

As a consequence of the Agenda 2000 reform package and the rural development regulation approved at the 1999 European Council in Berlin, rural development policy has also been integrated into the common agricultural policy. Rural development has become the second pillar of the common agricultural policy. The main objective of the European Union's agri-environment subsidies is to support the sustainable development of rural areas, to preserve and improve the state of the environment, to reduce the environmental burden of agricultural origin, to provide environmental services and to promote agricultural practices based on the sustainable use of natural resources. A large part of the agri-environmental subsidies is bound to organic farming (Nagy & Baráth, 2015).

In the European Union, Community funding is provided by the Structural Funds and the Cohesion Fund. The Structural Funds provide funding support for structural improvement measures, and the Cohesion Fund serves the convergence of the least-developed countries. The level of maximum payment of the first pillar of the CAP, the production related subsidies, was set by the European Council in 2002, determining that the direct payments between 2007 and 2013 remain on the 2006 level (Sarudi, 2004).

As a result of a long process, the CAP agricultural subsidies system has been significantly altered: the aid for increasing the volume of production has been replaced by the increasingly direct and indirect subsidies of the producer's livelihood. Prior to the 1992 reform, the market support (mainly in connection with export and intervention purchases) was above 90% for all CAP subsidies, and this rate fell below 10% in 2009.

Because of the EU's common agricultural policy there are more agricultural subsidies of the production of cereals, oilseeds and protein feed, and the fact that the EU is not self-sufficient from corn or oilseeds, it gives some explanation why these two cultures perform best. At the same time, in the case of livestock production, the profitability of cows' milk production has also decreased (Somai, 2014).

2. AGRICULTURAL SUBSIDIES SYSTEM

The Agrarian Ministers of the European Union agreed in June 2013 on the CAP reform package for 2014-2020, which was approved by the European Parliament at its plenary session on 20 November 2013. "In the period 2014-2020, Hungary can spend a total of € 10.97 billion EU funding for agriculture. Of this, direct grants amount to EUR 7.90 billion, rural development payments amount to EUR 3.07 billion. Thus, Hungary can use 3.0 per cent of the EU's direct funding resources (2.9 per cent in 2013) and 3.7 per cent of its 2. pillar resources (4.0 per cent in 2013). For comparison: on the basis of Eurostat data, Hungarian agriculture accounts for only 2% of the EU-27's agriculture output" (Potori & Kovács & Vásáry, 2013).

The reform package is based on Regulation (EU) No 1307/2013. In this reform package, "Direct Payments" can be divided into two groups. One part contains mandatory elements, which include a number of new measures in addition to the basic agricultural subsidies system:

- Basic agricultural subsidies scheme: Single Area Payment Scheme (SAPS), comprising 70% of the total available State budget for Member States. All land eligible for basic agricultural subsidies. The amount depends on the size of the declared eligible land (Kovács & Potori & Vásáry, 2013).
- Greenery: In addition to payments under the single area payment scheme, they will be eligible for additional hectare agricultural subsidies. Member States may spend 30% of their national funding to finance this. A large proportion of the aid will be used in future to reward farmers to provide environmental public goods. As a precondition for payments, it must be complied with environmental and other regulations (Andréka & Bányai & Olajos, 2015).
- Young farmers: In order to encourage generational renewal, young farmers (under 40) in agricultural activity are eligible for additional funding in the first five years after the start of the activity (European Commission, 2013).
- Production related subsidies: To avoid negative impacts in some regions or sectors, Member States may choose to grant limited production related subsidies (European Commission, 2013). Instead of 3,5% of the direct EU agricultural subsidies framework - for Hungary - the amount to be allocated under this item increases to 13%.(Kránitz & Tóth & Vásáry, 2014)

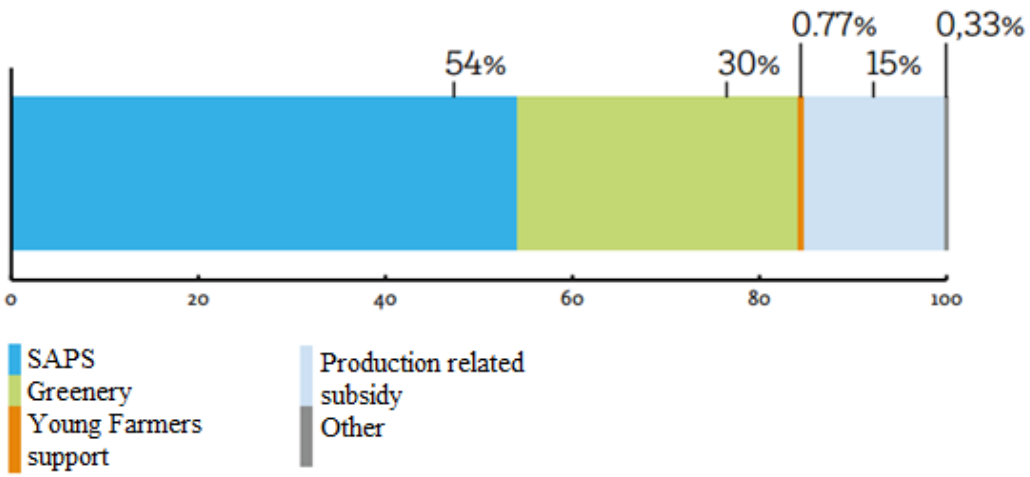

Figure 1: Domestic distribution of agricultural subsidies in 2015

Source: National Chamber of Agricultural Economics 2016

According to KPMG, a total of HUF 3 714 billion of EU subsidies was paid to farmers for the period 2007-2015, amounting to 692,000 projects (normative long-term agricultural subsidies (direct agricultural subsidies, agro-environment) per client as a project).

75% of payments were connected to arable crops, 12% to farmers engaged in animal husbandry and beekeeping, and only 5% to the horticulture and vineyard sector.

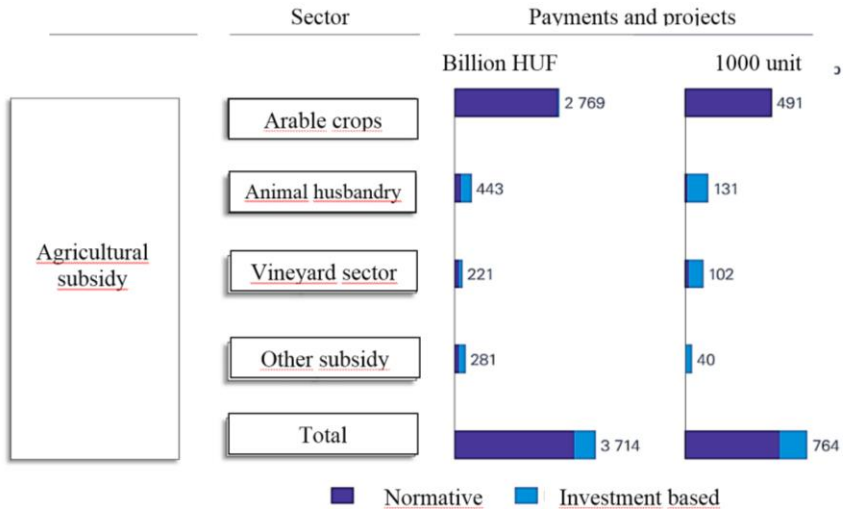

Figure 2: Agricultural subsidies for farmers by intervention area and sector (2007-2015)

Source: KPMG 2017 IIER data

84.6% of the payments were in the form of a normative type of income subsidies, while the amount of investment-type grants amounted to HUF 572 billion: only 15.4% of the payments.

Within the arable crop production sector, 84% of the payments were made to farmers in the form of area payments. Another part (13.3%) are also an area-based agricultural subsidies, but in return for environmental protection standards. 2.7% of the grants focused primarily on investment projects aimed at promoting efficiency (drying, irrigation).

In the livestock sector, the proportion of stimulating investment was 89.6%. In the case of horticulture and viticulture, 55% of the agricultural subsidies were granted for restructuring measures, 45% was the investment incentive. Other agricultural subsidies are typically measures of income subsidies and support for action (young farmers, agricultural subsidies for producer groups), as well as measures to modernize assets and technology (KPMG, 2017).

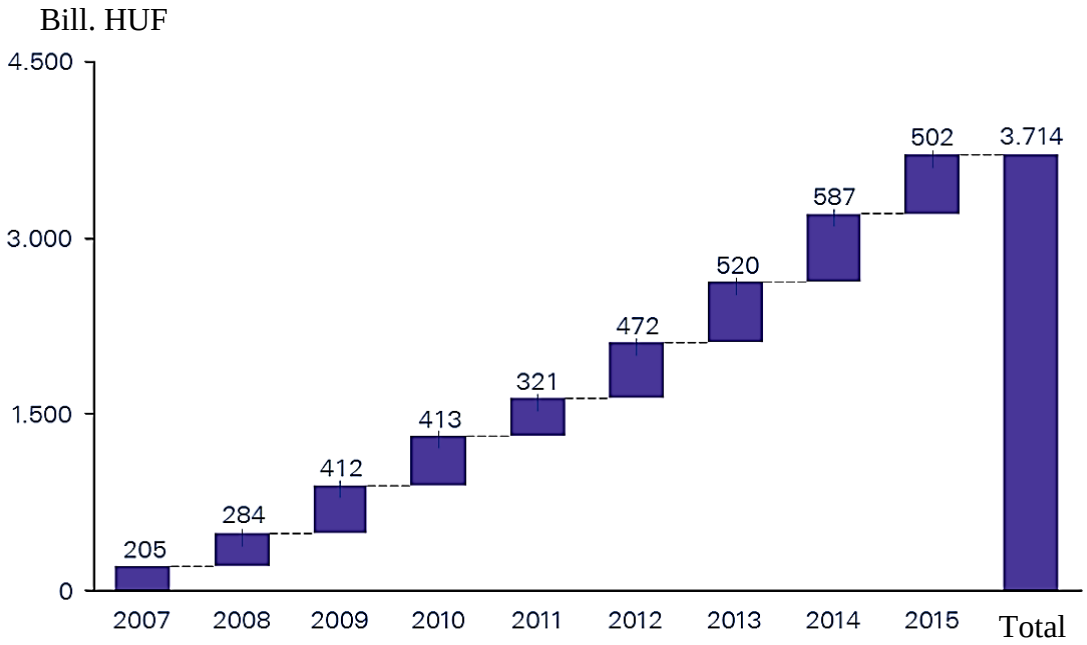

Figure 3: Agricultural subsidies to farmers in the area of payments in the area of intervention (HUF bn) (2007-2015)

Source: KPMG 2017 IIER data

The payment of the subsidies after 2007 progressively reached the level of agricultural subsidies for the old Member States by 2013. According to KPMG's analysis (2017), for the period 2007-2015, the share of investment subsidies was 25% compared to the total of private, public and EU co-financed investments in Hungarian agriculture.

3. RESULTS

The size and content of the next EU agricultural subsidies strategy are extremely uncertain. Therefore, the challenges for pure market competition must be well prepared. In the near future, with the decreased EU funds, classical corporate sources will be re-evaluated.

The main aim of the research is to examine the profitability of the agricultural sector focusing on lending and subsidies. At this point, empirical testing of this relationship was performed using the multivariate linear regression method. The economic processes in their variables generally have non-linear relationships, but according to Hunyadi-Mundruczó-Vita (2012), most of them can be traced back to linear models. The database of modelling was developed by the AKI database in 2015. The balance sheets of 1965 companies make up a representative sample of the agro-economy.

As a result of the cross-sectional analysis, statistical problems with time series analysis do not arise. The explanatory power of the model (R2) and the significance of the independent variables were examined.

During the study, we attributed a greater importance to the sign of the relationship between the variables, according to the literature, than the numerical magnitude.

The basic equation of the model as a multivariate linear regression model is:

$Y = \beta_0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \ldots + \beta nxn + \varepsilon,$

Y is the dependent factor,

Xi are independent factors (i = 1 ... n)

βi partial regression coefficients (i = 1 ... n) and

ε indicate a random factor.

The random factor is assumed to be a normal distribution of independent variables whose expected value is zero, its variance is σ^2. In the model randomness has the same role but deviations are equalized between actual values and deterministically estimated values (their average is zero), their deviations are constant (not dependent on the level of the explanatory and estimated independent variables) and their distribution is normal.

The explanation of each factor is made up of the following elements:

Independent variable:

Y: Revenue -to-income ratio

Dependent variables:

X1: Revenue -to-subsidy ratio

X2: Cost / Rev

X3: Equity ratio for balance sheet total

X4: Revenue -to- cash ratio

Y is the revenue-to-income ratio, which shows the impact of each factor on profitability. The relationship between the factors Y and X1 shows the effect of the agricultural subsidies on profitability represents a possible channel for financing agriculture.

In the relationship between Y and X2, I wanted strictly to examine the income generating capacity of agriculture without any other factors (financial, extraordinary results, etc.) therefore, a modified index was needed, which highlights the profitability of agricultural activity. There was a need for an indicator that would not be influenced by the results of the financial transactions or the possible tax burdens that may

differ by agricultural enterprises. I chose the Cost per unit revenue (hereinafter referred to as "Cost / rev"), which is a modified profitability index:

Cost / rev = (Total operating costs) / (Net sales revenue)

Therefore, it is a kind of simplified indicator of the operating result: if it is below 1, the agricultural enterprise's sales revenue exceeds the operating costs, if the value of the indicator is above 1, the costs are greater than the sales revenue. Similarly, Gorton et al. in their article examined the profitability of domestic agricultural industry in order to reveal realistic profitability (Gorton et al., 2003).

The Equity ratio for balance sheet total X3 is negatively related to profitability since the calculation of interest as a cost reduces pre-tax profit. However, even a positive relationship is possible, given that higher sales revenue generally requires greater capital requirements and, means greater foreign capital.

The variable X4 is designed to capture the company's liquidity. In the life of domestic agricultural enterprises, liquidity indicators are key indicators, since more than 60% of foreign liabilities over the period 2010-2015 were made up of short-term liabilities. Its significance is clear, but the direction of the relationship is not evident. With high company liquidity, it is easier to access cheaper sources of credit. However, too many liquid cash will not generate profit, so even a negative relationship can be imagined.

Finally, four relevant factors in the model explained the change in profit by 80.2%. The explanatory power of the model can be considered to be significant in view of the fact that the profit structure is influenced by a number of difficultly quantifiable macro factors, such as capital market development, banking system and other institutional features, corporate governance, tax system, bankruptcy laws and macroeconomic financial difficulties (Krénusz 2005).

Table 1: Summary of the factors determining pre-tax profit margin of revenue, linear regression calculated on the year 2015

	Coefficients
X1: Revenue -to-subsidy ratio	0.9565 *
X2: Cost / Rev	-0.8078 *
X3: Equity ratio for balance sheet total	0.1281 *
X4: Revenue -to- cash ratio	0.0216 *
Constant	0.8136 *

	R^2
Y: Revenue -to-income ratio	0,802

*: Significant in level of 1%

Source: Own calculation

The Revenue -to-income ratio is mainly influenced by the agricultural subsidies, the effect is positive and the value is high. A unit increase in subsidies will result in a 0.956 unit increase in Revenue -to-income ratio.

The unit increases of Equity ratio for balance sheet total, increases the Revenue -to-income ratio by 0.1281 units. Paying interest on liabilities would decrease Revenue -to-income ratio, so Equity ratio for balance sheet total increases it.

The value of profitability is higher for enterprises where equity is higher; on the other hand, the enterprise receives more subsidies. The first link demonstrates the importance of internal accumulation, and the second justifies a close relationship between subsidy and profitability.

According to the -0.8078 coefficient in the "Cost / rev" ratio, if the value of the index is below 1, then the revenues exceed the expenditures, so the agricultural enterprise is profitable. Therefore, the negative value shows that the higher unit cost per unit revenue (or the less revenue per unit cost per revenue) reduces profitability.

Our assumption has been verified: the most important factors affecting profitability can be determined. Thus, for example, liquidity, liability structure and the agrarian subsidy system have a significant impact on the profitability of agricultural enterprises.

Among the three possible agricultural financing channels, lending may be the dominant element over the other factors, as it is best placed to organize the structure of agricultural production based on economic considerations. In this system, subsidy should also be allocated based on economy-efficiency criteria, criteria that are most likely to be forced out of the lending side. For example, instead of current practice, subsidies should be focused on permanently viable economies whose effectiveness does not depend on subsidies.

4. SUMMARY

The study analysed the Hungarian agricultural businesses from a financial point of view and investigated the relationships between different indicators of profitability. Indicators related to liability structure and liquidity were correlated closely to profitability. Moreover, the empirical testing - performed using the multivariate linear regression method – showed that the Revenue-to-income ratio is mostly influenced by the agricultural subsidies, the effect is positive and the value is high. The second most important dependent variable was the unit cost per unit revenue indicator.

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THE EMERGENCE OF CONFLICTS BETWEEN DIFFERENT GENERATIONS IN COMPANY PRACTICES

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Abstract

Nowadays more and more generations participate on the labour market therefore it raises potential conflict source during business operation. In our research we analysed the frequency and the underlying reason of generation gap, furthermore we identified executive involvement in conflict management. Based on the results one of our goal was to suggest solutions in order to reduce workplace conflicts and improve conflict management tools of company leaders. According to the results we can say that generation gap is not as wide as it is described in literature because most of the respondents did not experienced generation conflicts at their workplace and they worked gladly together with colleagues from different age-groups.

Keywords: generation management, human resource, leadership, conflict management

1. INTRODUCTION

Individuals in society have their own particular values, characteristics and personality; people behave differently in a particular situation and make their decisions based on different criteria. According to studies on the subject, this difference exists not only between individuals, but between generations, as well. It can be observed that certain generations significantly differ from one another, which, beyond our family and social relationships, exerts its effect at the workplace, too. Generations have different set of values and work morals; they have different expectations and can be motivated with different instruments.
Currently, there are four generations on the labour market (boomer, X, Y, Z) which results in a peculiar challenge to organizations. A generation can be defined along different approaches (Meretei, 2017). In our research, we applied the division by age. In our study, we seek to discover whether or not generation conflicts exist at the workplace of today, and what role these factors might play in shaping the workplace atmosphere.

1.1. Defining the concept of a generation

Traditionally, a generation is defined as "*the average time between the birth of the parents and their offspring*" which means a term of approximately 20-25 years. As the time for childbearing is more and more delayed, nowadays this would mean a period of time longer-than-ever; therefore this approach has by now become irrelevant. It is more to the point to approach the concept from a sociological aspect, which says that a generation is the group of people born in the same age, defined by the same age and its particular events. Mccrindle-Wolfinger (2010) quotes the words of Strauss and Howe as follows: *"Generation is a group of individuals who share the historic space and time that gives them collective personality."* If we define generations based on the biological interpretation of the concept, we can state that "*individuals of approximately the same age form a generation*" (Hale–Margham– Saunders, 1997). In our view, the definition offered by Mccrindle-Wolfinger (2010) is the most complex and thorough definition of a generation, therefore the present study uses the term generation according to the following definition: "*a generation is defined as the group of individuals who were born in the same age, were shaped by the same period, were influenced by the same social markers - in other words, a generation is a group connected by the same age and life period, living conditions and technology, events and experiences.*"
Of course, this does not justify stereotyping. The fact that a particular generation is influenced by the same social, economic, political or technological factors does not lead to the conclusion that every member of that generation has a homogeneous personality, identical characteristics or attitudes. On the other hand, it is obvious that environmental factors have an effect on how the individuals and the generations are socialized, which, in extreme cases, can lead to the emergence of a generation gap, and to bridge this gap is a challenge to employers.

1.2. Generations described

Boomer generation (1946-1964)

After World War II, the number of births increased rapidly, this is the reason why the generation born in this period is called "Baby Boom" generation. Boomers are children of veterans, their world view, however, greatly differ from their parents'. They have a more positive approach to change, they are more optimistic and sanguine than their predecessors, authoritarianism is less important to them and they focus on equality more and more. Their more liberal approach is reflected, however, in the fact that they tend to plan for a shorter term in their relationships and at work, too. Members of the Baby Boom generation like to work in a team; they are flexible and open to working with younger colleagues. Personal contact and recognition has a motivational effect for them, just like for veterans (Zubány, 2008). The boomer generation provides the basis of today's management level, therefore they continue to be a decisive segment in the labour market who delay their retirement or continue to work part time even afterwards (Zubány, 2008).

Tari (2010) expresses a similar thought regarding the labour market activity of the boomers: "*on the one hand, the generation slowly retiring, on the other hand, those in their fifties who are very much present in the labour market and who do not want to live like old men at all.*" Kissné (2014) emphasizes that this generation, applying its knowledge, experience and loyalty, is able to raise any company of any size to be one of the largest. However, there is a fear emerging in them that the new generations may take their jobs. They are afraid that the newer generations have skills that they do not possess and they are more open to learning than their predecessors. According to Besenyei (2016), boomers have knowledge of computer technology devices and - mainly the younger representatives of the generation - are experienced in using computers and the Internet.

Besenyei (2016) emphasizes that the change of regime had a significant effect on the life of the Baby Boom generation. In his opinion, boomers are the big losers of the change of regime who lost their footing when the state no longer looked after them. Planned economy gave way to market economy, which, compared to the previous system, guaranteed nothing, and unemployment appeared and life became more difficult.

Tari (2010), similarly to Besenyei, highlights that socialism, in her opinion, defined the life philosophy of older boomers, who "*were used to rigid hierarchies and hard work, but among constant conditions.*" On the other hand, the younger members of the generation tried to adapt to the new circumstances and tried themselves in the private business world, besides their state-owned workplaces. Self-management became more and more important to them, because as the caring of the state disappeared, work, status and recognition was no longer automatically guaranteed, "lifelong jobs" disappeared, which was a constant source of competitive pressure.

X generation (1965-1979)

Members of the X generation were born to families with two salaries where both parents were working and therefore were able to spend less time with their children. As a result, the X generation became an independent and resourceful generation with a set of values and approach to work that is different than its predecessors' (Kissné, 2014). This generation grew up amidst uncertainty and limited opportunities, and due to the hard economic turns of the 80's, divorce, state debt and being laid off are familiar concepts to them (Lukovszki, 2015). Learning from the excessive perfectionism of their parents, work is no longer primary in their life, and they seek to find a balance between work and private life (Zubány, 2008).

The X generation is substantially more flexible, better at adapting to changes, but is less characterized by commitment and they change jobs more frequently than their predecessors (Zubány, 2008). With regard to their qualifications, it can be stated that they are highly-qualified, speak languages, hold one or more degrees, and have computer skills as well (Kissné, 2014; Besenyei, 2016).

This generation could experience that they are not glued to their seats in their jobs. They are well aware that when they aspire for a particular position, another candidate may become a serious contender and they realized that they can only win a job interview with credible and convincing communication. They are used to being in need of up-to-date information and they are willing to enter into interest-based

relationships (Tari, 2010). It motivates them if they are responsible for more than one task at a time and are given a free hand in accomplishing the tasks, and continuous feedback on their work is also important (Zubány, 2008).

Y generation (1980-1994)

The socialization of the Y generation was greatly influenced by the technological revolution, the proliferation of computers and the Internet. As the first digital generation, they are frequently referred to as the "Internet generation", as well, because computers and Internet have become a part of their life (Besenyei, 2016; Zubány, 2008).

According to Bessenyei (2016) this is the first generation that socialized vice versa. They no longer acquire their knowledge only from their predecessors but also from each other and from the world wide web as well, and they are the ones who teach their parents and grandparents to use the latest digital technologies. Beyond the technological factors, their socialization is also influenced by the change of the political atmosphere, since the members of the Y generation in Hungary were born in socialism, but grew up in a developing democracy. These changes resulted in the fact that the members of the Y generation "*are more open to novelties, more receptive, and acquire technological novelties quickly. They are agile, purposeful, and are characterized by an unlimited desire for work, and horrible salary expectations"* (Kissné, 2014).

The technological revolution has changed the way the Y generation works, too. With the use of modern devices, the Y generation is able to work outside the office, and they are able to carry out their tasks from anywhere in the world with the help of laptops, smartphones and the Internet. They have high self-confidence, and are less fond of rules, which they frequently go up against (Kissné, 2014).

Money and career are central to them when choosing a place to work. They are less connected to their workplace, they regard their job as a factor that can be altered at any time, and if they are not satisfied with something, they will do it with less emotional commitment (Tari, 2010; Kissné, 2014). They expect precisely defined targets, requirements and concrete deadlines from their superiors. They seek creative tasks and flexible work. Work-life balance is important to them. This generation will no longer sacrifice everything on the altar of work, free time is a must for them (Kissné, 2014*)*. Because of their high expectations, their retention is a challenge for employers (Zubány, 2008). According to the forecasts, this generation will make up 50 % of the global job market, therefore it is indispensable for employers to know the Y generation.

Z generation (1995-2009)

From the perspective of demographic factors, the Z generation shows significant differences when compared to the earlier generations, because they were born in an era when the number of children per mother fell below two. The significant drop in the number of births resulted in the fact that families have become smaller than ever. This is one of the generations where the headcount is the smallest, they are frequently brought up by older, not uncommonly single, mothers, they participate in education the longest and lifelong learning is typical among them (Ferincz-Szabó, 2012; Kissné, 2014; Keszi-Szeremlei et al., 2015).

They were socialized in a digital world, unlimited access to the World Wide Web is fundamental to them; they are used to being constantly connected to each other, too. They handle electronic devices proficiently, they spend a lot of time on different social media sites and they communicate with even hundreds of people daily. They spend a significant part of their life in the virtual space, however, in real life they are more and more reserved and they may regard personal communication as a kind of stressful situation. The members of the Z generation have high self-confidence, they do not doubt their own abilities, therefore in the future they will not get stuck at one company, and switching jobs will be a natural thing for them (Kissné, 2014).

Similarly to the Y generation, the Z generation also puts a high value on the freedom of the individual, self-realization, and basically rejects formalities. High salary is very important for them, they are used to a fast-paced world, and so, with regard to finances, they do not want to wait ten-twenty-thirty years until they can realize their dreams. They are aware of how much they need to earn to become self-sustaining

from a financial perspective. Money, however, is not everything, it is also important for them with whom and under what circumstances they will have to work together. They have management aspirations, and as subordinates, they demand to provide feedback to their superiors and expect their work to be continually appreciated. In general, it can be said about them that they do not like constraints, they like working flexible working hours from home where they can allocate their own time (Molnár, 2016).
Soós (2008) describes in detail the disadvantages of the Z generation, as well, where the youngest generation is characterized by being overly confident, having loose work discipline, and - despite the little experience - much too high salary expectations.
From the above we can draw the conclusion that Z generation shows significant differences compared to older generations with regard to their ability to be motivated and their expectations towards the workplace. They were socialized in a totally different world where technology is beginning to take the place of people and the quick flow of information is fundamental, which created a whole new life philosophy. Members of the Z generation have entirely different abilities, skills and priorities than their predecessors.
It is worth paying attention to them, as in ten years, one in every five employees will be one of them. This generation is expected to start their working life young in order to gain experience. Employers must be prepared for this, as well, because cooperation with young employees, their recruitment and their retention will not be a simple task (Molnár, 2016; Berke-Kőműves, 2016).

1.3. Organizational conflicts

The representatives of the classical management theory (F. W. Taylor, Henry Fayol) regarded conflict as a disruptive, harmful phenomenon that damages the community and injures the organization. With the transformation of management theory this opinion has changed. The decisive figures of Human Relations movement (Elton Mayo, McGregor, Maslow) regarded conflict as a natural collateral of the cooperation of groups that has to be accepted and that we need to learn to handle. According to them, every dispute can be traced back to management deficiencies from which, however, the organization can benefit as well, because it calls attention to the problematic areas. Nowadays, opinions about conflict have taken a largely positive direction. For the representatives of the latest trends, conflicts are not just inevitable but can also be useful. They support their emergence because they can generate changes that enable companies to adapt to their environment, increase the satisfaction of the members of the organization, and furthermore, they provide the organization with flexibility, problem-solving skills and reaction skills (Bakacsi, 2015; Kovács, 2011; Kőműves-Berke, 2016).
Conflicts are a part of our everyday life. Scientific literature deals extensively with the meaning of this word: conflict is a term used in the fields of sociology, psychology, pedagogy, management, arts and the law. As a dictionary entry, conflict means the collision of two objects, but if we are not satisfied with this definition, we can say that "*conflict is disagreement, opposition, dispute or tension between people or groups of people*" (Nádházy, 2006).
According to Bakacsi (2015), conflict is created when "*one of two or more affected parties sense that others relate negatively to something that is important for them.*" According to Svelta (2014) *"conflict does not have negative or positive signs"* therefore a conflict can be either a positive or a negative phenomenon. She emphasizes the fact that when not managed properly, conflicts can be a serious source of tension which must be treated if they damage the atmosphere at work or if the efficiency of the work deteriorates as a result of it. Berényi and Juhász (2012) differentiate constructive or destructive, i.e. good or bad conflicts. In their opinion, a constructive conflict ends satisfactorily for both parties; it improves problem solving, eases stress, clarifies questions and enables the parties to the conflict to express their standpoint. As opposed to this, unproductive or destructive conflict aims the total annihilation of the other party; it decreases the performance of the group, generates frustration, and leads to a defensive behaviour that can result in the break-up of the group.
From the above, it can be concluded that conflicts can be both useful and harmful. Whether conflicts have a positive or negative effect on us, or on the organization, depends only on the fact whether we are able to handle them properly and find a suitable solution. During corporate-level conflict management, therefore, leaders have a lot of responsibility, because it is up to them whether conflicts foster or hinder

the realization of targets. Leaders must seek to reconcile the interests of the individual, the group and the organization.

1.4 Conflicts within the team

Organizations are the cooperation of people and teams in order to reach a particular goal. In an organization, cooperation is realized between people with different abilities and individual characteristics, differing systems of values and motivation. In addition there are the different organizational roles, the different positions occupied in the hierarchy and in the division of work, which are very likely to result in conflict (Kovács, 2011; Privóczki – Borbély – Bodnár, 2017).

One of the primary sources of conflict is **change** that may affect individuals in different positions of the organization differently. For some, it may mean an advantage, for others a disadvantage, therefore change is a serious source of conflicts from the point of view of the organization. Possession of **power** can be a constant source of conflict in an organization which eventually may lead to a power struggle among the members of the organization. **Information** is one of the most important resources of an organization, and possessing it is an indispensable prerequisite to perform work. Not having access to satisfactory quantities of information in the appropriate quality may hinder employees in their work and may result in conflicts between co-workers. The question of **rewards** can also create dissent within an organization. Rewards aim to motivate employees, however, those who are left out can experience it as frustration. It can also be concluded that too frequent rewarding may increase the level of expectations, which always outgrows the level of rewards. A significant amount of the organizational conflicts result from the **division of work**. Uneven workloads on organizational units can be a source of this. It is because if one organizational unit is overloaded and employees see that their colleagues have substantially less work, compared to them, then there is a very high probability that tension will be created between them. **Forced development** can also be a source of tension between organizational units. Certain organizational units compete with each other for development resources, and in case of any stagnation or downgrading - when certain organizational units need to resign from their acquired privileges, resources - conflicts may erupt between them (Kovács, 2011, Szentgróti-Tapolcai, 2011).

2. Subject-matter and method

The research is based on the use of primary and secondary methods of research. We processed the most significant scientific literature on the subject in the framework of the secondary research, which is summarized in the chapter "Introduction". The conclusions of the study were drawn based on the primary research. We used questionnaires as a quantitative tool. When compiling the questionnaire and formulating the questions, our aim was to enable every respondent, irrespective of their field of work, position, function, to be able to interpret the questions and so the number of potentially received replies would not be limited. Sampling was not done with a random method, therefore our survey cannot be regarded as representative (Sajtos-Mitev, 2007). We distributed the questionnaire online in December 2017, and altogether 405 replies were received, out of which 395 questionnaires were qualified as valid. The questionnaire contained 32 questions, the majority of which were closed, multiple-choice questions. To increase the credibility of the data collection, in more cases respondents were given the choice of providing "other" answers so that they could clarify the alternative replies and to express their opinions.

Questions were grouped around five topics, the first of these contained general questions related to work. Whether the respondents were employed, in what field, if their work corresponded with their academic qualifications, how many persons were employed in the organization where they worked. We were also interested in finding out how the performance of their colleagues influenced their work, whether they ever worked in teams, and if yes, what was the size of the average team.

Based on Sajtos-Mitev (2007), we used descriptive statistical tools and cross tabulation, and the data received was presented and analysed in graphs. In order to demonstrate the connection between background variables and certain replies, we applied cross tabulation. To measure the statistical significance of the connections among the variables we applied the Pearson's chi-squared test ($\chi 2$), and to identify the association between the connections we calculated Cramér's V coefficient, and the one-way

analysis of variance (One-way-Anova) to analyse the relationship of the Likert scale and the background variables.

3. Results and discussion

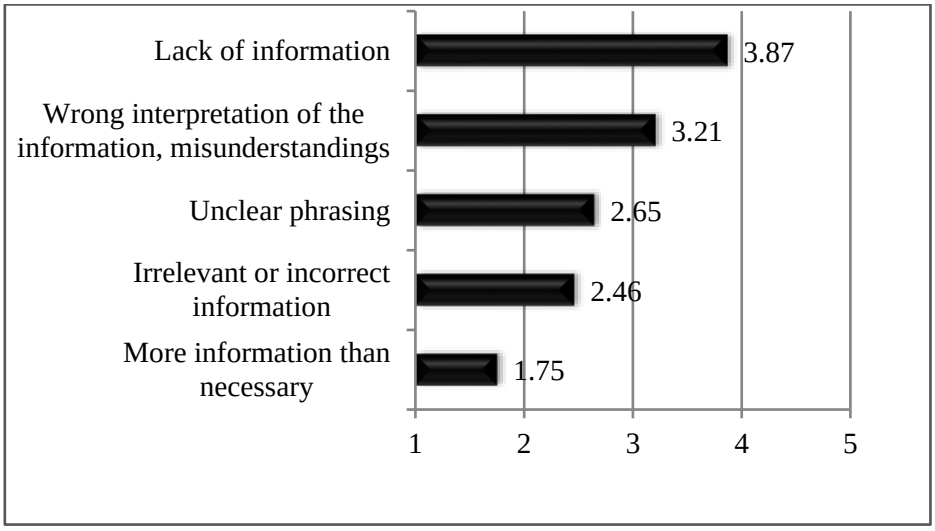
3.1. Emergence of conflicts in organizations

In our survey, we examined the emergence of conflicts along four dimensions, which is shown in Figure 1. The four groups of variables contained 35 statements altogether, and respondents evaluated those statements by applying a Likert scale from 1 to 5 to determine the factors that played the most significant role in the emergence of conflicts.

13**: Groups of factors determining conflicts**
Source: authors' elaboration

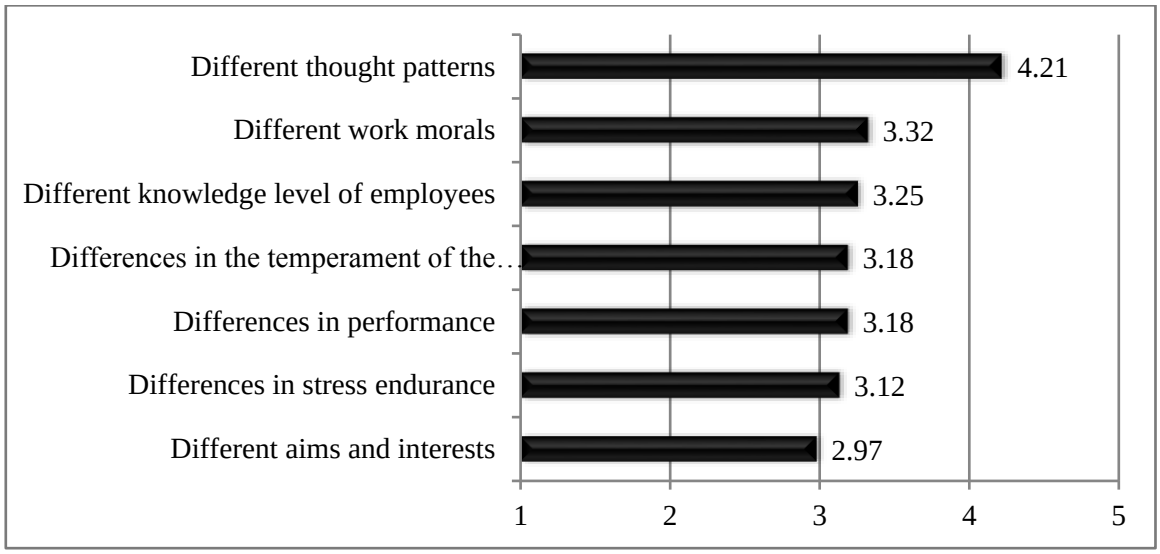
Communicative factors

For workplaces to function successfully, it is indispensable that information flows in an optimal quantity and quality. If the flow of information is not ensured, communication problems might occur, which can most likely result in conflict in the organization (Figure 2.).



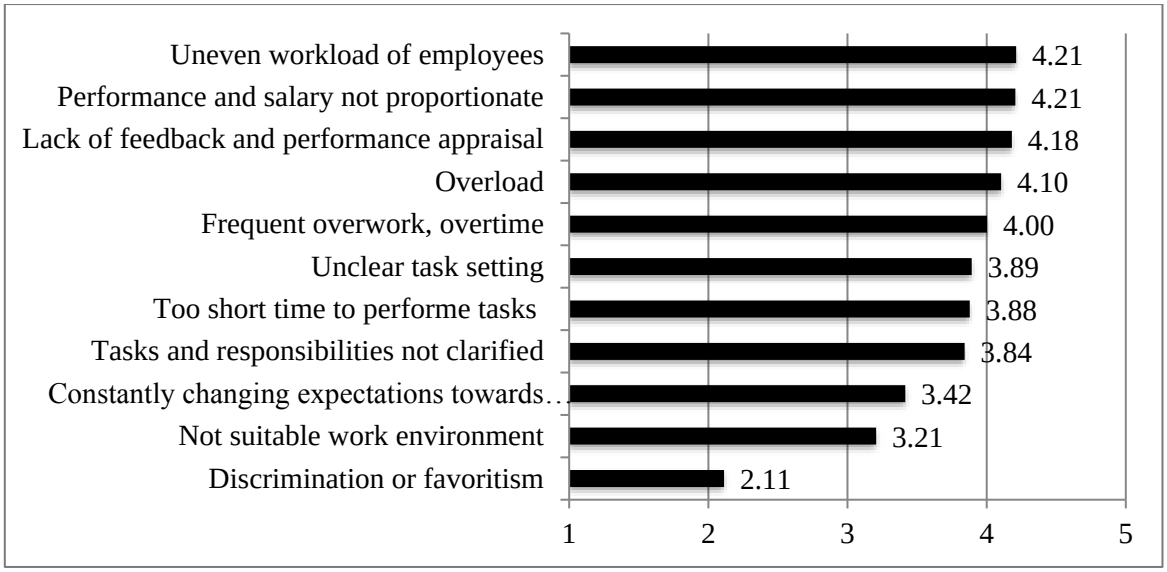
14**: Communicative problems (n=395)**
Source: authors' data collection

Based on the results, it can be seen that from the factors causing communication problems, it is the lack of information that creates the greatest opposition, while having more information than necessary rarely causes conflict at the workplace. Further factors, such as misunderstandings, unclear or incorrect phrasing, do not cause any considerable conflict in the opinion of the respondents. Conflicts that can be traced back to these factors are different in case of employees of different ages. Conflicts of the boomer generation are less the result of communication factor, while the younger generation (Z generation) typically have communication-related conflicts (P=0.000). Communication-related conflicts among the employees of micro and small enterprises are more decisive than among the employees of medium-sized and large corporations.
In a work environment, colleagues having different abilities, skills, style and thought patterns must cooperate, which may result in conflicts among them. In our research, we also sought to find an answer to what extent different behaviour patterns induced workplace conflicts (Figure 3.).



15**: Conflict factors related to differences among colleagues (n=395)**
Source: authors' data collection

Based on the data it can be concluded that it is the different thought patterns that most frequently cause confrontation among colleagues, further considerable factors are the differences in the work morale and in the level of knowledge. Breaking it down into generations we can conclude that younger employees find it more difficult to tolerate different behavioural patterns of their colleagues. In general, it can be stated that a difference in the thought patterns can be a significant cause of conflicts in an organization for the members of every generation. With regard to this factor, conflicts resulting from the difference between employees were represented more significantly among women respondents, and manual labour workers were more tolerant to differences.
A number of conflicts can be traced back to managerial and organizational causes, which can lead to tension among the colleagues and between subordinated employees and managers. In our research, our aim was to identify the sources of conflicts resulting from managerial deficiencies (Figure 4.). Based on the data it can be established that most of the respondents, from the listed factors, attributed the emergence of conflicts to uneven workload, performance and salary being out of proportion, and the lack of managerial feedback (P=0,000).



16**: Conflicts attributed to managerial deficiencies (n=395)**
Source: authors' data collection

In our research, we found out that the members of the young generation consider the lack of feedback, unclear tasks and responsibilities as the most important source of conflicts, while members of the older generation marked performance pressure more often than members of the younger generation.
Deficiencies and problems originating from corporate structure and culture are factors that may potentially cause conflicts within an organization. In our research, therefore, we considered it important to examine to what extent, according to the respondents, these factors caused conflicts within a workplace environment (Figure 5).

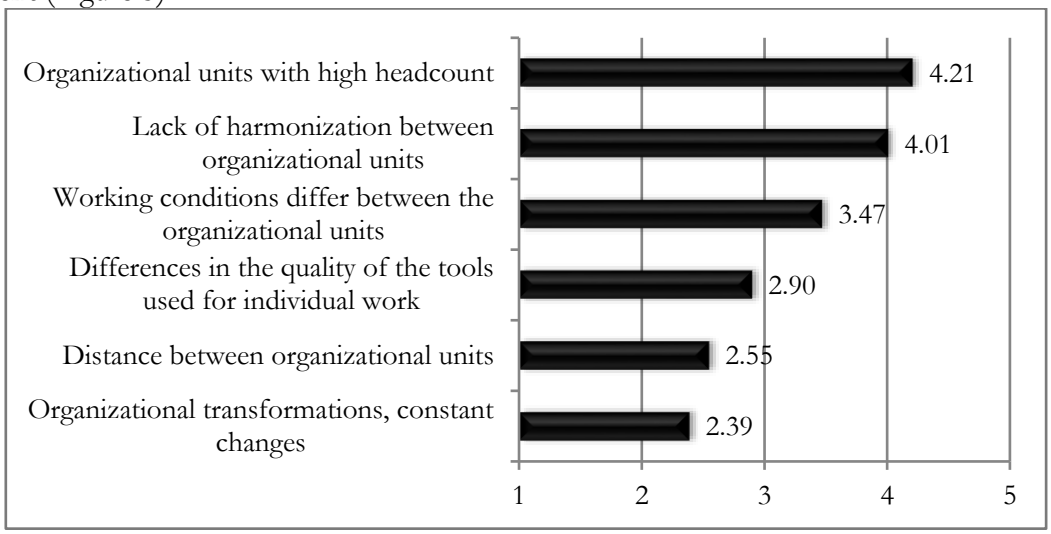


Figure 5: Conflicts originating from corporate structure (n=395)
Source: authors' data collection

The current trend in the transformation of corporations is for the creation of simpler, flatter systems incorporating fewer organizational units. Organizational changes in this direction carry the advantage of flexibility in decision-making and the speeding up of organizations' reactions to market changes. As a process disadvantage, unless effective organization management methods are implemented, conflicts may appear due to the increased headcount of organizational units. Based on our research, the negative effect of this trend seems to gain proof, as respondents attributed conflicts to the high headcount of organizational units as a significant source of conflict. This problem can be most felt among the members

of the boomer and the X generation, while the members of the younger generation identified the quality of the tools used for work as a more significant source of problem, which can be traced back to the characteristics of the generation.

3.2. Conflicts between generations and its influence on the operation of the organization

When examining the subject of generational conflicts, we looked at the age of the employees at the workplace. In only about 15% of the workplaces examined we experienced no difference in age, and nearly 40% of the respondents experienced a significant difference in the age of their colleagues.

The members of the younger generation (Y and X generation) typically trace back the conflicts at the workplace to generational factors, on the other hand, according to the members of the X and the boomer generation, conflicts were not caused by differences in age but by other factors.

In case of the persons examined, we experienced that the younger a person was, the more he or she regarded conflict as a harmful factor, and with age, conflict was rather interpreted as an effect of organizational development. We analysed the factors influencing the emergence of conflicts in a breakdown of generations, too. For the four generations studied, the different system of values was identified as the most important typical characteristic. In our interpretation, the system of values is not a feature exclusive to age. The system of values can be influenced by a number of sociocultural factors, and we must emphasize the role of the family, social context and the place of work as to what shapes the system of values.

As result of these conflicts, different employee's reactions are observed. When conflicts are sustained for a longer term, we were able to identify a decrease in performance (82.5%), job change (68.9%), retention of thoughts (71.8%) and negative interactions (45.1%). Breaking it down to generations, a decrease in performance and a job change is more typical for the younger generations, while not communicating their thoughts and the increase of negative workplace interactions can be identified among the members of the boomer and the X generation.

The differences between generations can be detected in the way they manage conflicts. To identify their conflict management style, we used the Thomas-Killman test. The conflict management style of different generations (P=0,000) is shown in Table 1.

4**: Conflict management style of different generations (n=395)**

	Boomer	X generation	Y generation	Z generation
Competitive	7.9%	10.9%	18.1%	37%
Adaptive	28.9%	19.1%	22.9%	29%
Compromise seeker	5.9%	26.4%	34.7%	19%
Problem solving	57.3%	38.2%	20.1%	15%
Avoiding	-	5.5%	4.2%	-

Source: authors' data collection

We experienced that among the boomer and the X generation, compromise-seeking and problem solving styles were more dominant, while competitiveness was more typical for the members of the Z generation. Competitive people are more characterized by a high level of self-realization and a low level tendency for cooperation.

4. Conclusions

In our research, we examined the root causes of workplace conflicts and the major sources of workplace conflicts. We were seeking an answer to what effect generational conflicts had on the workplace atmosphere and the root causes of these factors. We revealed the role played by communicative factors, differences between employees, factors related to management and work organization, and the structure of the organizations in the workplace conflicts. Based on the results, we concluded that the conflicts between generations can be attributed to problems related to management and the application of the HR functions. Distinctive characteristics of age may have a role in the emergence of conflicts, but it is not a primary factor. From the individual characteristics of the employees, it is the different thought patterns, different work morals, and the different personalities and style that caused the highest number of conflicts. Based on our conclusion, when selecting a new employee, higher emphasis should be placed on the value-based approach, these aspects should be regarded as factors, too. Concerning management-related deficiencies, the lack of performance appraisal, unclear responsibilities and the lack of recognition caused the highest number of conflicts. In my view, by eliminating these deficiencies, a significant part of workplace conflicts can be reduced. In order to do so, it is necessary to continually appraise the work of the employees, to set clear and unambiguous tasks, and management needs to divide recognition in a fair way.

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KNOWLEDGE MANAGEMENT AT AN SME COMPANY

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Keywords: quality management, knowledge management, maintenance, printing industry

Abstract

The increasing value of technical knowledge has particular importance in the printing industry, especially technical knowledge related to maintenance. Since designing quality management systems is aimed at building the future of companies, managing maintenance know-how becomes the very essence and focus of the effort. The two most important capital tools for a maintenance business are: customers' trust in the service and technical knowledge delivered by devoted and well-trained staff. Such a business may define becoming a knowledge-based company as the fundamental strategic objective. Our quality targets on this field can be systematically articulated and evaluated in a framework of a measurement system. Performance indicators can be set which describe qualification, professional awareness, and the attitude toward learning and which provide information primarily on change and scale or direction of developments.

1. Introduction – Aim: to become a knowledge company

For any maintenance company, two essential assets are the trust of customers and the knowledge embodying in committed and professionally prepared associates.

The most important aim of such an enterprise should be to become a real knowledge company, because

- it means a cutting edge in competition,
- the maintenance market appreciates expertise. Everyone is willing to pay for quick and professional repair services,
- constraints caused by competition can be mitigated in this manner, and thus it is less likely that others could emulate the company's activities,
- the pressure on wages induced by our EU accession can be handled better.

Obviously, it is also important to put a background of modern infrastructure in place, yet it has smaller overall significance and influence on sales revenues (Dull, 1996).

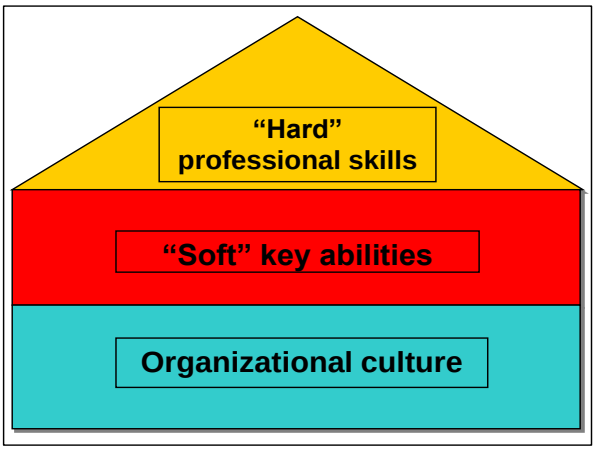
2. Methodology of research

When we were framing our integrated maintenance model, we considered all those means and abilities that were needed for the betterment of maintenance, expected to allow the implementation of efficient foresighted maintenance management in printing industry, and at the same time comprised the elements of the structuring of our maintenance model.

Some of these elements belong to *hard means* or *hard skills* as they are called in Anglo-Saxon technical literature. They cover all those knowledge, professional contents, abilities that are needed for the performance of foresighted maintenance. They include tangible means such as professional and time planning, the performance of operating and stewardship tasks, condition monitoring, failure analysis, servicing know-how, and so on (Tsang, 2002).

Key abilities or in English terminology "soft skills" are not associated with the given profession, but rather successful work. On the other hand, there are so-called "intangible" characteristics, behavioural patterns and practices; long-term plans, short-term goals, personal management, communication and cooperation, problem solving and the assumption of responsibilities, learning skills and capabilities, team work, performance and evaluation skills.

Graph 1 shows how the pyramid of "hard" skills is built upon the foundation formed by the "soft" key abilities. Nevertheless, the deep foundation of both these types of skills is in fact the organizational culture. In the light of this attitude, the structuring of the corporate culture should unavoidably be associated with the development of a maintenance model.



Graph 1: The pyramid of means and abilities stands on a foundation formed by organizational culture (Gaál, 1999)

It has been examined how the reliability-centred culture can be incorporated into the work processes of the improvement of maintenance organization, how it is based on this maintenance organization model.

The interpretation of the reliability-centred attitude is demonstrated through ways of behaviour matched up and described in Table 1 and 2.

TECHNICAL CULTURE	*OF MECHANICS*
Alone wolf	Works in teams
lubrication (if there is sufficient time)	Demanding in technical issues
Review (if there is sufficient time)	Diagnostic and foresightful, prudent
Troubleshooting panic	Works along time plans
Recurring failures	Specialist of the given field
Permanent stress, but not a challenge	Perceives work as a challenge, not stress

Table 1: Repair-oriented and reliability-centred culture of technical mechanics (Hair, 2002)

Today, the execution of maintenance tasks calls for a technician of independent and synthesized thinking rather than a repair-oriented colleague who tends to lean back and regard himself to be a hero after any successful troubleshooting.

Technical organizational culture	
Repair servicing administrator	TECHNICAL MANAGER
Do the repair when it is instructed	Why has it broken down?
Likes doing something	What has caused work?
How much does it cost?	What has caused costs?
Inflexible in the face of budget constraints	To review the investment and planning
When will something break again?	Can it be prevented?
To survive the following week.	How can efficiency be improved?

Graph 3: Repair-oriented and reliability-centred the technical organizational culture (Thomas, 2005)

Similarly, completely different mentality and requirements are valid for a manager who plans maintenance with respect to reliability in comparison with a leader always waiting for the following day to come.

In the processes of maintenance organization, proper attention should be paid to supporting the forms of behaviour described in the right columns (Gaál, 1999).

3. Evaluation of the school qualifications and skills of the employees

Nyomda-Technika Kft's core activities include assembly, repair services and maintenance in printing industry. Having been operated for 23 years now, the company is regarded to be an important market actor in this field of domestic printing industry. It is often involved in works abroad, and therefore the company is frequently required to prove its capabilities in market competition. The company has been working with the ISO 9001-2000 quality management system for 12 years.

In order to develop the service quality continuously, their work focuses on the improvement of their professional skills. Towards this end, an evaluation scorecard system has been established and operated for the proper assessment of the skills of the associates and evaluation of their development (Tsang, 2002).

This system of appraisal assigns different scores to the various forms of the following skills and qualifications:

- specialized qualifications,
- complementary qualifications in mechanical engineering,
- complementary qualifications in economics,
- quality management, other management-type qualifications (TÜV),
- language skills,
- qualifications attained at training courses.

The system prefers altogether 34 distinct types of qualifications, and evaluates them on a scale of 1–9 points. By summing up these scores, the level of qualifications and skills can be determined for any associate, and the same is true for the characteristics of groups of employees and associates.

Table 3 shows the development of the average level of professional qualifications at the company. For proper comparability, the scoring values of certain important qualifications have also been provided in the table.

Year	Level of qualifications	Deve-lopment	Rate of graduates
2002	8.04		8.7%
2007	9.40	16.5	10.9%
2012	12.06	28.8	15.22%

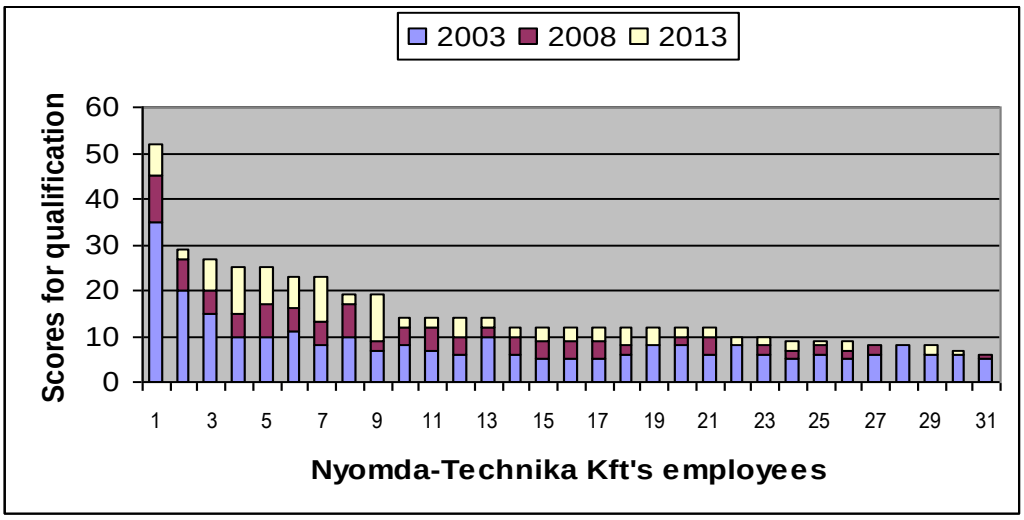
Scores for key qualifications:

- **vocational training school qualification 5 points**
- **general certificate of secondary education 1 points**
- **technician certificate 2 points**
- **college degree 7 points**
- **complementary qualifications from the National List of Public Education (OKJ) 2 points**

Table 3: Development of the level of qualifications of associates at Nyomda-Technika Kft. (authors' own elaboration)

The company has been consistently using this system and has been evaluating the associates for 10 years. The scores have also proved to be motivating for associates to attain new qualifications and skills, which the employer always supports. This evaluation has been integrated in the quality management system, and is in fact a part of the annual individual appraisal.

Obviously, average scores also have a "beneficial" hiding effect. Graph 2 shows the trends and progress for all the employees of Nyomda-Technika Kft. Certainly, the past 10 years have witnessed changes in the personnel. In this case, the scores of the associate who used to occupy the given position have been taken into account.



Graph 2: Changes in the qualifications and skills of associates at Nyomda-Technika Kft. (authors' own elaboration)

Graph 2 above reveals that this company also has one-third of employees who can be "less motivated". Nevertheless, the image of the company is determined by the dynamic upper two-thirds who demand, and also act for the attainment of knowledge. The first seven columns reflect the scores of the associates holding higher education qualifications. They tend to be the most active in learning. Yet, behind these scores, there also exist quality replacements.

4. Professional self-evaluation

The above-described evaluation pertains only to the professional knowledge as certified with documents.

However, it is only one very important tool for work, and therefore it is rather an essential issue how the

employees exploit the attained knowledge in their actual work.

A part of Nyomda-Technika Kft's quality management system is the annual self-evaluation that is designed

to assess the efficiency of applying the knowledge they have.

Individual evaluation is a kind of rating system that is performed jointly by the employee and his/her superior with respect to the following 7 groups of criteria:

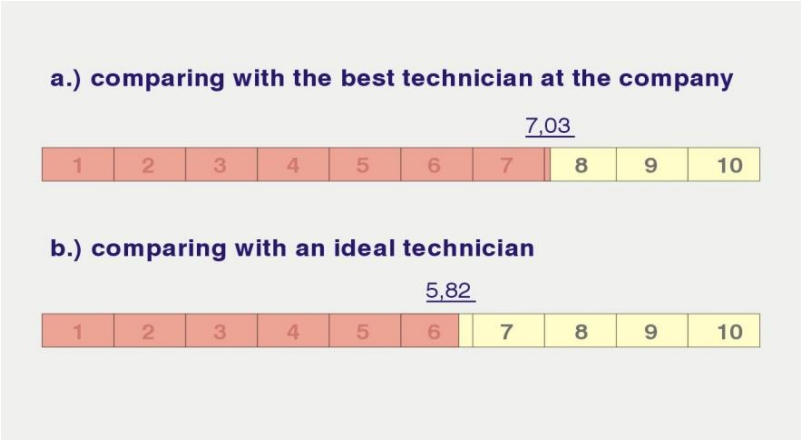
- professional skills,
- efficiency of activities,
- faultless activities,
- observance of quality requirements,
- initiative,
- ability to work in teams,
- willingness to help.

Each of these groups of criteria consists of four additional aspects of evaluation. The individual aspects are weighted on a scale of 3–5 points. Therefore, a scale of 100 points at the maximum determines the rating.

In 2009, the average rating of Nyomda-Technika Kft's employees corresponded to 70.5 points.

Each year, the knowledge management block of the quality management system involves the completion of a questionnaire that is to drive "consultations" with the associates in view of professional self-evaluation and willingness to learn.

Graph 3 shows how associates evaluated their own activities on a scale of 10 points.



Graph 3: Self-evaluation scales of the technicians at Nyomda-Technika company (2013) (authors' own elaboration)

It can be seen that the evaluation performed by the superiors and comparison with the most skilled colleague tend to arrive at similar results. Associates evaluate themselves very realistically, which facilitates managerial activities a lot.

According to the responses given to the other questions, half of the superiors and 2/3 of the subordinates think that their qualifications and skills are just sufficient for performance in the given positions. Others admit that from time to time they find themselves in situation when the given tasks go beyond their existing knowledge.

55% of the superiors regard their subordinates to be sufficiently prepared. Others think that the lack of proper skills often leads to difficulties. Two colleagues in managerial positions are concerned about the insufficiency of professional knowledge and know-how.

As a consequence, a number of associates at Nyomda-Technika Kft. feel the need for further learning and the attainment of additional qualifications.

5. Willingness to learn

On the basis of the relevant responses, the following overall evaluation can be given.

- 15% of the associates plan to attend studies in higher education, and additionally 60% is considering the option to attain additional qualifications.
- 70% thinks that it would be good to learn languages, yet nearly all of them refer to the lack of sufficient time in this respect.
- Almost everyone accepts that from time to time they should attend retraining sessions in order to attain novel knowledge.
- Only 10% is willing to expend own financial resources on learning, while the large majority looks to the support of the company.
- 3/4 of all the associates see the necessity to and accept the employment of associates with higher qualifications towards the proper growth of the company even if quality replacements should be made in this respect.

The responses serve as points of reference for the management of the company. The company is to expend on the training of the associates who – fortunately, the majority of them – tend to shoulder the related hardships towards supporting the company in market competition.

6. Conclusion

In summary it can be stated that at companies required to work innovatively the professional knowledge and skills of associates can and should be managed, and they indeed act as partners in the process as our example has shown.

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THE EVOLUTION OF TRUST IN BANKS AND THE FINANCIAL SYSTEM IN ROMANIA BETWEEN 2006 AND 2016

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The transition in the Eastern-European countries is usually identified by two main characteristics: political and financial. So, there is always a political component - the transition from a single-party, authoritarian regime to a multi-party system, where the leaders are elected freely and periodically. The second dimension of the transitional process refers to the financial aspect: the countries made their transition from a centrally planned economy to a liberal, mainly market-based economy.

These changes reveal themselves to the citizens with the transmission of institutions: under the political aspect, this change is materialized in the institutions of the political parties, the democratic electoral system etc., whereas from an economic point of view it consists in the private ownership of the players of the economy: from the personally owned businesses through the big companies to the banks.

The beneficial role of trust is well known in literature, as the high level of social capital (Coleman 1988, Putnam 1993, Fukuyama 1995) – which can be operationalized as generalized and institutional trust – i.e. it generates an incentive for citizens to cooperate and facilitates the economic transactions.

At the same time, while in sociology, political-sociology and political sciences the role and effect of social capital and trust regarding the political institutions are wildly debated and explained, the analysis of trust, at a personal level, towards the banks as an institution is not so widely debated in literature.

As a conclusion, my paper aims to partially fill this gap and to analyse the evolution of trust towards the banks in Romania in time, based on the three "Life in Transition Survey (LITS)" waves.

My hypothesis is that the trust in banks has a well determined and identifiable social pattern, which my paper will, at least partially, reveal. This knowledge will contribute to a better understanding of the citizens' approach toward the banks and the financial system in Romania.

Keywords: trust, banks and financial sector, financial crisis, Romania

1. INTRODUCTION

The transition in the Eastern-European countries is usually identified by two main characteristics: political and financial. So, there is always a political component - the transition from a single-party, authoritarian regime to a multi-party system, where the leaders are elected freely and periodically. The second dimension of the transitional process refers to the financial aspect: the countries made their transition from a centrally planned economy to a liberal, mainly market-based economy.

These changes reveal themselves to the citizens with the transmission of institutions: under the political aspect, this change is materialized in the institutions of the political parties, the democratic electoral system etc., whereas from the economic point of view it consists in the private ownership of the players of the economy: from the personally owned businesses through the big companies to the banks.

The connection between high interpersonal and institutional trust and economic growth has been proven by the literature (Coleman 1988, Putnam 1993, Fukuyama 1995), meaning that a higher level of trust – and implicitly a higher level of social capital – results in a growing economy. The interconnection between trust and economic growth can manifest in multiple ways. For instance, Knack (1999) proves that a higher level of trust materializes in lower transactional costs, so it results in economic growth.

Although the trust towards the banks and the financial system seems to play a key role in the market economies, there are just a few studies which tackle this issue. What's more, the existing literature which concentrates on the European situation focuses mainly on the trust towards the European Central Bank or the determinants of this trust (Fisher and Hahn, 2008, Roth, 2009, Roth et al 2012, Wälti, 2012, Ehrmann et al 2013). As a consequence, my aim is to reveal an internal structure or the determinants of the trust towards the banks and financial system in Romania in the post-1989 period.

2. TRUST IN BANKS

The conceptualization of trust is a widely debated issue in literature. The current paper does not concentrate on this debate, so, the concept of trust in banks and the financial system in my analysis means the institutional or systemic trust (Kodyakov, 2007, Roth, 2009b, Roth et. al 2012) towards the above-mentioned institutions in Romania.

As a general approach, I will accept Knack's definition (2001), according to whom in the economic literature the notion of trust means beliefs or perceptions according to which during a transaction the participants will not cheat. Besides this approach, the beneficial role of trust is well known in literature, as a high level of social capital (Coleman 1988, Putnam 1993, Fukuyama 1995) – which can be operationalized as generalized and institutional trust – i.e. it generates an incentive for citizens to cooperate and facilitates the economic transactions. On the other hand, the lack of trust in banks has also a tangible effect as according to Ehrmann and Fratzcscher (2011), it makes them vulnerable to political pressure.

Regarding the special time frame of my analysis – the financial crisis which started with the bankruptcy of the Lehman brothers in September 2008 – the studies in this field reveal, that after the financial crisis, the trust in the central institutions, and not only in the central banks, reached the lowest values (Roth et al. 2012, Ehrmann et al 2013).

2.1. The dependent variable

The LITS questionnaire contains a set of questions regarding the level of trust in bank and financial system. The question's numbering and position varies among the waves, but it was always operationalized in a same way: "To what extent do you trust in the following institutions?" The answers were coded in a five-point Likert scale, where 1 means complete distrust, 2 some distrust, 3 neither trust nor distrust, 4 some

trust and 5 complete trust. The other answer categories like, "don't know" or "not applicable" were considered missing cases.

2.2. The independent variable

As I mentioned before, among the determinants of trust towards the European Central Bank, the role of other country level indicators like inflation, or active labour market interventions (Fisher and Hahn 2008) are mentioned as having a direct effect on trust. Meanwhile Roth (2009) analyses, on a longitudinal dataset collected within the different waves of the Eurobarometer surveys, the role of financial crisis, which began with the collapse of the Lehman Brothers in 2008, and had a major impact on the level of institutional trust.

As a conclusion, in my current study I will test whether personal perceptions of the country or of global level events have an impact, and if so, in which way do they influence trust towards banks and the financial system.

In order to test the impact of trust at a personal level I assume that the effect of the financial crisis was traceable at an individual level too and therefore the level of trust varies along the three waves, reaching its lowest point in 2010 (H1), which was the closest survey date following the 2008 financial crisis. These assumptions lead to two hypotheses:

(H2) the more negative the appreciation of the country's economic situation is, the lower is the level of trust towards the banks and the financial system, and

(H3) the more negative the appreciation of the personal financial situation is, the lower is the level of trust towards the banks and the financial system.

The theory of trust-overflow (Knack and Keefer 1997) argues that high level of interpersonal trust and the confidence in the government are positively related. Based on an analogy I also assume that a higher level of interpersonal trust has a positive association with the trust towards the banks and the financial sector (H4).

The appreciation of the country's financial situation was operationalized with the following question: "To what extent do you agree with the following statements? g. On the whole, I am satisfied with the present state of economy." Similarly, the appreciation of the personal financial situation was operationalized with the subsequent question: "To what extent do you agree with the following statements? k. All things considered, I am satisfied with my financial situation as a whole." The answers, in both cases, were recorded on a 5-point Likert scale, where 1 means "Strongly disagree", 2 means "Disagree", 3 means "Neither disagree nor agree", 4 means "Agree" and 5 means "Strongly Agree".

The interpersonal trust was operationalized with the usual question (e.g. EVS, WVS): "Generally speaking, would you say that most people can be trusted or, that you can't be too careful in dealing with people". The answers were recorded in a similar manner to the institutional trust, on a five-point Likert scale, where 1 means complete distrust, 2 some distrust, 3 neither trust nor distrust, 4 some trust and 5 complete trust. Just like in the case of the dependent variable, all the other response variables were considered missing cases.

2.3. Data

The current study is based on survey data which was collected by the European Bank for Reconstruction and Development in collaboration with the World Bank. The project name is "Life in Transition Survey (LITS)", and up to this moment it has reached three waves: the first wave was implemented in 2006, so before the economic crisis, the second in 2010, just when the crisis ended, and the third in 2016, when Romania registered a steady economic growth. The sample size was the following: in 2006, 999 people were asked, in 2010 the sample size was 1077, and in 2016 the sample consisted in 1521 filled questionnaires.

3. FINDINGS

3.1. Descriptive statistics and associational indicators

The evolution of trust in banks and the financial system in Romania during the three waves of surveys is presented in Figure 1.

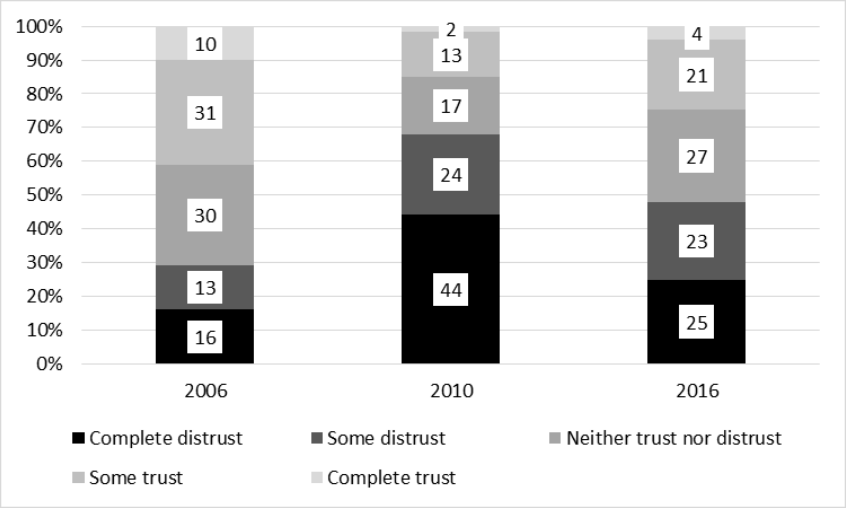

Figure 2: The evolution of trust in banks and the financial system in Romania between 2006 and 2016
Data source: LITS survey

The presented results reflect upon the first hypothesis (H1). As it is shown, the Romanian population has followed the same pattern as it was shown in previous studies regarding the trust level towards the European Central Bank among the western European citizens, so the first hypothesis is proven. The highest level of distrust can be registered during the second wave, right after the global financial crisis, and the level of trust has not yet recovered to the initial level, which means here the result recorded in 2006.

This result can also mean that the loss of institutional trust happens quickly, but the recovery of the trust takes a long period of time.

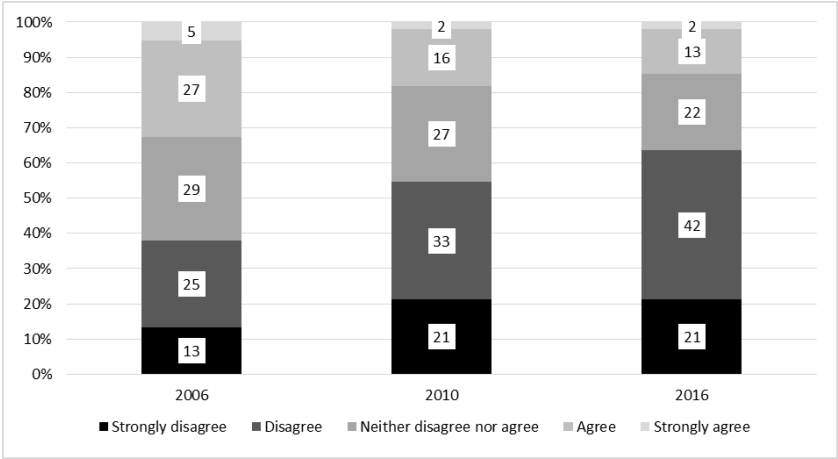

Figure 3: The evolution of agreement with the following statement: "On the whole, I am satisfied with the present state of economy." in Romania between 2006 and 2016
Data source: LITS survey

According to the result presented in Figure 2, the peak of the negative appreciations is not in 2010 but in 2016. Even if there is a significant ($F=53.695$, $df=1$, $p<0.000$) difference between 2006 and 2010, showing that the satisfaction with the state of the economy diminished, the increasing proportion of not satisfied persons through 2016 increased. These results, in my interpretation, show that the last economic crisis had a much longer negative social impact, then economic impact.

Analysing the associations between the trust in banks and the financial system and the satisfaction with the country's state of economy result in the following: in 2006 the $\chi^2 = 79.495$, $df = 16$, $p < 0.000$; in 2010 the $\chi^2 = 106.87$, $df = 16$, $p<0.000$ and in 2016 the $\chi^2 = 187.05$, $df = 16$, $p<0.000$.

Regarding the directional associational measure between these two variables, the results reveal a weak but positive association (in 2006 the Sommer's $d = 0.122$, $p< 0.000$, $n=929$, in 2010 the Sommer's $d = 0.222$, $n=980$ and in 2016 the Sommer's $d = 0.240$, $p< 0.000$, $n=1322$). As a conclusion regarding the second hypothesis (H2) it is proven that there is a positive significant association between the trust in banks and the financial system and the appreciation of the current state of the economy, but the strength of the association is rather weak.

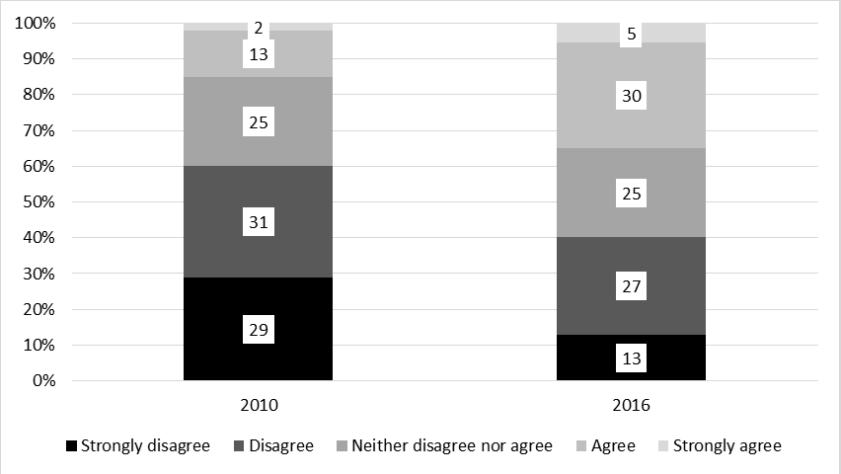

Figure 4: The evolution of agreement with the following statement: "All things considered, I am satisfied with my financial situation as a whole." in Romania between 2010 and 2016
Data source: LITS survey

The third hypothesis states that if a person appreciates their economic situation negatively, then the trust in banks and the financial system will also be low. The opinion regarding the respondents' financial situation is presented in Figure 3. Unfortunately, this question did not figure in the first wave so the impact of the crisis cannot be measured, only its aftermath. The evolution of the personal financial situation seems to follow a contrary pattern, as regarding the appreciation of the country's economic situation, respondents state that generally they have a better situation then in 2010. The associational measures show a significant (in 2010 the $\chi^2 = 112.26$, df = 16, $p<0.000$, in 2016 the $\chi^2 = 142.72$, df = 16, $p<0.000$), but weak (in 2010 the Sommer's d = 0.270, $p<0.000$, n=986, and in 2016 the Sommer's d = 0.174, $p<0.024$, n=1358) association. As a conclusion, the third hypothesis (H3) was also proven, according to which the more a person is satisfied with his/her personal financial situation the more he/she trust banks and the financial sector. But the association is rather weak, which means that there are a lot more explanatory variables regarding trust in banks and the financial system.

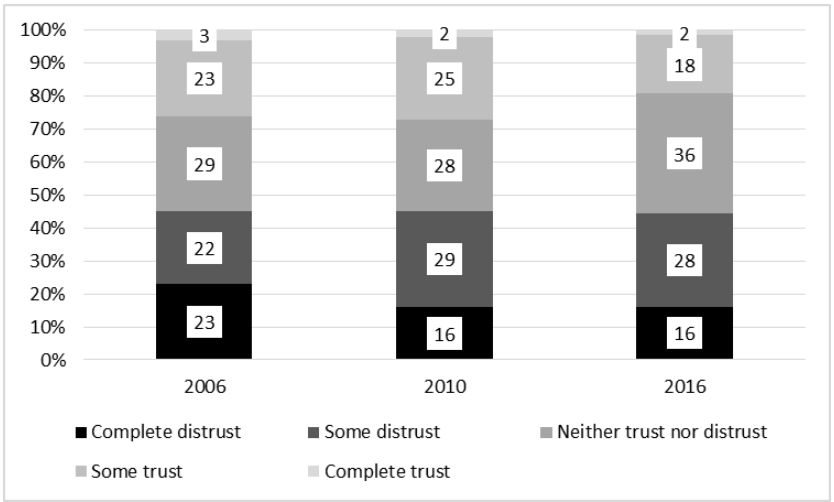

Figure 5: The evolution of interpersonal trust in Romania between 2006 and 2016
Data source: LIST survey

Regarding the evolution of interpersonal trust within the analysed period in Romania, presented in Figure 4, reveals that the changes don't follow the pattern of trust towards the banks. This result also suggests that the macro-economic changes do not affect the interpersonal trust as much as the level of distrust – meaning that the cumulative per cent of the categories complete distrust and some distrust, practically remains constant during the analysed period. What is more interesting is that the percentage of the complete distrusters shows a significant decrease between 2006 and 2010, while this category has gained the most regarding trust in banks and the financial system.

Regarding the association between the interpersonal trust and trust in banks and the financial sector we can observe a significant positive association in all three waves: in 2006 the $\chi^2 = 88.58$, df = 16, p = 0.000; in 2010 the $\chi^2 = 78.61$, df = 16, p = 0.000 and in 2016 the $\chi^2 = 131.83$, df = 16, p = 0.000.

In order to test the strength of the association formulated in my fourth hypothesis (H4), I have also used the Sommer's delta test, which resulted the following: in the 2006 data the value of Sommer's d was 0.0179 (p = .000), and the number of valid cases was 924; in the data of 2010 the value of Sommer's d was 0.203 (p = .000), where the number of valid cases was 890; and for the data from 2016 the value of Sommer's d was 0.148 (p=.023), where the number of valid cases was 1387.

The results reveal that the association shows rather a weak connection between the two variables, which means that the trust overspill approach (H4) is valid, but the interconnection is too complex and there are many more explanatory variables. As a conclusion, the association between institutional trust and interpersonal trust is not stochastic, but the interpersonal trust level explains just in a small proportion the trust level towards banks and the financial system in Romania.

4. CONCLUSIONS

According to the results, the consequences of the financial crisis seem to have a much longer effect on the subjective appreciation of the citizens of Romania then the pure economic effect. This result reveals that the recovery of the economic indicators has a much shorter period than the erosion in trust and confidence in banks and the financial system. According to the data it became evident that, at least in Romania if a person appreciates their economic situation positively, the trust in banks and the financial sector is influenced positively, even if this association is a weak one. This result is valid regarding the appreciation of the countries' financial situation too, which means, that there is only a weak positive association between the positive appreciation of the countries' financial situation and the trust towards banks and the financial system.

Regarding the role of generalized or interpersonal trust effects on the trust in banks and the financial sector, the data shows that - at least in the case of Romania - there is a positive but weak interconnection between these variables, which means that the trust in banks and the financial system is a complex phenomenon, which needs to be further explained in the future.

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THE ETHICS OF TAX RATES IN DIFFERENT MODELS OF CAPITALISM

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Abstract

The present paper examines the ethics of tax rates. Its aim is to determine how efficient the utilization of tax incomes has been in certain countries. I will examine if the efficiency of transfers is influenced by the tax burdens shifting towards citizens and companies.
From the point of view of economic ethics, I differentiate between good and bad economic policies, based on which, according to the ethical quality of applied tax rates and transfers, I classify the examined countries and their tax policies into four clusters. Reflecting on the qualities of the examined factors, the clusters were given Biblical names in one of my earlier studies, i.e. Zacchaeus; the prodigal son; the lost sheep; the unjust steward.
In the present study, I compare the equilibrium tax rates and the rate of income tax on living labour and companies to their social utility. When calculating equilibrium tax rates, I assume that the rate of transfers and available wealth and incomes have an influence on their extent.
Social utility is defined through social and anthropological indicators characteristic of the examined countries.
As an improvement to my earlier study, I examine the source of transfers, touching upon whether deviation from the equilibrium suggests bad economic policy.

Keywords: Political economy, Redistributive taxation, Ethics of Political economy, Efficiency, Optimal taxation

JEL Classification: E62, H21, H23, H24

1. INTRODUCTION

Models of capitalism are not equal, different models provide different standards of living for citizens, their social, economic, and environmental sustainability differ, as does the extent of harm their development means for other countries (Pogátsa 2016, p.83).

Sedlácek says today's economic anthropology is a strange mix which does not deal with personal morals, since the 'invisible hand' will forge general well-being from personal faults anyway (Sedlácek: Economics of Good and Evil 2011, p.334). In his view, economic thinking must return to philosophical foundations, where morals cannot be separated from economics.
Economics, after all, is nothing else but the economics of good and evil. Economics is about stories that people tell people about people. According to Sedlácek, economics is about the questions of good and evil, i.e. the economics of the relation between good and evil (Sedlácek 2011, p.19, p.331).

During my analysis, I state that a country's tax policy fully depends on the social structure of that given country, which, in turn, has an effect on economic policy.
The government's task is the realisation of social common good as public interest. The government may rearrange resources for group members favoured by society. Organized interest groups may also influence

the government - government officers may be bribed to act against the interests of the majority of citizens (Besley 2012, pp. 17-18).

Democracy operates in Scandinavian countries, with a strong middle class protecting it. Their set of values, their know-how and social state are of ultimate significance with regard to the sustainability of democratic operating mechanisms (Moore, 1966).
In Scandinavian countries, the state, abundantly financed from the progressive tax system, invests in the mobility of poorer segments of society, and in unlocking their capabilities. John Rawls and Amartya Sen's concepts about social justice are put into practice in these countries. The more people participate in creating values, the smaller the social differences are, and the wider well-being is spread out. The strong middle class, with financially confident and socially educated citizens, keep the constantly developing, advanced political decision-making under control (Esping - Andersen, 1990).
Corruption cannot be concealed by demonizing political opponents, because the active middle class is more conscious about the clarity and efficiency of redistribution (Pogátsa 2016, p. 25).

British and continental states. The British liberal welfare system did not aim at a politically conscious strengthening of the middle class; it rather confined itself to eliminating poverty. Winston Churchill promised the working class supporting him in his fight against Germany to introduce a welfare system after the war. The German welfare state goes back to Bismarck, Chancellor of Germany, who was the first to introduce an insurance-based welfare state in the late 19th century, for fear that social democracy might get strong. After World War I, social democrats in the coalition government of the Weimar Republic achieved the introduction of the mandatory wage negotiation system (Potthoff – Miller, 2006).
Within the German economy, trade unions sign comprehensive agreements with employers on sectoral and corporate level. In the Swedish model, trade unions and representatives of employers make a centralized agreement concerning the whole of the national economy (Pogátsa 2016, p. 36).
Apart from Germany, a continental welfare state emerged in France, Belgium, the Netherlands, Austria, Switzerland, and Italy (Beigewum Hrsg. 2015).

Anglo-Saxon neoliberal states. Alongside a rhetoric emphasizing market competition, the true characteristic of neoliberalism is that big corporations and the economic elite become the opaque and unaccountable financiers of politicians (Streeck, 2014):

- tax reduction,
- downsizing the welfare state's expenditure, making solidarity and mobility possible, with the aid of the ideology of budgetary stabilization and savings.
- privatization,
- liberalization, deregulation, the organization of public procurement,
- misfeasance of trade unions' and workers' rights, disguised as the ideology of labour market flexibility (Solow, 2000)

Neoliberal rhetoric means the restoration of the 'creative power of the market', i.e. the innovations of intensively rivalling companies that finance themselves from the capital market generate growth, which passes down to every social layer. In reality, instead of the restoration of the market, the enterprise sector created nepotistic capitalism, where a surprisingly low number of capital players captured the state (Galbraith, 2009).
According to Piketty, "the idea that free competition will end the society based on inherited wealth, and will lead to a meritocratic world, is a dangerous illusion" (Piketty, 2014).

Conservative developmental states legitimize their limited democratic operation through constantly increasing social welfare, which requires well-oiled, efficient, technocratic state administration. Support for semi-democratic or fully repressive regimes soon starts to fade, once great masses of people stop experiencing a continuous increase of their standard of living, by reason of economic development coming

to a halt, or the governing elite becoming corrupted and the developmental state an extractive (Acemoglu – Robinson, 2012), predator state (Evans, 1995; Fatton, 1992).

Eastern European FDI-dependent competition states. In the period of regime change, most transforming states attempted an internal privatization, but all initiations failed as a result of the emergence of 'nepotism capitalism' (Drahokoupil 2008; Myant 2003; Myant – Drahokoupil, 2010).
The model based on foreign direct investment, the so-called FDI-dependent model provides low wages and taxes, and a rather deregulated business environment. It restricts the competencies of trade unions, and minimizes the wage bargaining. The governments of the regions please large investors by severe tax incentives and direct support (Cerny, 1997).
Low employment and low wages – characteristic of the model – jeopardize sustainability of the national budget.

During my analysis, I examine the source of transfers, touching upon whether deviation from the equilibrium suggests bad economic policy. To define equilibrium and deviation, I use the earlier applied Dolmas-Huffman model.
In this present study, I compare the equilibrium tax rates and the rate of income tax on living labour and companies to their social utility. When calculating equilibrium tax rates, I assume that the rate of transfers and available wealth and incomes have an influence on their extent.
Social utility is defined through social and anthropological indicators characteristic of the examined countries.

2. THE MODEL

In their study published in the 56th issue of *Economics Letters* in 1997, Jim Dolmas and Gregory W. Huffman analysed the link between redistribution and tax rates. The model builds the life of an economic operator around savings and consumption, and divides it into two periods. One either saves or consumes. Consumption comes from incomes after tax and transfers, while savings come from tax refund and after-tax assets.
According to the model, economic policy balance between the two periods depends on tax rates. They described the problem outlined with a logarithmic equation.

$$max_s \ \{\log(y-s) + \beta \log[(1-\emptyset)R_s + \tau]\}$$

From the above equation, the authors deduced further equations describing savings, consumption and transfers, for two periods. After several calculations of substitution, they reached the conclusion that indirect utility of private individuals can be expressed with tax rate $\emptyset$ and wealth inequalities y/ $\overline{y}$

$$w\left(\Theta;\frac{y}{\overline{y}}\right) = constant + (1+\beta)log\ \left[\frac{(1+\beta)\frac{y}{\overline{y}} + \Theta\beta(1-\frac{y}{\overline{y}})}{1+\beta-\Theta\beta}\right] + \beta log(1-\Theta)$$

The equilibrium between accumulation of wealth, income levees and tax rates is demonstrated as follows, where $\Omega \equiv y\overline{/y}$

$$\beta^2(1-\Omega)\theta^2 - (1+\beta)[1+2\beta(1-\ \Omega)]\theta + (1+\beta)^2(1-\ \Omega) = 0$$

then expressing equilibrium tax rate from the above formula

$$\theta(\Omega) = \frac{1+\beta}{\beta}\frac{1+2\beta(1-\Omega)}{2\beta(1-\Omega)} - \frac{1+\beta}{\beta}\frac{\sqrt{1+4\beta(1-\Omega)}}{2\beta(1-\Omega)}$$

In the present study, I consider enterprises as taxpaying entities. It is my supposition that rateability of an enterprise also depends on available wealth and incomes.

During my study, I took the reverse of the Dolmas-Huffman model as a starting point. In the case of a company, the equations describing savings, consumption and transfers paid to owners (dividend) can be derived from the above equation for two periods

$$max_s \ \{\log(y+s) - \beta \log[(1-\emptyset)R_s - \delta]\}$$

Following the original method, through derivation of the equation I get the part of wealth payable to owners

$$s = \frac{\beta}{1-\beta}y + \frac{\delta}{(1-\theta)R(1-\beta)}$$

coming from the extent of accumulated wealth and received dividends

Balance between accumulation of wealth, income rates and tax rates is demonstrated by the Dolmas-Huffman model as follows, just as in the model I have transferred, where $\Omega \equiv y\overline{/y}$..

Equilibrium tax rate is equivalent to the expression deduced earlier

$$\theta(\Omega) = \frac{1+\beta}{\beta}\frac{1+2\beta(1-\Omega)}{2\beta(1-\Omega)} - \frac{1+\beta}{\beta}\frac{\sqrt{1+4\beta(1-\Omega)}}{2\beta(1-\Omega)}$$

APPLICATION OF THE MODEL

Effects of wealth differences on tax rates vary from country to country, as do citizens' quality of living, or the economic microenvironment secured for enterprises.

Deviations can be clearly separated even in the case of specific β values.
For a definition of β values, our starting point is the model, the correlation describing the possible rate of savings.

For private individuals

$s = \frac{\beta}{1+\beta} y - \frac{\tau}{(1-\theta)R(1+\beta)}$ / × $1+\beta$ then $s = \frac{\beta\,(1+\beta)}{1+\beta} y - \frac{\tau(1+\beta)}{(1-\theta)R(1+\beta)}$ the calculation further transformed $s = \beta\, y - \frac{\tau}{(1-\theta)R}$ / - then the variable part without β is arranged to the left, while β-weighted variables are arranged to the right of the equation. Repeated extraction of variables leads to the following correlation, where the value of β is the only unknown value that can be defined by calculation.

$$\frac{\tau}{(1-\theta)R} = -s + \beta * (y - s)$$

For enterprises

$s = \frac{\beta}{1-\beta} y + \frac{\delta}{(1-\theta)R(1-\beta)}$/ × $1-\beta$ then $s = \frac{\beta\,(1-\beta)}{1-\beta} y + \frac{\delta(1-\beta)}{(1-\theta)R(1-)}$ t the calculation further transformed $s = \beta\, y + \frac{\delta}{(1-\theta)R}$ /- s

Repeated extraction of variables leads to the following correlation, where, just like earlier, the value of β is the only unknown value

$$\frac{\delta}{(1-\theta)R} = s - \beta * (y + s)$$

3. METHOD

During the analysis, I created principal component variables with principal component analysis, based on the utility of tax rates. Utility appears in the study as a mathematical concept and I apply the mathematical model based on Laffer's theory. I compared the deviation from equilibrium tax rates with the quality of tax redistribution in specific countries, and the OECD Better Life statistics. With the aid of the defined background variables, the countries were categorized into clusters. For my examination, I used statistical software by SPSS Inc.

4. FACTOR ANALYSIS

During factor analysis, I studied different independent variables. When formulating a hypothesis, I assumed that there is a correlation between the tax policy of OECD member states, and their statistics on quality of living, therefore I examined the tax incomes of the countries, their utilization and their social effect. Through the examination, I aimed to explore the relation between the variables. For the explanation of correlations, I chose principal component analysis, based on the eigenvalue variance of examined variables.

Included variables for 2015 were compiled and calculated using comparative charts of OECD Tax Statistics database and historical data collected by World Top Incomes Database (WTID).

The first variable shows taxes paid by individuals as a ratio of GDP. The second one presents the incomes of social security, the third one the tax revenues from companies, as a ratio of GDP. The fourth variable is the difference between the tax on individuals' incomes and the equilibrium rate, calculated according to the earlier presented Dolmas-Huffman model. The fifth variable is the deviation from the equilibrium rate regarding the income of businesses, based on the model again. The sixth variable is the Gross Domestic Product per hours worked, in USD. The seventh, eighth, ninth and tenth variables represent the biggest state tax redistributions as percentages of the GDP, such as health, education, R&D, and social expenditures.
The last ten variables are the OECD Better Life statistics, expressed in percent as well: dwellings without basic facilities, job security, quality of support network, educational attainment, water quality, consultation on rule-making, self-reported health, life satisfaction, homicide rate, and employees working very long hours.
Based on the above presented analysis it was found that, in the years examined, explained variance was 100% in the case of 20 factors, and 93.97% in the case of 10 factors. For my analysis, I found the involvement of the first ten variables to be sufficient.

The first principal component is called **public good**. It is influenced by the life satisfaction index, the index of GDP per hours worked (showing a close correlation with individuals' tax incomes, the government's tax transfers to the healthcare system and public education, water quality (also a form of tax redistribution), and the quality of the social safety net, showing whether an individual in trouble can count on relatives or friends.

The second principal component is called **state expenditures**. The negative correlation between the social equilibrium of taxation, the healthcare system and public security highlighted the fact that state expenditures are proportionately lower in societies with higher incomes than in poorer countries.

The third principal component is called **public affairs**. The negative correlation between consultation on rule-making and social benefits again highlights connections resulting from social differences.

The name for the fourth principal component is **job security**. There was a positive correlation between the variable included in the examination of job security, and self-recorded health index. In the meantime, a negative correlation was found between educational attainment, tax revenues and innovation investments.

The fifth principal component is called **corporate lobby**. The name is explained by the negative correlation between consultation on rule-making and tax incomes from companies.

The name of the sixth principal component is **business-friendly environment**. It is characterized by a positive correlation between tax incomes from companies and the balance of revenues of the budget, and the negative correlation of workers' rights with the other variables.

The seventh principal component is called **public security**. Its main features are the positive correlation between the housing supply of the population and the homicide rate, and the negative relation social security revenues have with the two former variables.

The eighth principal component is called **innovation**, on account of the positive connection between tax incomes from companies' profits and R&D expenditures.

The ninth principal component is called **social relations**, because of the positive connection between social security revenues and the quality of support network.

The tenth principal component is called **willingness to pay taxes**, featuring a negative connection between the equilibrium tax rate variable and the consultation on rule-making. Without representation of their interests, companies avoid paying taxes or relocate their activities to the black market.

5. CLUSTER ANALYSIS

In the light of the moral economic principles described in the economics and morals section of the analysis, we may raise the following questions: has it been useful for the given countries to choose that certain tax rate? Do goodness or badness pay? When defining good and bad, the specific clusters were given biblical names: Zacchaeus, the prodigal son, the lost sheep, and the unjust steward.

The examined OECD member countries were categorized into four clusters, with the aid of principal component variables recorded during principal component analysis. During the examination, I applied the K-means Cluster Analysis, since the biblical cluster names were already given. Based on the four features of good and bad, I repeated cluster forming until I found stable centres, after which there was no need to place any countries in a different cluster any more.

By cluster analysis, the relative distance between each test element was classified into four clusters. Table 1 shows that the classification was mainly influenced by the first three variables, i.e. the public good, state expenditures and public affairs, and job security as a fourth principal component. During the definition of good and bad, I assumed that (as in an earlier study of mine) regardless of involving different variables, I would be able to create groups based on biblical ethics, e.g. Zacchaeus, the prodigal son, the lost sheep, and the unjust steward.

Zacchaeus, the converted tax collector, atoned his sins by paying back four times the wealth he had illegally taken from people, and by giving half of his wealth to the poor (Luke 19, 1-10.). The prodigal son wasted his father's wealth, then admitted not to be worthy of his father's love, so finally he was forgiven and could get back to his earlier life (Luke 15,11-32). A lost sheep is someone who can still be converted, who is not evil to the core (Mt. 18, 11-14). An unjust steward is the opposite of general Christian moral ethics. An example of the bad was presented when telling the story of the unjust steward (Luke 16, 1-5).

I examined the structure of the clusters. As a rule of thumb, I defined the names of the clusters based on the distance of principal components from centre 'K'.

Table 1: Final cluster chart processing variables of 2015 from the K-means Cluster Analysis K

Final Cluster Centers				
	Cluster			
	1	2	3	4
1 public good	.96688	1.71112	-.75121	-.11334
2 state expenditures	3.64043	-1.02009	.05421	-.15733
3 public affairs	.84937	-1.08696	-.67211	.05351
4 job security	.21480	-.43012	-2.58092	.16448
5 corporate lobby	.48010	1.67571	.56200	-.15987
6 business-friendly env.	.44570	-.69682	.57949	-.01932
7 public safety	-1.08862	-1.48579	1.46493	.06526
8 innovation	.08108	.40670	.33012	-.04811
9 social relations	.52577	-1.25103	1.82577	-.06474
10 willinness to pay taxes	.52524	1.71253	1.00860	-.19096

Source: author's own elaboration

In the first cluster, principal components hardly had any effect – the most typical characteristics were R&D expenses of the state, investment in innovation, and a sense of job security. The first cluster is called 'the prodigal son.'

The second cluster was characterized by a harmony between the public good and state expenditures. Additionally, participation in public affairs and job security were significant principal components. The second cluster is called Zacchaeus.

The third cluster was also barely influenced by the principal components. The most typical features again were state expenses and innovation. Other noticeable features were the lack of job security, the distance between public affairs and the public good, and the intensity of a business-friendly environment and corporate lobby. This third cluster is named 'the unjust steward.'

The fourth cluster is characterized by the weak connection between the public good and state expenses, and a decreasing influence of public affairs and job security. The forming of the cluster was not influenced by any other principal component. The fourth cluster is called 'the lost sheep.'

The first cluster (the prodigal son) is the USA. The second one (Zacchaeus) is Denmark. The third cluster (the unjust steward) is taken by Spain. The fourth cluster (the lost sheep) is for the Czech Republic, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Norway, Portugal, Slovakia, Slovenia, Sweden, Switzerland, and Great Britain.

Out of the 20 OECD countries examined, the 17 'lost sheep' countries have the longest distance from the centre defined by the principal components.

Table 2: Group members' distance from cluster centres

Cluster Membership			
Case Number	Country	Cluster	Distance
1	Czech	4	2,581
2	Denmark	2	,002
3	Finland	4	2,303
4	France	4	2,547
5	Germany	4	2,608
6	Greece	4	3,890
7	Hungary	4	3,338
8	Ireland	4	2,950
9	Italy	4	2,743
10	Netherlands	4	1,870
11	Norway	4	2,897
12	Poland	4	2,496
13	Portugal	4	3,724
14	Slovakia	4	2,450
15	Slovenia	4	2,257
16	Spain	3	0,000
17	Sweden	4	3,095
18	Switzerland	4	3,033
19	UK	4	3,229
20	US	1	0,000

Source: author's own elaboration

Among the cluster members, Sweden, Switzerland, Great Britain, and Norway are clearly on the move to another cluster – possibly Denmark's. According to the results of the analysis, Greece and Hungary, like all the other members of the fourth cluster, are moving towards a different cluster.

Discussion

Based on the analysis, we can state that deviation from equilibrium does not necessarily cause bad economic policy. The operation of the economic policy of a society is influenced by the social structure. The fairness and efficiency of state redistribution depends on the principles of economic policy held by the leaders. Models of capitalism are not equal, different models provide different standards of living for citizens, their social, economic, and environmental sustainability differ, as does the extent of harm their development means for other countries.
Whether corruption can be concealed depends on the political institutional background, and the awareness and representative power of citizens.
Tax rate, in itself, does not indicate if the economic policy of a country is good or bad, but if it is bad, tax rate (an indicator of tax policy) will deviate from equilibratory situations.

During the analysis, the first three clusters clearly were populated by countries with different social conditions and economic policy. The United States of America is characterized by free market neoliberal capitalism. Denmark is the worthy representative of Scandinavian welfare states. Spain fell in the 'unjust steward' cluster (countries pursuing bad economic policy), because of its social conditions and economic policy situation.
The analysis found that members of the fourth cluster applied good and bad economic policies alike, and were moving in a specific direction according to the result of their decisions.

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INNOVATIONS CONNECTED TO METHANOL IN THE SERVICE OF CIRCULAR ECONOMY

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Starting with coal, followed by petroleum oil and natural gas, the utilization of fossil fuels has allowed the fast and unprecedented development of human society. The safe energy supply of economies, as well as carbon dioxide emission and decreasing its negative effects constitute one of the most important questions of today. With rising global energy demands and the perception of an imminent lack of petroleum, a main source of energy, comes a big rush for renewable and sustainable energetic sources. The search for new basic commodities and technologies is driven by the increasing energy need and the consideration for environmental sustainability. As a result, the materials constantly recirculate, nothing goes to waste, and instead, they transform or become recycled. Methanol may play a key role in succeeding sustainability regarding nature, economy and society.
Keywords: Circular Economy, GHG emissions, renewable methanol, waste

1. Introduction

The typical European lifestyle of our age is unsustainable. The average ecological footprint per person in several European countries is about twice the available bio-capacity (EEA, 2010). In respect of environmental impacts, areas related to food, housing and mobility (JRC, 2006) have a leading role. In addition to the use of materials, the release of greenhouse gases is a major problem as well. Svante Arrhenius, a Swedish chemist, had already calculated in 1895 that if the atmospheric carbon dioxide concentration would be doubled because of human activities, the average surface temperature of the Earth would increase by 5-6 °C.

Before the industrial revolution, carbon dioxide concentration remained stable at around 280 ppm for a few thousand years, but carbon dioxide concentration has been growing steadily since 1750. Near the tip of the Mauna Loa volcano on the island of Hawaii, the carbon dioxide content of the air has been continuously monitored in a long-term series of experiments since 1958. This place is 4100 meters above sea level, far from the great civilization centres, so here they can detect truly global changes that are typical of the Earth as a whole. In the history of the measurements, the average daily concentration exceeded the limit of 400 ppm (0,04%) on May 9, 2013 for the first time, and 2015 was the first year with a global atmospheric concentration of carbon dioxide over 400 ppm during the whole year. Since the 1750s industrial revolution, global greenhouse gas emissions have increased including carbon dioxide by 144%, methane by 256% and nitrous oxide by 121% in 2015 (WMO, 2016).

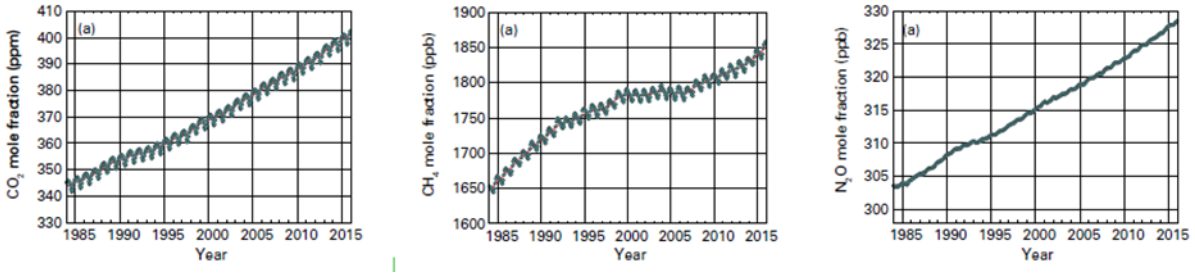

Figure 1: Changes in atmospheric concentrations of greenhouse gases
Source: WMO

The increase in the concentration of greenhouse gases is mainly caused by anthropogenic effects. The use of fossil carbon-based energy sources results in an increase in the amount of carbon dioxide in the atmosphere and contributes to a lesser extent to the increase in methane concentration as well. Reducing

methane gas emissions in the fight against climate change is extremely important since methane gas is the second most significant greenhouse effect of human origin after carbon dioxide.

2. The role of innovation in achieving the goals of sustainable development

Neoclassical economists regarded natural resources - air and water - having unlimited availability, and the problem of environmental pollution first appeared in economic theory in the writings of Arthur Pigou. Pigou introduced the concept of externality in his book: "The Economics of Welfare" (1920). Pollution of the environment, as a negative external influence, causes a welfare loss for society, which can be eliminated and compensated by the correction of the market, through government intervention. The intervention is the imposition of pollution tax, which aims to improve the efficiency of the use of resources (allocative efficiency), to reduce polluting production or consumption to the socially optimal level, and the pollution of the environment itself is to be socially optimized. Pollution taxes indicate scarcity of resources and encourage companies to innovate. Companies need to strive for fast adaptation, and if they can do so, they will gain long-term sustainable competitive advantage over others. Adapting to ecological constraints is part of the innovation capability (Porter, 1991). The considerations of environmental and social values have become an important requirement of modern business life (Fogarassy et al., 2017). By joining the international conventions, Member States can effectively encourage the environmental compliance of their businesses within their national legislation. Well-drafted environmental standards encourage companies to reorganize their activities and develop new technological solutions that cannot only reduce pollution and make more efficient use of resources but can also help companies taking advantage of the benefits of the first movers to gain market leadership through innovations.

3. The role of circular economy in solving the waste problem

There are several scenarios for forecasting the population of the Earth. According to the predictions, the population of Asia and Africa is growing significantly, and while stabilization is expected in Asia after 2050, Africa will continue to be characterized by growth as shown in Figure 2.

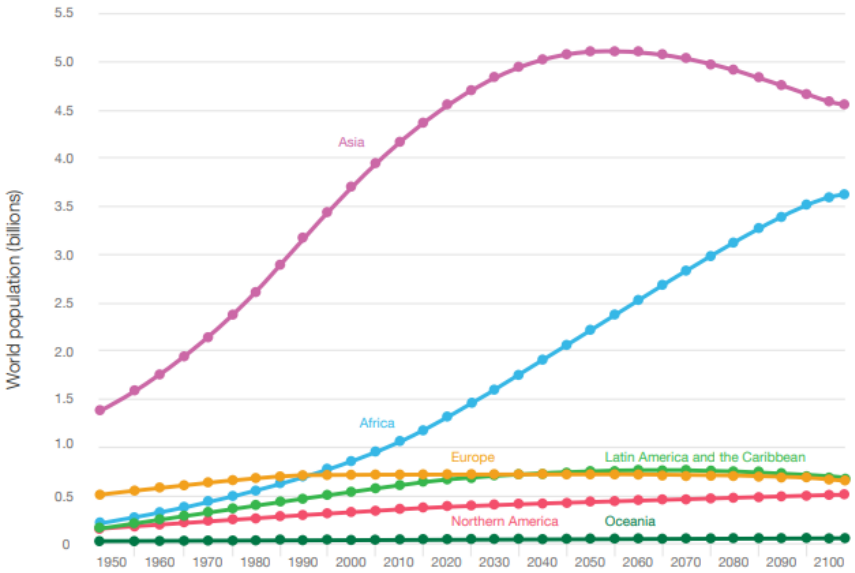

Figure 2: Estimated and projected world population by region
Source: UNDESA, Population Division (2013)

According to the waste production predictions, in the countries with "high-income and OECD", we will see a slow rise in waste generation, which will stabilize and eventually decline. Based on population and urbanization processes, the waste production of Africa, and especially Sub-Saharan Africa, which is

currently relatively small, will grow very rapidly after 2050. Figure 3 shows that Africa can become a dominant region for total waste production.

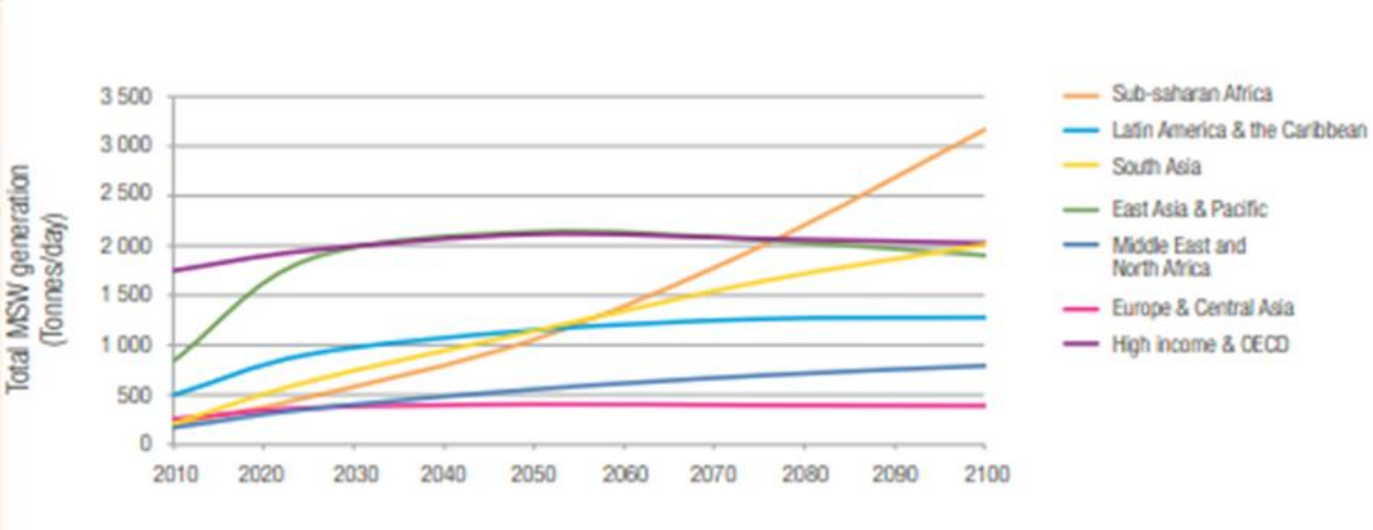

Figure 3: Total MSW generation by region
Source: Hoornweg et al. (2015)

Because of its rapid growth and urbanization, greenhouse gas emissions from landfills are constantly increasing. At present production and consumption levels, the Earth's land will soon be less, and land use as a landfill is not a productive process. New approaches and more environmentally friendly waste management are needed with the help of decision-making and scientific support, using the benefits of reuse and recycling. The cornerstone of European waste management is the development and application of the waste hierarchy, which also serves the transition to a circular economy. The primary goal is to prioritize a policy that minimizes adverse environmental impacts and optimizes resource efficiency in the prevention and management of waste production. Figure 4 illustrates the location of different waste energy processes along the EU waste hierarchy. This is a five-step system where the most desirable option is prevention and recycling. Landfill covers the bottom of the hierarchy, as this option is less desirable for the environment.

This communication covers the following main waste-to-energy processes:

- co-incineration of waste in combustion plants (e.g. power plants) and in cement and lime production;
- waste incineration in dedicated facilities;
- anaerobic digestion of biodegradable waste;
- production of waste-derived solid, liquid or gaseous fuels; and
- other processes including indirect incineration following a pyrolysis or gasification step. (Saveyn et. al. 2016)

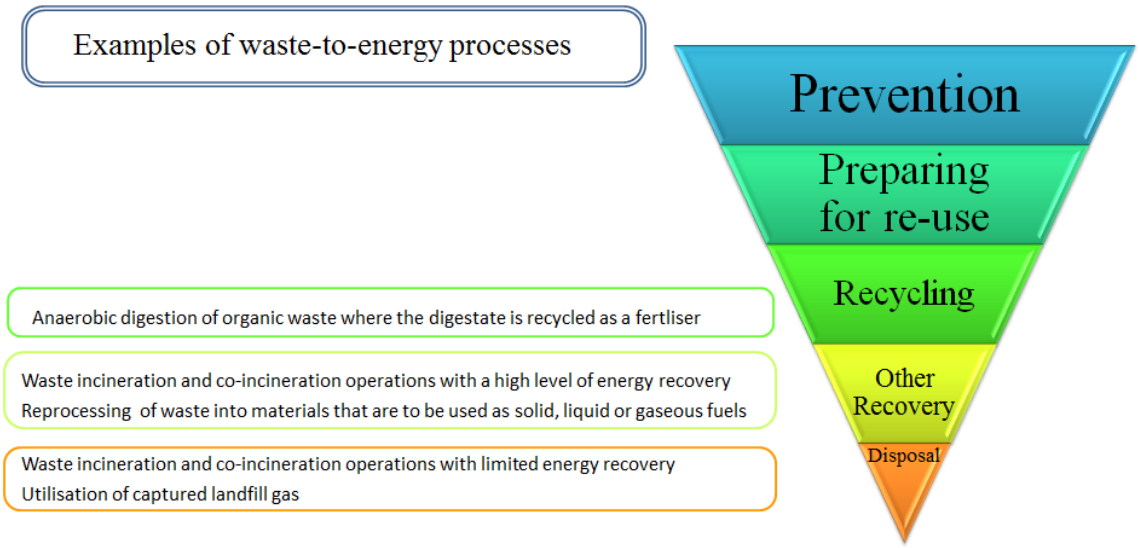

Figure 4: The waste hierarchy and waste-to-energy processes
Source: European Commission (2017)

One of the indispensable requirements for the success of the circular economy is the quality of recycling which can result in a market confidence in increasing the proportion of virgin materials substitution. The energy recovery of waste can thus be considered as a complementary process for Quality Recycling, which can help to achieve a circular economy i.e. the actual closure of the utilization cycle by utilizing waste in such power plants where they use waste which is unsuitable for high-quality recycling due to its contamination, as well as selective collected and recycled waste of min. 10% reject.

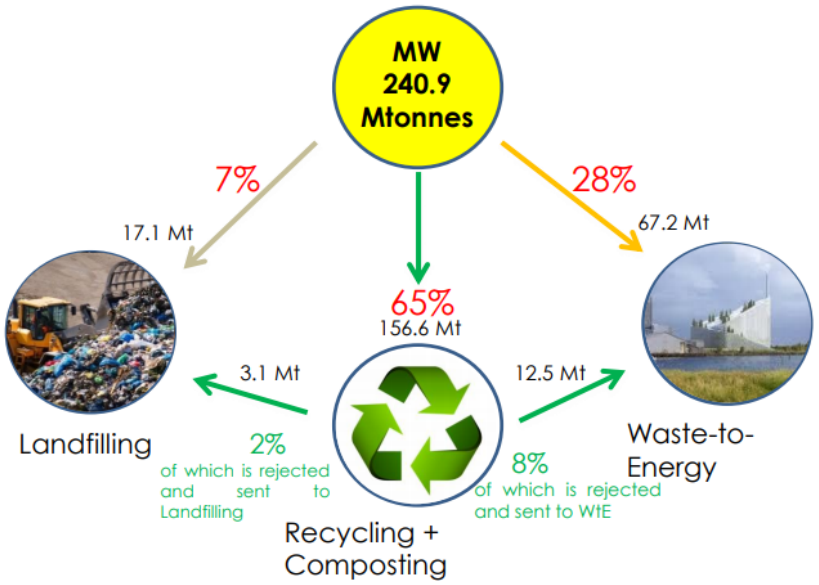

Figure 5: Municipal Waste (MW) statistics with Circular Economy Targets 2030 based on EUROSTAT 2014
Source: CEWEP (2016)

Reducing landfilling to a minimum can be achieved by its use in the material and energy recovery as illustrated in Figure 5. The requirement of the achievement of the environmental sustainability objectives and the circular economy is the usage of landfilling as little as possible.

Several studies have shown that waste management based on circular economic principles is beneficial to society from the environmental, social and financial point of view. In recent years, Europe and China have strengthened the research trend reflecting the way of thinking to sustainable waste management (Santala et al. 2017).

4. The role of methanol in the circular economy

The philosophy of circular economy builds on the principle of natural processes. Ecosystems are connected to each other creating networks of networks, circulating energy and nutrients through circular processes, so nothing is wasted (Pauli, 2015). Non-recyclable materials still store significant energy, and the extraction and storing of this energy is our purpose. Ashes and gaseous materials generated by energy recovery must become secondary raw materials. Circulation and recycling of carbon dioxide produced by power plants, which has so far been an example in nature, are a major area of research and innovation which contributes to the net emission of greenhouse gases. Carbon dioxide and hydrogen are the basic ingredients of the simplest alcohol, methanol, based on Fischer-Tropsch synthesis, so the thought came simply, that capture of carbon dioxide should happen through methanol production. Figure 6 illustrates the closure of the carbon loop by generating renewable and sustainable methanol through capturing the carbon dioxide of the power plants, and by using it, the released CO2 can be effectively recycled (Goeppert et al., 2014).

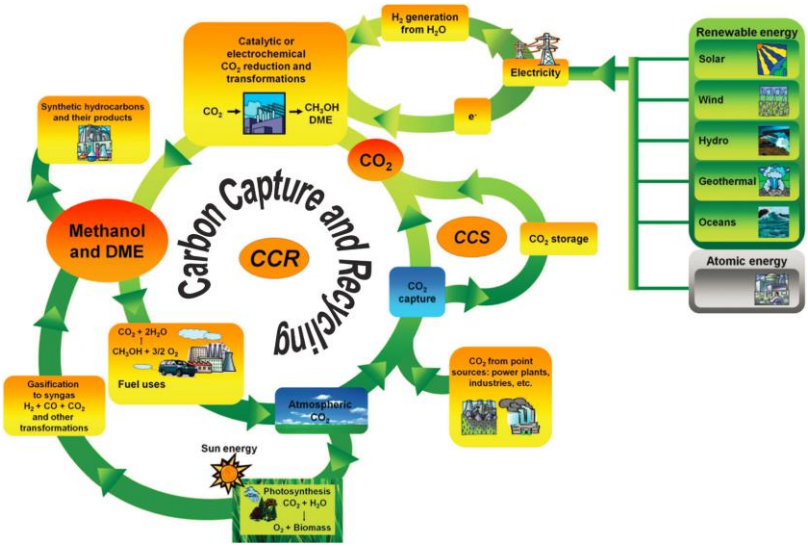

Figure 6: Anthropogenic carbon cycle within the Methanol Economy
Source: Goeppert et al., 2014

The advantages of methanol include that it is an easy to use liquid, so its transportation is simple, and its physical properties are very similar to gasoline, so it can be directly used as a propellant, but can also be added to gasoline. Its disadvantage is that methanol requires a larger amount of energy due to its lower energy density, so either a larger fuel tank should be used or more frequently refuelled. Unlike gasoline, methanol is miscible with water, so care must be taken not to allow the water to enter the tank in any form. Because of the water, the alcohol gasoline mixture will split into two phases and the aqueous phase will be at the bottom of the tank, which can cause problems. Another disadvantage of using methanol is that methanol increases the demand on the engine structural materials; which should be taken into consideration when designing the car. The use of methanol as a non-propellant agent covers only one slice of its use, since it has been one of the most widely used industrial chemical raw materials since the 1800s. Methanol occupies a key position in the chemical industry, and it is an extremely versatile component of many everyday products. The highest amounts, formaldehyde and acetic acid are produced from it, and by further processing formaldehyde, resins, adhesives and various plastics can be manufactured, and polyester fibres and PET plastics can be produced from acetic acid (Milani et al., 2015).

5. Biomethanol production from communal waste projects

Enerkem (Canada)

The first collaboration was established between the Enerkem Alberta Biofuels and Edmonton town, of which a major city and an innovative biofuel producer are the participants. Enerkem Alberta Biofuels transforms non-recyclable non-compostable municipal solid waste into liquid biofuels. The purpose of Edmonton is that 90 % of the household waste should not be disposed in landfills but re-processed. The Canadian government also supported this initiative and helped to build the Alberta plant by $3.5 million. The facility can process 100 000 tonnes of solid waste per year (Ethanol Producer Magazine, 2017). Methanol and ethanol are produced in the plant, which can be used either directly or as fuel for gasoline, and as raw materials to produce olefins and acrylic acids. The plant uses Enerkem's patented process consisting of four phases: raw material preparation, gasification of synthesis gas, cleaning and conditioning of gas mixture, and catalytic synthesis of methanol.

The development of the technological process took ten years, which resulted in a technology using "relatively low" temperatures and pressures to use a wide range of waste which reduces the power and cost of the plant. The Enerkem plant in Alberta is one of the pioneering commercial establishments that aim to produce advanced biofuels. The Canadian company plans to establish additional plants both in Canada and in Europe (Netherlands), where AkzoNobel, Air Liquide, Van Gansewinkel and AVR will be their partners (Latieule 2013).

ENIN Environmental Industry Cluster (Hungary)

In 2011, the "Green Inventions International Competition" was held in one of the world's most important innovation exhibitions (IENA). A Hungarian creative duo, Iván Raisz and István Barta won the main prize of the competition, the "Green Oscar", to produce methanol from communal waste with their invention (greenfo, 2011). The principle of the invention is that by utilizing organic material wastes, through producing synthesis gas, methyl alcohol can be prepared. As raw material, solid municipal waste, sewage sludge and biomass waste can be used which are converted into carbon dioxide, carbon monoxide and hydrogen containing gases by oxygen, water vapour, tar and contaminated water produced by the process in the fixed bed gasifier. The advantage of the invention is that, in contrast to conventional combustion, no dioxins and tar are formed during the process (Raisz, 2007).

In the framework of the "Support for joint investment of regional clusters, and the design and development of their services" of the ÉMOP-1.2.1-2008 construction, the ENIN Environmental Industry Cluster applied to produce a methanol production plant in Miskolc. The amount of funding received was HUF 47 million for management activities and another HUF 200 million for the implementation of joint investment. The project was started in June 2009 and was intended to build an experimental plant of 2,000 tons/year capacity at the site of AVE Miskolc Ltd., as a consortium member in the application, which can produce methanol from about 6-7,000 tons of purified, selected waste. In principle, methanol can be produced from waste in the experimental plant at a cost of HUF 30 per kg (Bai, 2013), compared to the traditional costs of HUF 100 per kg. The normal operational production of methanol was not completed, further improvements are needed.

6. Methanol production from agricultural waste projects

A lot of organic waste is produced during agricultural production, for example, after harvesting coffee beans, 99.8% of total biomass becomes waste. US surveys show that a unit of industrial, mining, agricultural waste management is seventy times more costly than municipal waste management. Waste associated with agricultural production is typically the biomass and plastics related to work, for example foil, and liquid manure associated with livestock.

Methanol production technology can be divided into two parts for the recovery of agricultural waste:

- producing synthesis gas from waste;
- producing methanol from synthesis gas.

The chemistry reaction equation: $CO + 2H_2 = CH_3\text{-}OH$

At industrial scale, up to 98% material extraction is available, so there is almost no by-product, no more waste. The requirement of proper material extraction is that the carbon monoxide: hydrogen mass ratio should be 7: 1.
There are several options for achieving the correct weight ratio: for example, the use of a properly selected waste-mix or the incorporation of a water demineralizer that utilizes solar or wind power.
Waste gasification is carried out by a plasma-energy thermal processor. Its extraordinary advantage is that it greatly increases productivity, because well-chosen Planck radiation causes molecular bonds to tear and generates two-atom gases, typically carbon monoxide and hydrogen (Kozéky L, 2012). The biomass of a 25 km radius is sufficient for the economical operation of a plant created by the combination of a plasma-energy thermal processor and a synthesis gas using unit, and the raw materials include organic materials from regional selective waste landfilling, so the capacity utilization of the plant can be solved using local waste.
VärmlandsMetanol Ltd (Sweden)
The operation of the Swedish plant is illustrated in Figure 7. "The process is "fed" with sustainable forest residues that is chipped, dried and processed to wood pellets. The wood pellets are converted to raw gas in the gasifier. In the next step the raw gas is purified and adjusted to the correct relation carbon dioxide/hydrogen used for the synthesis of fuel grade bioMethanol" (VärmlandsMetanol AB).

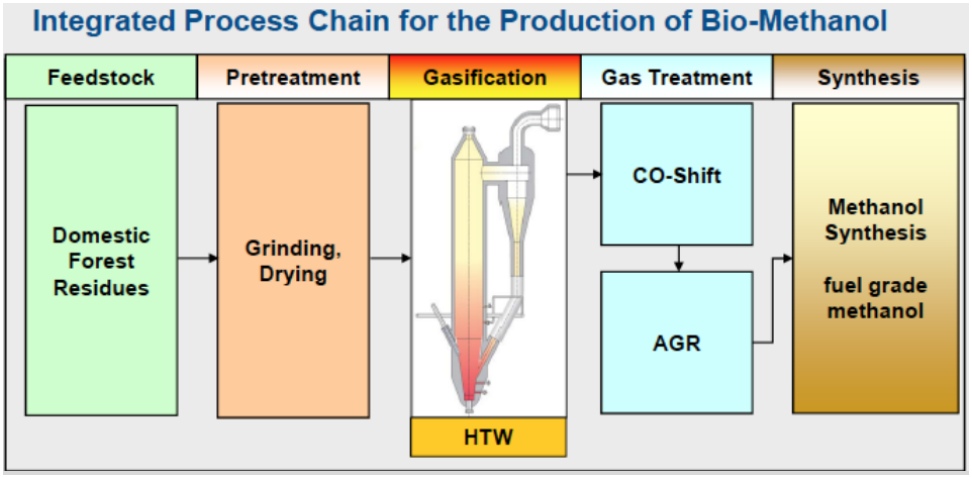

Figure 7: Biomass to Methanol, VärmlandsMetanol, Sweden
Source: VärmlandsMetanol AB
An approx. 50 Värmlands Methanol size plant would be able to satisfy the propellant requirement of Sweden. Each plant requires 50 people to work, and 50 people will be required to work on production. The production of second generation fuels increases rural employment and contributes significantly to agricultural exports (Magda, 2011).
BioMCN (Netherlands)
Biodiesel of first-generation biofuels is obtained through the transesterification of vegetable oils and animal fats with methanol in the presence of a basic or acidic catalyst. During the reaction, 1 kg of crude glycerol is produced with every 9 kg of biodiesel produced, i.e. during the used manufacturing techniques a significant amount of glycerol is produced in addition to the fatty acid methyl esters (Karinen& Krause, 2006). Figure 8 illustrates the evolution of the volume of European biodiesel production, which shows that large quantities of glycerol are produced as by-products.

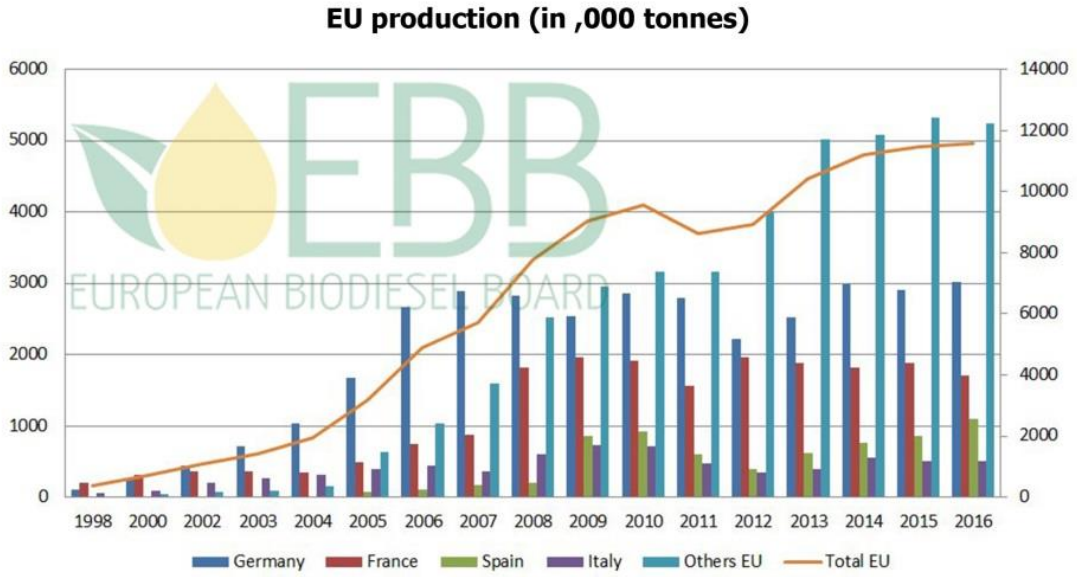

Figure 8: Growing biodiesel production brings with it huge amounts of glycerine by-product
Source: European Biodiesel Board

BioMCN, based in the Netherlands, has developed an innovative industrial process that produces biomethanol from raw glycerol formed during biodiesel production. The process is illustrated in Figure 9. This solves the recycling of glycerol, because the methanol produced from glycerol can be reused in the production of biodiesel, which significantly increases its sustainability.

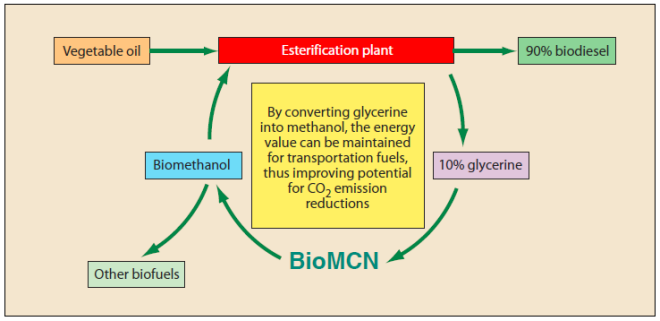

Figure 9: Converting glycerine into methanol increases the energy value and CO2 emission reduction potential of the process
Source: Dekker, E; Lanting, K.

To ensure sustainability, BioMCN uses only renewable raw materials, non-food crops and organic waste. Replacement of one litre of gasoline with biomethanol results in a 70% reduction in CO2 emissions (Dekker & Lanting). The plant started production in June 2010 and it has a 250 million litres of methanol production capacity.

7. Conclusions

According to the predictions, both municipal waste and industrial waste will continue to grow. Waste problem and its consequences are not confined to one state or territory but have "crossed" the boundaries of countries. Remedying the problems requires a broad international co-operation, complemented by effective national-level instruments.

The methanol economy can contribute to reducing human impacts on Earth's climate by recycling the atmospheric carbon dioxide, and it can give an opportunity to get rid of dependence on almost depleted oil and gas resources. The use of waste as a raw material can increase if the efficiency of the sector increases

as well, and new innovative methods and technologies are needed for this. With an effective policy and innovation-intensive activities, we have the chance to change faster than the climate.

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THE IMPACT OF THE MODERN CITIES PROGRAM TO TERRITORIAL DIFFERENCES

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Abstract
In our days, one of the biggest challenges of both the developing and the developed world is the widening of territorial disparities - even in global dimension. The gap between the poor and the rich shows a rapid and continuous increase instead of shrinking or at least remaining stagnant. The vast majority of the countries on our Earth are trying to combat this phenomenon but – unfortunately – with not much success. The same is typical of Hungary as well, the gap in terms of territorial disparities has still been widening. Furthermore Hungary has a peculiar situation due to its historical antecedents; there is only one significant city which can be considered competitive on European level: Budapest, the capital city. The Modern Cities Program supports municipalities and county seats in order to improve their economic development which has positive effect on the settlements in their periphery. This measure is in close line with the growth pole theory, which will be illustrated in the present research. The present study analyses the effects of the Polus Program, which was launched a decade ago.

Keywords: Smart City, Smart Village, territorial inequalities, innovation

JEL code: R58
LCC code: H1-99

1. INTRODUCTION

Literature dealing with regional development unambiguously states that the Hungarian spatial structure is basically monocentric, thanks to the Peace Treaty of Trianon; therefore, the dominance of Budapest is clear in many regards (Beluszky, 2003; Némediné Kollár-Neszmélyi, 2015; Bakos-Gerencsér, 2016). Although attempts to change this monocentric structure were made before the introduction of the NUTS system, only this administrational change could finally start a more significant transformation (Csomós, 2010), when regional seats received more autonomy and started playing more important roles than before. In the light of regional processes, the last decade of the 20th century, which resulted in massive transformations, cannot be regarded as a heterogeneous period. The first half of the era was dominated by crises that accompanied the downfall of the structures of the former system. From the mid-nineties, the signs of renewal (primarily macroeconomic), and the hubs of local and regional success were noticeably emerging (Nemes Nagy, 2005, Bakos, 2015). During this decade Hungary witnessed the most significant socio-economic spatial structure rearrangement so far.

It is obvious that the dominance of the capital cannot be eased by restricting its growth and development, but by developing the disadvantaged areas and balancing existing differences between them. By weakening Budapest as the only metropolis of our country, which is competitive on the European level, the polarization of the country would be diminished, but the Hungary would drift away from the economic centres of Europe (Péli, 2013).
Economic growth has always been one of the main foci of regional economies. The factors determining the growth of the regional economy and the correlations that explain them may have a decisive impact on the reduction of territorial inequalities, the exploration and treatment of their causes (Lengyel - Rechnitzer,

2004, Áldorfai et al., 2017).

This study presents one of the regional economic growth models, the theory of growth poles. According to Rechnitzer and Lados (2004), the growth pole model states that centres giving home to dynamically developing sectors and industries are essentially growth poles that have agglomeration effects on the surrounding settlements. The growth pole itself is a settlement.
The Modern Cities Program investigated in this paper was born based on the above mentioned model, according to which these municipalities and county seats will be the engines of economic development. As a result, advanced centre areas have a favourable economic impact on semi-peripheral and peripheral areas, which will lead to the decrease of disparity between developed and lagging-behind areas.

2. MATERIAL AND METHODS

The basis of the research was provided by the regional statistical data collected by the Hungarian Central Statistical Office, accessed from the TeIR database. During the research the method of document analysis and data analysis were used. During the implementation of the Modern Cities Program, the Government of Hungary concluded a cooperation agreement with the 23 county seats in Hungary. Agreements are open to the public, therefore we could analyse the amount of financial support for cities. The level of financial support is always covered by the cooperation agreements signed between 2015 and 2017. From the TeIR database, we retrieved the data for the cities concerned and for their agglomerations as well. The results of the data analyses are presented in the Results section of the paper. The most up-to-date data were from 2015.

3. RESULTS

The Government of Hungary announced in 2015 the Modern Cities Program with a record-high financial background. Support is given to county seats in Hungary. A city can gain county seat right when its population number reaches 50,000 and the National Assembly of Hungary declares it as such. Additionally, all county seats automatically gain this title. A municipal office of the city with county seat right carries out the tasks and competences of the county government in its own sphere. Its representative body is the assembly, which can create districts within the city and can create city offices (terport.hu, 2017).
There are currently 23 cities with county seat right (Figure 1) in Hungary, from which 18 are county seats as well.

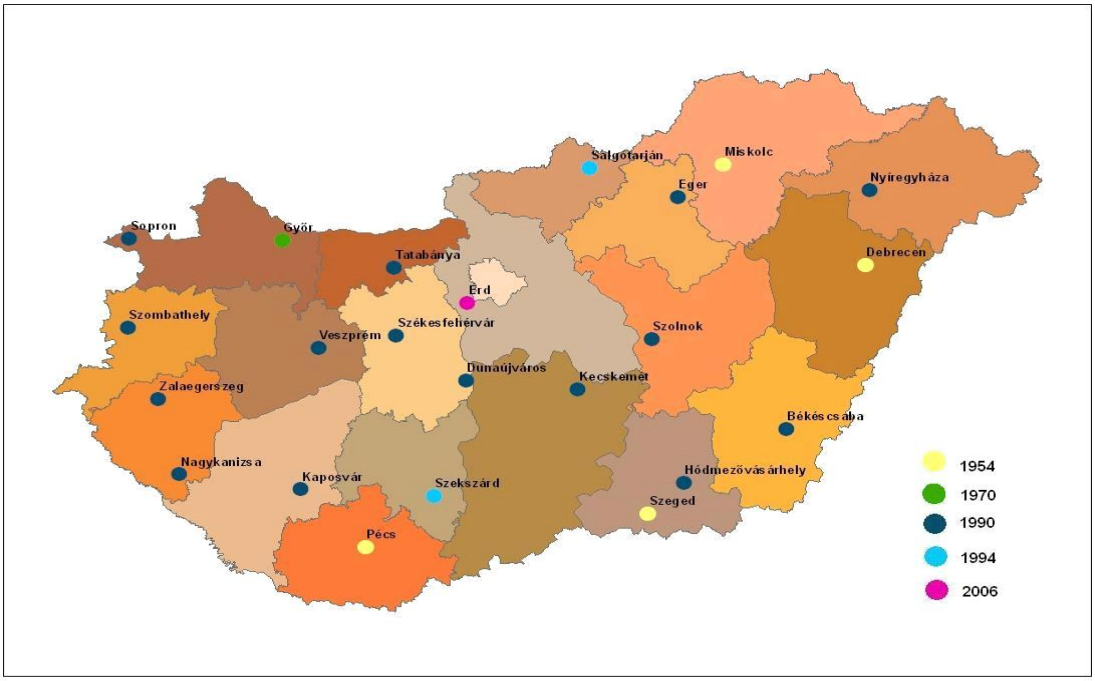

Figure 1: The cities with county seat rights in Hungary

Source: terport.hu, 2017

Although these cities are administratively not parts of the counties, they have the same level of authority.

The Modern Cities Program is a 3400 billion forints development package, which includes:

- 690 kilometres of motorway construction,
- the development of five airports,
- the establishment of 1920 hectares of new industrial parks,
- 170 billion forints of investment in health-care and sport,
- 109 billion forints of investment in education (kormany.hu, 2017).

The first cities received the support in 2015, while the latest ones got it in 2017.
As seen above, there are 23 cities with county seat rights in Hungary, but there are significant differences within this group. The population number of these cities is illustrated by Figure 2.

Figure 2: The population numbers of cities with county seat rights

Source: authors' own editing

The figure shows that in addition to the five major cities in the country (Győr, Pécs, Szeged, Debrecen and Miskolc), Kecskemét, Nyíregyháza and Székesfehérvár have a population of 100,000 or more. When defining the category 'city with county seat right', we could see that one of the conditions is a population of more than 50,000. Five towns do not meet this criteria based on data from 2015; the population of Szekszárd and Salgótarján does not even reach 40,000, while the population of Hódmezővásárhely, Dunaújváros and Nagykanizsa is also a few thousand people away from the limit. As the county seats automatically receive the title, Szekszárd and Salgótarján are exempt from the 50,000 inhabitant criterion. According to the law, only the conditions for awarding of a city with the above mentioned title were set,

the conditions for losing it, were not. It means that whichever city once received the title remains the holder.

Next we examined the amount of support per capita of the cities given in the Modern Cities Program, the result of which is shown in Figure 3.

Figure 3: The amount of support per capita of the cities given in the Modern Cities Program

Source: authors' own editing

As shown in the figure, Békéscsaba has the highest per capita support that exceeds 7700 HUF. The construction of the M44 motorway network is a significant part of the support, which is really justified, since many of the cities with county seat rights have been connected to the motorway network, but Békéscsaba has not yet been connected to it. Since Békés County is also known as the "Food Supplier of Hungary", it has also received significant support for agriculture and the processing industry (for cold stores). The other two cities receiving high per capita support are Hódmezővásárhely and Sopron. In the former there are many infrastructural investments and the industrial park of the city is being expanded, while in the latter case there is also a significant motorway network development, the M85 highway.
In addition to the three mentioned cities, Zalaegerszeg, Szolnok and Salgótarján will receive even greater support, and from the five largest cities in the countryside - Debrecen, Győr, Miskolc, Pécs and Szeged – the latter, Szeged can count on the highest level of support. The development of transport infrastructure (new road-rail Tisza bridge, M47 road construction) is of great importance, but the city's industrial park is also expanding and urban regeneration and sport development are also taking place.

4. CONCLUSIONS

The 3400 billion forints support received in the Modern Cities Program is a great instrument of long term development in cities with county seat rights. When analysing the nature of support per cities we can conclude that the development of motorway is of great importance within the programme. The most significant support per capita was received by cities which are not yet connected to the motorway network (Salgótarján: road M21, Szolnok: road M4, Zalaegerszeg: roads M76 and M9, Békéscsaba: road M44, Sopron: road M85 etc.).
It was found earlier (Péli, 2013) that the quality of transport infrastructure has a significant impact on the development level of a region or city; therefore, the authors' opinion is that these development directions are favourable.
The monocentric nature of Hungary can only be eased by strengthening the economy of cities and towns in the countryside. The Modern Cities Program can provide a strong basis for achieving this goal.
The Modern Cities Program is a large-scale development and support package, whereby the Government of Hungary promotes county seats in many areas. The aim is to stimulate the economies of these cities so that they can become centres of their surrounding area. It is important to note that these economic development measures are based on an adequate level of accessibility, which requires transport infrastructure of proper quality and sufficient quality. It was found as one of the main pillars of the program.

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EXAMINING THE IMPACT OF SMART PILLARS ON SPATIAL PROCESSES IN HUNGARY

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Abstract
The spatial processes of the European Union and Hungary show that the role of urban areas is appreciated as urban areas are the driving force behind territorial economic growth and its economic centre (Káposzta et al., 2016). For the world as a whole, the proportion of urban population exceeds half of the current population of the Earth, which is expected to rise (based on preliminary estimates) in the future. The European Union's SMART City concept aims to improve the quality of life and the social, economic and environmental infrastructure in this area, complemented by the quantity and quality of services available. The purpose of this paper is to provide an overview of the current state of the SMART City and SMART Village initiatives in Hungary.

Keywords: Smart City, Smart Village, territorial inequalities, innovation

JEL code: R11
LCC code: H1-99

1. INTRODUCTION

Examination of disadvantaged areas has a long history that is strongly influenced by the constant change in natural, economic and human resources. As a consequence, through the examination of such regions we can find new and unique systems of correlations. In 2017, one can still rightfully say that general characteristics of disadvantaged areas include having a low level of infrastructure supply, low levels of service quality and lacking employment opportunities. These characteristics result in high unemployment rates and low income levels. A general phenomenon is the migration of a younger generation from disadvantaged rural areas, which contributes to the development of a long-term aging-unfavourable age structure. The SMART concept of the European Union (both SMART City and SMART Village concepts) aims at improving the quality of life and the social, economic and environmental infrastructure in this area, complemented by the quantity and quality of services available. It is important to note that, with regard to the study of literature on territorial and rural development, both in the European Union and in Hungary smart growth, is gaining ground. The defining factors for smart growth and their areas, which affect fields such as education, research/innovation and the digital society, also appear in the European Union's Growth Strategy (Europe 2020). The purpose of this paper is to provide an overview of the demarcation of the disadvantaged areas in Hungary, their main economic characteristics and the major literature related to the SMART cities and villages, the institutional and legal background of the country, touching on some SMART initiatives in Hungary, in particular the rural areas.

2. MATERIAL AND METHODS

In the study, we primarily used document analysis to compile the changes in the definition of the disadvantaged areas of Hungary over the past decade, and then we present the foreign and domestic literature, which is the basis for the concept of smart village initiatives, including the description of the domestic legal background. The Lechner Knowledge Centre, with its latest online model of smart

initiatives, provides a brief overview of some of the international and domestic rural SMART initiatives and impacts. The study is based on a research launched in October 2017, with the involvement of students from the Agricultural Economics and Rural Development (BSc) of Szent István University. Based on the research plan, SMART Village initiatives will be investigated using empirical research methods based on the SMART criteria, of which we later aim at creating models. At the end of December 2017, we visited the Miskolc district where we examined the SMART initiatives in the towns and villages in the rural and beneficiary categories located in the agglomeration zone of Miskolc. This study was made in the initial phase of the research, thus we present only a slice of the expected results, paying particular attention to the spatial contexts of disadvantaged priority settlements.

3. DISADVANTAGED DISTRICTS IN HUNGARY

According to the CVII act in 2007, the territory of Hungary was divided into 174 micro-regions. Based on the 2007/67 Parliamentary Decision and the related government decree, the classification of the beneficiary and disadvantaged micro-regions was determined in Hungary until 2013 (until the introduction of the district system). The 2007/67 Parliamentary Decision sets out the basic document on spatial development subsidies, decentralization principles and criteria for the classification of beneficiary areas. Due to the topic of the paper, we consider it important to briefly review the system of classification of beneficiary areas and their criteria. According to this Parliament resolution, the distribution of regional development support from domestic and community sources should take into account the complex indicator measuring social, economic and infrastructural backwardness and development of micro-regions and settlements, the main elements of which are: Economic Indicators, Infrastructure Indicators, Social Indicators and Employment Indicators.

Government Decision 2007/311 in the Decree 67/2007 on Regional Development Grants and Decentralization Principles on the Criteria for Classification of Beneficiary Areas (VI.28.) contains the classification of the conditions according to the level of development of micro-regions. The classification of beneficiary micro-regions - the disadvantaged, and in particular the most disadvantaged micro-regions supported by complex development programmes, is set out in the Annex to this Regulation.

Under the Regulation, until 2013, the number of the most disadvantaged micro-regions in Hungary was 47, out of which 33 were multi-disadvantaged micro-regions, supported by complex development programmes. These micro-regions are: the Edelényi, Encsi, Ózdi, Sárospataki, Szerencsi, Szikszói, Abaúj–Hegyközi, Bodrogközi, Mezőcsáti, Tokaji, Hevesi, Bátonyterenyei, Baktalórántházai, Csengeri, Fehérgyarmati, Mátészalkai, Nyírbátori, Vásárosnaményi, Berettyóújfalui, Tiszafüredi, Bácsalmási, Jánoshalmai, Mezőkovácsházai, Sarkadi, Kisteleki, Sásdi, Sellyei, Szigetvári, Tamási, Barcsi, Csurgói, Lengyeltóti and Kadarkúti micro-regions. Figure 1 indicates that more than 50% of the previous micro-regions are situated in Borsod-Abaúj-Zemplén and Szabolcs-Szatmár-Bereg counties, which are generally lagging behind regions in Hungary. This fact makes it imperative to solve the problems of these areas, because such concentration of challenges can seriously hinder the development of the whole country.

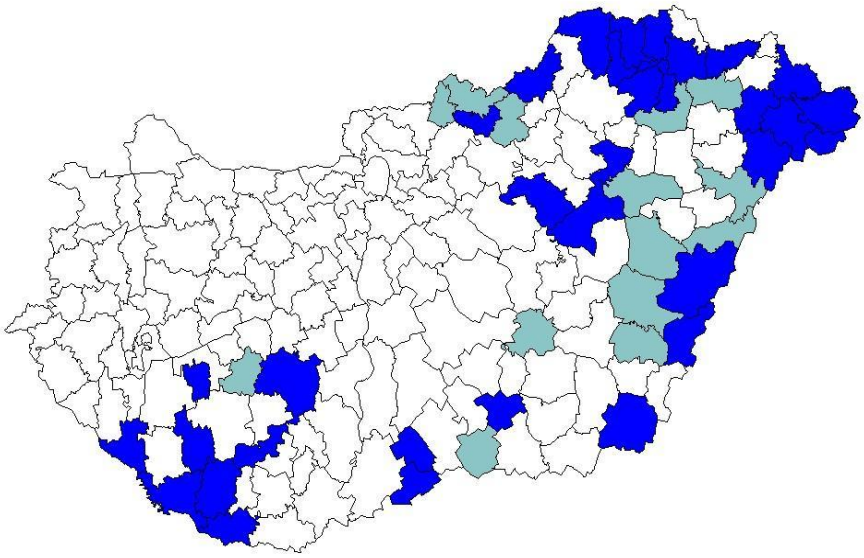

Figure 1: The spatial distribution of the most disadvantaged micro-regions supported by complex development programmes in Hungary (until 2013)

Source: the authors' own editing based on KSH data (2011), 2012.

3.1 Factors of underdevelopment

The fundamental aim of regional policies is to reduce territorial differences in space and to improve the situation of lagging behind regions. The basic issue of this principle is to classify areas to see which belong to the underdeveloped category, and what levels of development we need to achieve. It is important to point out that the industrial revolution and the post-industrial era of the present day are different (G. FEKETE, 2006). Territorial inequalities can be the result of many factors. According to G. Éva Fekete's research in Northern Hungary (2006), five main factors of underdevelopment are listed: demographic imbalance, poor regional income generating ability, low or over-utilisation environmental resources, isolation and unsatisfied local needs. Overall, in the lagging-behind regions, massive and worsening unemployment, unsatisfied internal needs, ever-falling services, natural values with utilisation problems and emerging conflicts are the most serious problems. Furthermore, it is worth mentioning that disadvantaged micro-regions are less capable to adapt to global trends, resulting in insufficient infrastructure and financial conditions. It is clear from all these that catching up, due to the complexity of the problems and the different kinds of disorder in the different areas, cannot happen by using just one model.

3.2. The introduction of the district system, changes in the beneficiaries

In the following, we examine briefly what happened after January 1, 2013, when the Hungarian district system was introduced. In Hungary, the XXI Act 290/2014 (XI.26.) regulates the beneficiary districts. Pursuant to the regulation's entry into force, disadvantaged micro-regions (47), most disadvantaged micro-regions (14) and disadvantaged micro-regions supported by complex development programmes (33) are distinguished. Nowadays, the new regulation is based on the new system of districts, which was established on 1 January 2013, in which the following categories are listed: beneficiary districts (55), districts to be developed (18) and districts to be developed by complex programmes (36).

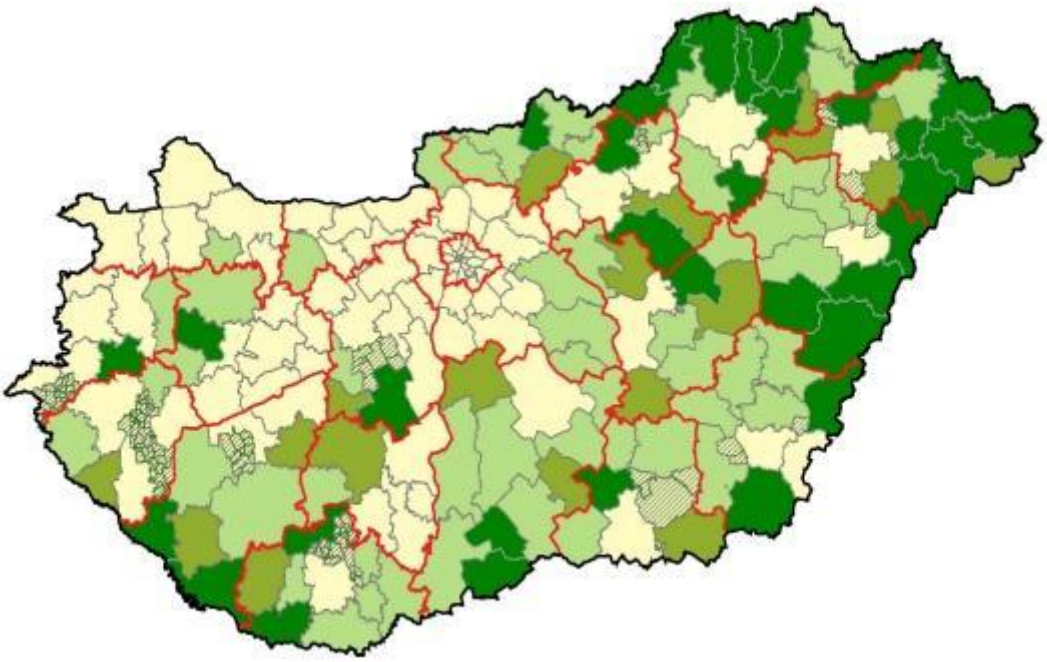

Figure 2: Hungarian beneficiary districts based on Government Regulation 290/2014
Source: the authors' own editing based on www.terport.hu, 2016.

The 105/2015 (IV.23) Government Decree on the classification of beneficiary settlements and the conditions of classification also has an impact on the regions and settlements. In the case of the districts, there were 4 groups of indicators defined: indicators of the Social and Demographic Situation (6), indicators of Housing and Living Conditions (7), Local Economy and Labour Market Indicators (7) and Infrastructure and Environmental Indicators (4). Analysing the above indicators found in the legal sources, we can conclude that 50% of the 24 indicators for districts could be found in the micro-region complex index system.
Social and demographic indicators and the local economy and labour market indicators are almost the same; it was the indicators of housing and living conditions that were more different, as well as infrastructure indicators. Thus, it can be said that the two indexing systems are partially different, but it can be seen that the elements used are similar in content, and only the approach they use is slightly different (Kassai-Molnár, 2016). The number of districts to be developed (which group replaced the most lagging-behind micro-region group) increased from 14 micro-regions to 18 districts. The biggest change is seen in disadvantaged micro-regions / beneficiary districts, where the number increased from 47 to 55.

4. THE SMART CITY AND SMART VILLAGE CONCEPT

By May 2018 we can say that in parallel with the SMART City concept, the SMART Village Pilot Project was launched in Hungary. Domestic rural development professionals first define the smart villages, then collect good practices and develop models that can be used in practice. At present, a preparatory action plan for the dissemination of the SMART Village concept is underway in Hungary, which, if adopted, will have a significant amount of European Union financial sources available to create so-called SMART Village reference points. Based on the current plans, in principle, each Member State of the European Union can set up benchmarks, so the goal is to associate at least 8-10 member states to use the widest possible data in the reference points. The preparatory action reference program will start in 2019. After the definitive start of the "smart village" program in 2021, however, this rural development program would be supported by a large amount of EU funding from Brussels. In the EU financial cycle 2021-2027, the amount of direct area-based resources may even blend up to half, while the resources of the agricultural stock will not fall, so that the "smart villages" will be solved for the next programming period. Another

unseen ambition in the European Union is that the Common Agricultural Policy should be transformed in such a way so as to make rural life attractive. Smart, live, viable villages in Europe: this is the "smart village" initiative, which will also play a major role in supporting high-tech, precision and sustainable agriculture (www.hvg.hu, 2017).
By adopting the SMART City concept into rural areas, it is expected to strengthen the competitiveness of villages as a place of residence and as a tourist destination. Numerous international examples also support the intelligent monitoring system, passenger information, tourist applications and public error reporting systems in the countryside. The programme could help connecting different tourist attractions and services, boosting local touristic opportunities and digital technology could also be beneficial, for example, if the national Blue Tour Route would be mapped digitally. Connecting data better from national and local healthcare institutions could also bring many benefits small settlements. Villages could also benefit from smart grid energy systems and energy generating communities (Nagy et al., 2015).
During our research, we have investigated a number of SMART Village good practices, based on which we have chosen two on-going cases from the European Union and from Hungary:

1. Grieth Smart project: It is referred to as a Smart Village best practice in the European Union, which was implemented in a German small settlement in the North Rhine. As part of the project, it is planned to establish a special (multifunctional) "village shop" (with a variety of products and special service structure) and faster internet connectivity. A major problem in the settlement is bus transportation, which is planned to be settled by a municipal bus and a "joint travel" centre. The project is operated by the Rhein-Waal University. The "village shop" would be a post office, a bank, a travel agency, a social caring centre and an internet cafe, which would provide space for citizens to strengthen social contacts and exchange information. Another local idea, the „regional taxi" could be a solution to transport problems and the attractiveness of transport could be enhanced by the introduction of car-sharing applications (Nagy Z. et al., 2015).

2. „Smart Rural Areas" project: The Smart Rural Areas project, led by the Frauenhofer Institute, aims to make rural areas smarter, for example, in agriculture, health, mobility, infrastructure and energy. In this context, they intend to help with IT solutions in the field of travel, to apply new solutions in the field of training and to plan the introduction of so-called autonomous travel in rural areas. The latter can also help increase the mobility of patients and the elderly while traveling. Package shipment and delivery would be simplified if public transport could find solutions for parcel delivery. In addition to the people, it would also be possible to deliver these products and even medicines at the same time.

A "Mobility Sharing" application could be used to connect a local bus, private car and public transport, so passengers can reach their destinations in time. In addition, smart vehicle communication (with the repair service providers and with each other) is also an opportunity for real-time tracking of vehicle failures in rural areas and sending automatic alarms to the repair shop. Smart applications already make it easy to find a parking lot or to calculate the route. Vehicles can communicate with each other and communicate with the transport infrastructure, using sensors to indicate the presence of traffic jams, accidents, ice or slippery roads or roadblocks in real time (based on feedback) (Nagy Z. et al., 2015). Elderly care and continuous follow-up helps with the use of a sensor technology that provides discreet information about the lifestyle of the elderly population and thus can prevent their preventive care. It is possible to use smart sensors in homes and cars in modern medicine technology, which sensors would indicate the occurrence of the disease (including myocardial infarction) in a timely fashion. However, it should be noted that all these pilot projects can only be implemented if the rural population is receptive to such innovative technologies, but this is difficult for many rural settlements in Hungary (Nagy A. et al., 2015). Following international examples, we tried to collect the Hungarian examples and practices, but we conclude that the number of SMART Village initiatives in Hungary is very low (Rab et al., 2015).

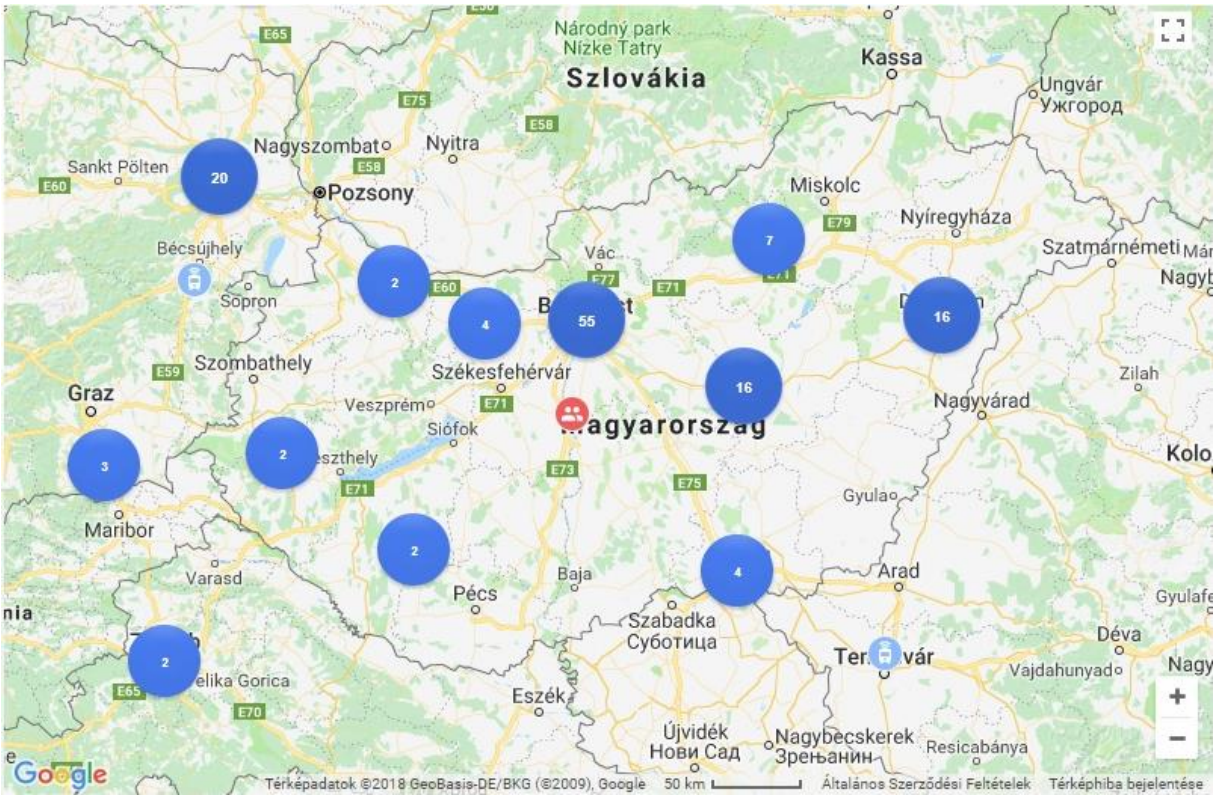

Figure 3: Smart initiatives in Hungary, 2018
Source: The authors' own editing based on http://okosvaros.lechnerkozpont.hu/hu, 2018.

Based on the Online Best Practice Inventory of the Lechner Knowledge Centre, 96 SMART initiatives are available in our country (October 2017) (Figure 3). SMART Village practices can hardly be found. Figure 3 also outlines the central character of Budapest, as 43 of the SMART initiatives are in Pest County and 36 are in the capital city. In January 2017 the Municipal Assembly of Budapest accepted the vision of SMART City. As spatial development experts, however, we must mention the Hungarian settlements that are located in the poorest districts of the country are in a huge disadvantage to larger settlements, because they need to fight against depopulation every day. Below we will present the SMART village of project in Alsómocsolád in Tolna-county.

Alsómocsolád

Alsómocsolád is a dead-end village in a disadvantaged neighbourhood of Baranya in the Sásdi district. The village was burnt down four times throughout history. The school has been closed for nearly thirty years and the number of inhabitants has dropped to 300, but it is still referred to as the region's outstanding SMART initiative. The success of the mayor's activities in this direction is also supported by the fact that Tallinn awarded Alsómocsolád the Innovation Prize last year. In this village built near to a fishpond, there are more signs promoting EU-funded projects than street signs. It is hard to drive even a small distance in the settlement without having to meet any development funded by the EU, Norway or other funds. Some of these, such as the Teleház, were built mainly for tourists who were visiting, mostly school groups. In addition to the student hostel and a guesthouse outfitted with a conference room, there is a lookout tower above the village. But there is an unusual building in the middle of the village: a Boeing simulator with a planetarium also implemented using European Union funds. There is a meat factory in the village as well, employing 400 people. From the subsidies received for the programme named „Integration instead of segregation" the local government bought real estates, and then it rented them as social houses for five families. The local government built a community building as well, where the locals can get household

management, financial and job hunting advices and they can also wash and bathe (Varga-Nagy et al., 2017). This place has become a real community space.

The inhabitants of Alsómocsolád do not only benefit from subsidies on a village day – although, according to the mayor, these events bring approximately as much revenue for the settlement as the amount of tax local companies pay to the local government (which is quite high, compared to other settlements in the area). A programme funded by the Norwegian Fund was recently completed and it aimed to extend the local retirement home (www.hvg.hu, 2017).

Figure 4: Visual plans in Alsómocsolád 2018
Source: The authors' own editing based on http://docplayer.hu/1215979-Alsomocsolad-a-vallalkozo-falu.html 2018.

The town, recognizing the importance of European Union SMART initiatives, has created the Hét Patak Völgye Natural Park and the Észak-hegyháti Micro-regional Union. The five settlements involved, coordinate their development strategy and have a common budget allocated to them, partly from their revenue. In spite of the fact that Alsómocsolád is small, the settlement has more revenue collected annually than the neighbouring settlements, due to the meat processing company of Pick Szeged Company in the settlement, the pig farm and the fish ponds. According to the management of the settlement, stopping the migration processes of the last decade is only possible if the young people who are leaving will find all the modern developments they need for their comfort or work. In our opinion, SMART Village action plans can be a good basis for these. For example, let's think about a well-functioning mobile Internet, which not only helps to make it easy to post something on Facebook from the Lookout Tower, but it is also essential for precision agriculture that is the future of agricultural production. But the question to be solved here is how to keep the population in the village, and how to attract those who can bring a new life to these communities (Oláh et al., 2013; www.hvg.hu, 2017).

Another question is how attractive the "SMART" system is for young people who are now planning to live in Austria and Germany; they have to be convinced to move to a small village in the hills. The example of Alsómocsolád also demonstrates that the solution is to increase the population's retention power in the disadvantaged rural areas. In our opinion, if SMART and innovative initiatives are implemented efficiently in a given settlement, a multiplier effect will be launched in the life of the settlement, which can move the economic, social and environmental processes in a positive direction during the next European Union programming period.

5. CONCLUSIONS

Based on the above mentioned results, we can conclude that the key determinants of both the world and the future of the European Union are cities, which, taking into account regional development considerations, are the engines of growth and development. At the same time, the importance of the population-retaining power of rural areas should be highlighted as regards the positive future of disadvantaged areas. The current regional processes support the fact that states and local governments cannot give responses to the urbanization and environmental issues of globalization (Tóth-Káposzta, 2014; Virág, 2017). In complex management and development of SMART cities and SMART villages, actors of the market and local residents are increasingly involved. The SMART City initiatives launched in the central cities have an impact on the settlements in their agglomeration zone. In order for a settlement to become a successful city and village, local needs have to be taken into account in the practical application of smart methodology. Therefore, we fully agree with the domestic appropriation that every Hungarian settlement will create its own smart program and its own monitoring system in the future. Furthermore, it is important to point out that the development of smart settlements is not a one-time spatial development program but a multi-annual process based on the constructive work of economic, governmental, scientific and civil organizations. The SMART Village concept is still largely unmanageable in the country, as relatively few SMART Village practices are available.

The study examined the development, conceptual delineation, application and spread of the SMART City and Village concept. In Hungary there are already some SMART City initiatives, but the number of SMART Village initiatives in rural areas is still far below them, so mainly foreign pilot projects have been presented, supplemented by the example of Alsómocsolád. The study is based on a research launched in October 2017, in which we carried out an investigation with the assistance of Agricultural and Rural Development Agribusiness (BSc) students at Szent István University. The theoretical background is provided by the monitoring system set up and created by the Lechner Knowledge Centre and by the already available SMART initiatives. Our future goal is to study Miskolc and its surrounding area deeply, regarding SMART City and SMART Village initiatives, which we will be able to undertake during a study tour in December 2017. Further research results will be published afterwards. Overall, the development of smart settlements is not a one-off spatial development program, it is a multi-annual process based on the joint work of economic, governmental, scientific and non-governmental organizations, to which many European Union sources will be available in the near future.

ACKNOWLEDGMENTS

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NEURON NETWORK FORECASTING THE NUMBER OF UNEMPLOYED. GHEORGHENI MICROREGION CASE STUDY

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Abstract
This study focuses on the analysis of employment and unemployment situation in Gheorgheni microregion, from the Northern part of Harghita County from Romania. The socio-economic restructuration in the transition period in Romania has made profound changes in employment of this microregion, while after the 2008 global financial and economical crisis reduced the number of workplaces compared to the previous period. The number of unemployed per 1000 inhabitants in the Gheorgheni microregion is summed up for the following localities: Gheorgheni, Ciumani, Ditrau, Joseni, Lazarea, Remetea, Suseni and Voslobeni, on basis of a time series dataset, for the period: January 2010 - December 2017. The model estimation and the forecasting of the time series was performed using the Artificial Neural Networks (ANN) methodology.

1. THE UNEMPLOYMENT AND EMPLOYMENT SITUATION IN THE GHEORGHENI MICROREGION

Gheorgheni Microregion is situated in Harghita County, and it contains the following localities: Gheorgheni municipality, Ciumani, Ditrau, Joseni, Lazarea, Remetea, Suseni and Voslobeni. The population density is relatively low, similarly to the entire Harghita County (Table 1).

Table 1. The population density in the localities of Gheorgheni microregion in 2017

Localities	Pop. den. (Inhab/km^2)
Gheorgheni	90.84
Ciumani	46.55
Ditrau	51.93
Joseni	26.11
Lazarea	44.13
Remetea	59.31
Suseni	23.67
Voslobeni	35.34

Source: Own calculations, INSSE

In 2017, in Gheorgheni microregion was registered in total: 53306 inhabitants, 1350 active enterprises, 7955 employees and 933 unemployed. The number population is concentrated in Gheorgheni (37% of the total), but the villages in this region (as well as in the whole Harghita County) are relatively big sized and well developed (Figure 1).

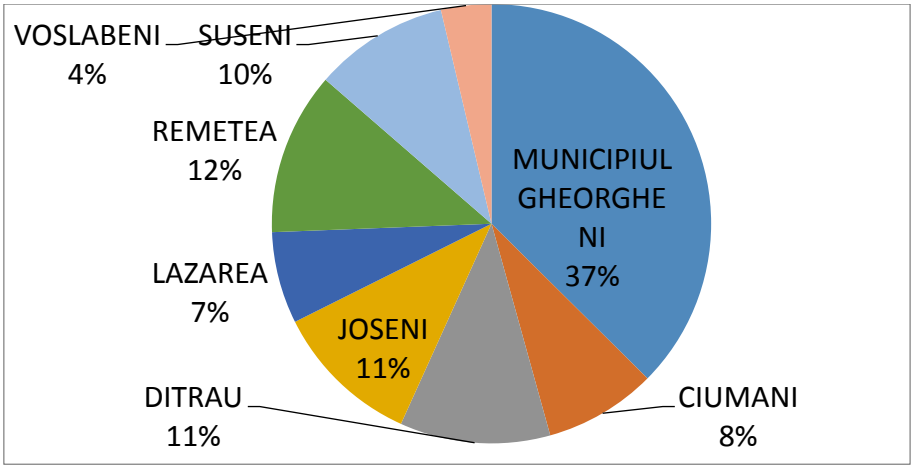

Figure 1: The demographic structure of Gheorgheni microregion in 2017
Source: Own calculations, INSSE

Previous studies highlighted the central role of Gheorgheni municipality in this microregion; this fact is justified by the distribution of enterprises: 680 active enterprises, 50% from total are registered in Gheorgheni municipality (Figure 2).

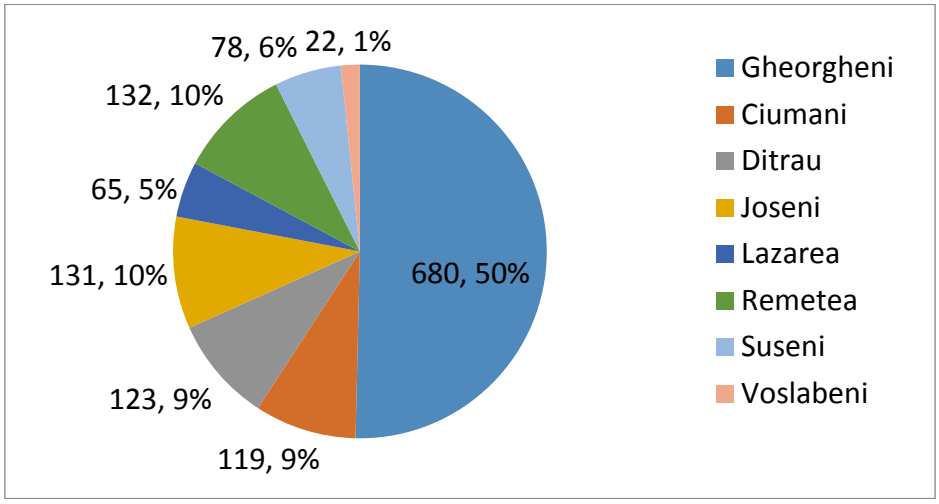

Figure 2: The number of active enterprises in the localities of Gheorgheni microregion in 2017
Source: Own calculations, INSSE

Another complementing fact for the central leader role of the Gheorgheni municipality is the distribution of the number of employees in this microregion: in 2017 73% of them were registered in Gheorgheni municipality (Figure 3).
The spatial distribution of the number of unemployed in Gheorgheni microregion approaches the demographic structure, mentioned above: in 2017 43% from the unemployed were present in Gheorgheni municipality (Figure 4).

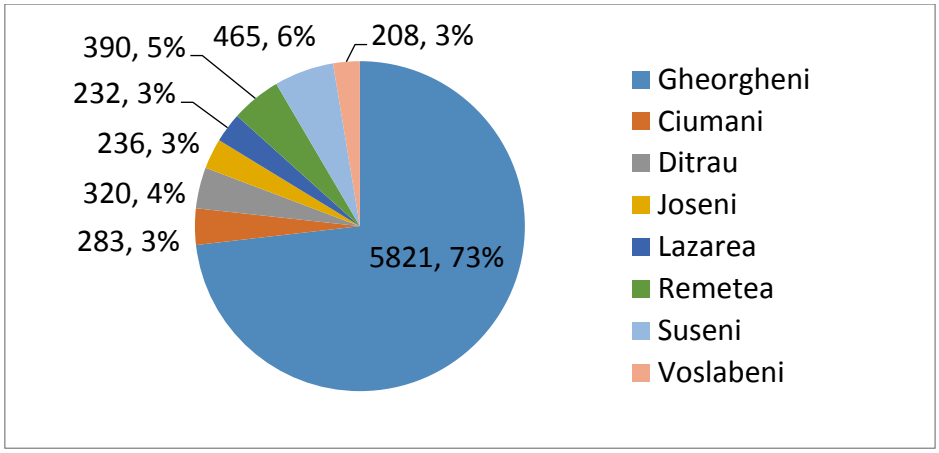

Figure 3: The number of employees in the localities of Gheorgheni microregion in 2017
Source: Own calculations, INSSE

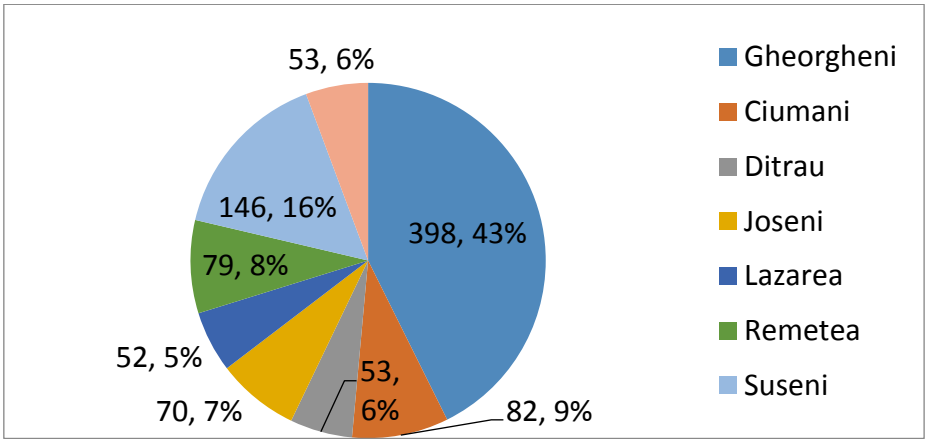

Figure 4: The number of unemployed in the localities of Gheorgheni microregion in 2017
Source: Own calculations, INSSE

The number of unemployed in Gheorgheni microregion, between January 2010 and December 2017 was analysed in the following. On a long term a decreasing tendency can be observed, with relatively high fluctuation (Figure 5).

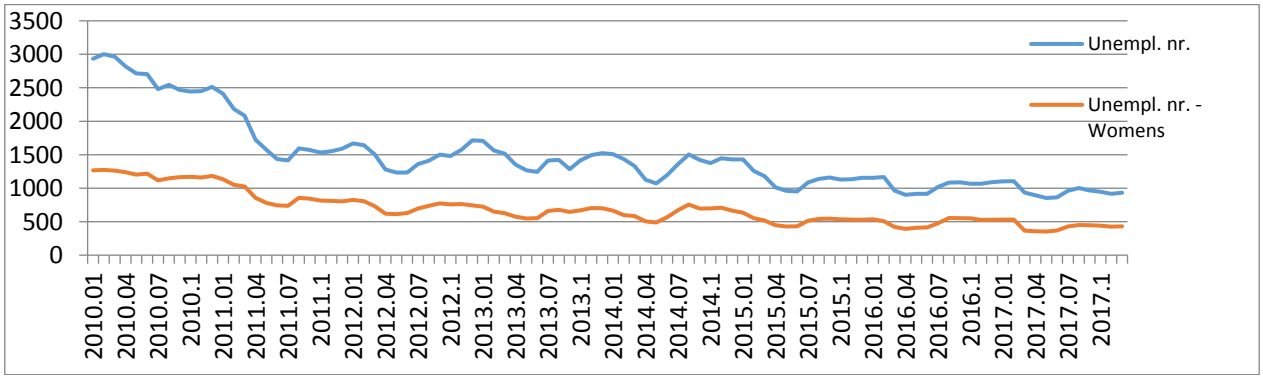

Figure 5: The number of unemployed in Gheorgheni microregion, between January 2010 and December 2017
Source: Own calculations, INSSE

A more accurate calculation shows the presence of seasonality in this time series: high values in November (+7.34%), December (+11.52%), January (+12.84%) and February (+8.27) respectively low values in April (-11.39%), May (-14.40%) and June (-13.30%) compared to the average (Figure 6).

Ratio to	Average
1	12,84
2	8,27
3	-0,40
4	-11,39
5	-14,40
6	-13,30
7	-4,03
8	2,82
9	2,48
10	3,24
11	7,34
12	11,52

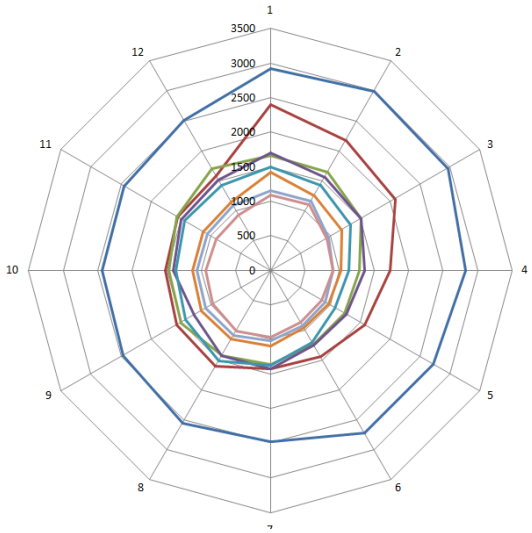

Figure 6: The monthly ratio to the average values of the number of unemployed, and the number of unemployed in Gheorgheni microregion between January 2010 and December 2017
Source: Own calculations, INSSE

The statistics of the number of unemployed shows an abnormal distribution, the maximum was 3002, the minimum 854, and the mean 1471.104 (Figure 7).

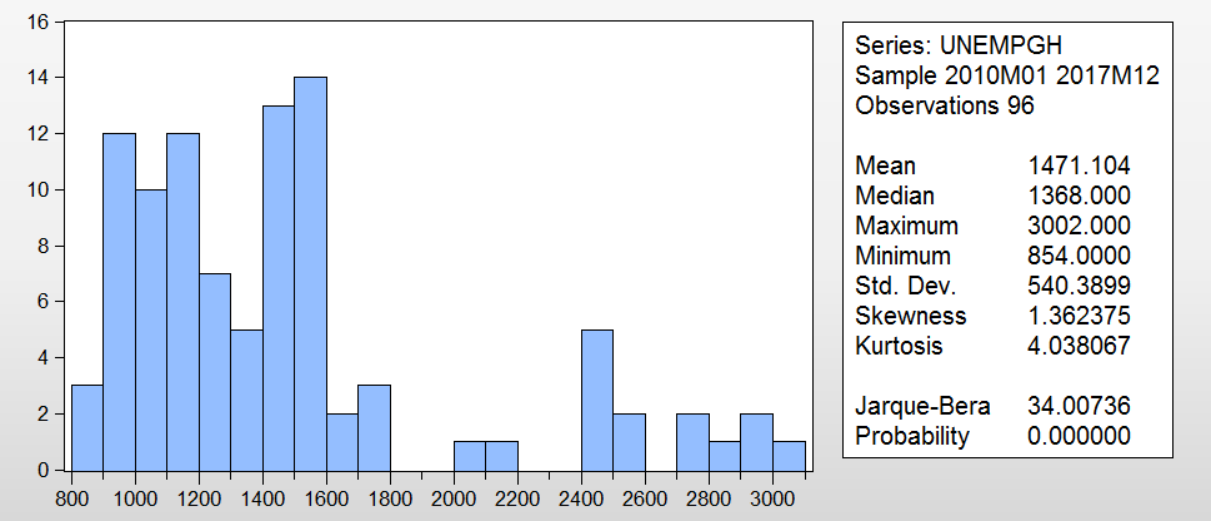

Figure 7: The statistics of the number of unemployed in Gheorgheni microregion, between January 2010 and December 2017
Source: Own calculations, INSSE

2. THE ARTIFICIAL NEURAL NETWORK METHODOLOGY

The most commonly used approach in regional time series forecasting represents the Box–Jenkins methodology, used for the estimation and forecasting of regional employment in Poland (Kryńska et. al. 2014) and in Romania (Madaras, 2014).

Artificial Neural Network based time series models represent a real useful alternative to the commonly used econometric models. For example ANN models were used for the forecasting of the regional employment rate in case of Germany (Longhi et. al. 2005).
For the ANN model estimation we used the number of unemployed per 1000 inhabitants, time series for the period January 2010 – December 2017. The statistics of this time series are presented in Figure 8. The maximum of this time series is 23.41, the minimum is 6.62, the mean 12.76 and the standard deviation is 4.49 (Figure 8).

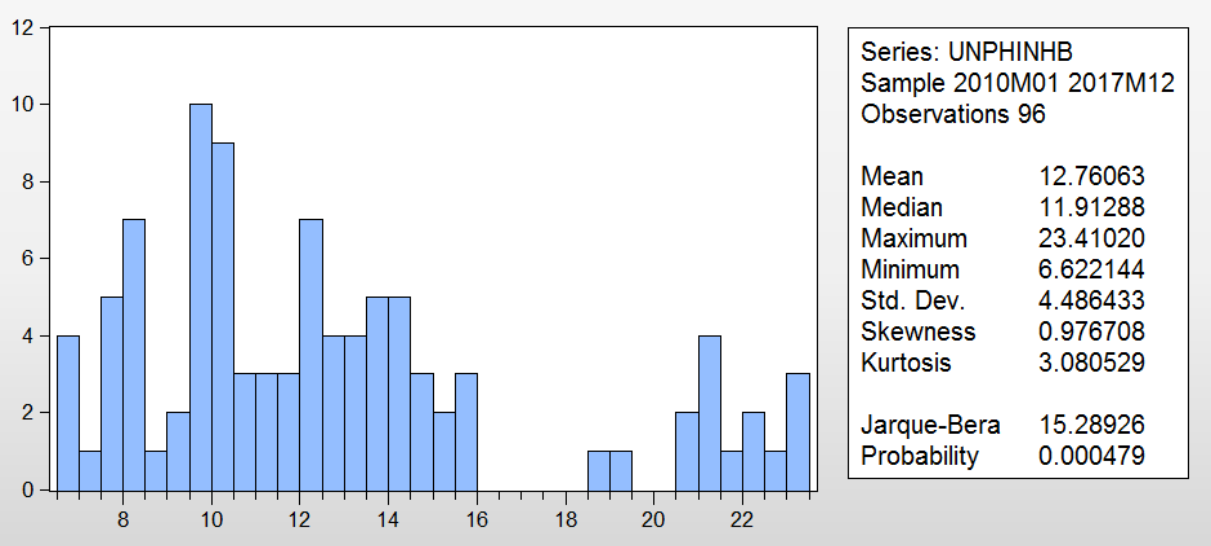

Figure 8: The statistics of the number of unemployed per 1000 inhabitants in Gheorgheni microregion, between January 2010 and December 2017
Source: Own calculations, INSSE

The time series (representing 96 time steps) was divided into three groups: the training group with 72 time steps (75%), the validation group, with 14 time steps (15%) and the Testing group with 10 time steps (10%).
The NAR (Nonlinear Autoregressive) model was specified, with 12 hidden neurons and d=4 the number of delays, and the Levenberg-Marquardt training algorithm was used (Figure 9).

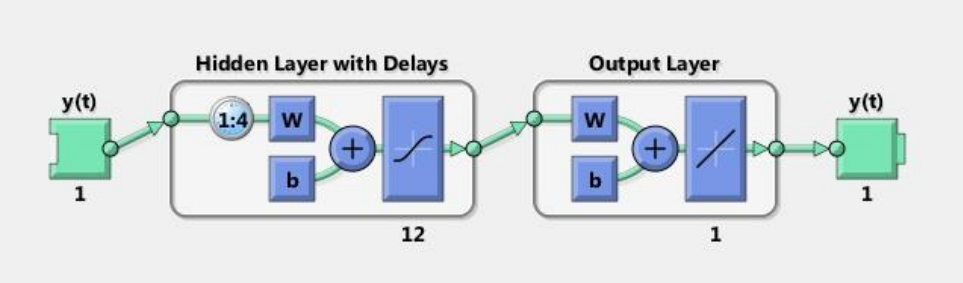

Figure 9: The Artificial Neural Network architecture
Source: Own calculations, INSSE

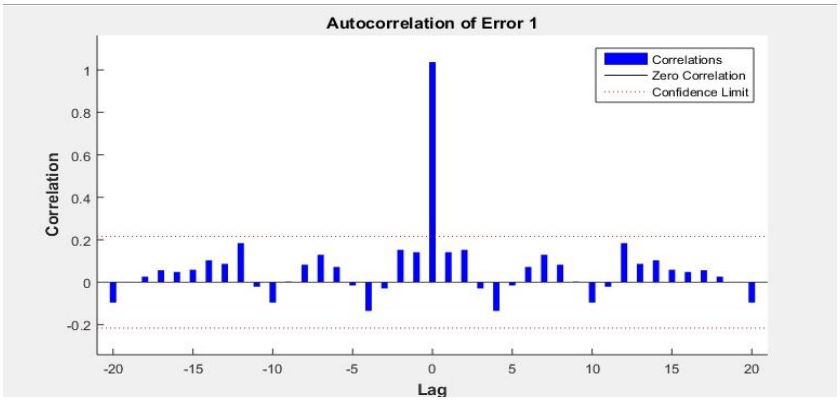

Figure 10: The ANN model was accepted based on the results of the error autocorrelations.
Source: Own calculations, INSSE

In the following the NAR model was used for a medium term forecasting: for the period January 2018 – June 2018, the predicted values of the number of unemployed per 1000 inhabitants, are fitted into the seasonal tendency of this time series, observed in the previous years, namely high values in January and February and lowest values in the following (Figure 11).

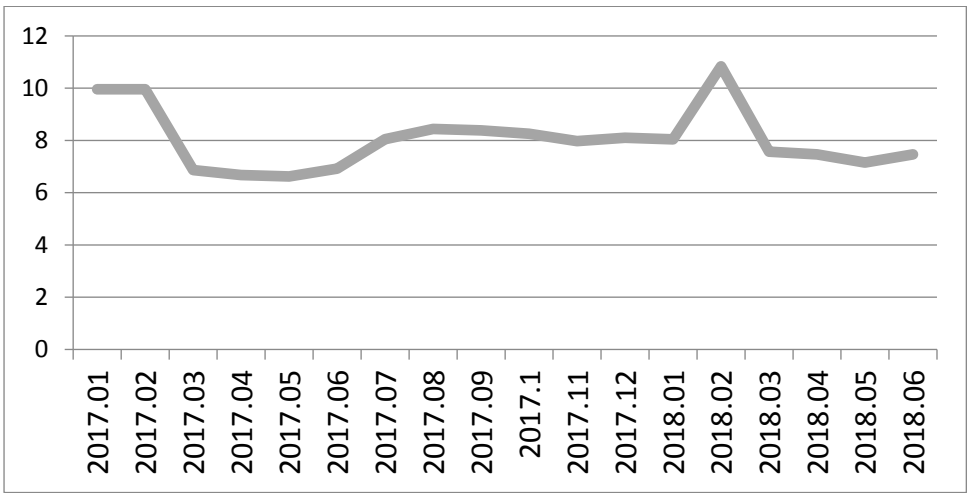

Figure 11: The predicted values of the NAR model, for the January 2018 – June 2018 period
Source: Own calculations, INSSE

3. CONCLUSIONS

In this paper, the analysis concerned with the unemployment and employment situation in the Gheorgheni microregion. The monthly value of the number of unemployed showed a high seasonality: in the studied period, high unemployment was registered between November – February, and low between May – July. Behind this phenomenon of aggregated unemployment in the microregion, there are presumably several reasons, such as: seasonal workplaces in agriculture, construction and tourism, or the high number of people working abroad. New researches have to be conducted in the future, in order to understand this situation.

The lack of workplaces is another characteristic of this microregion, as we showed in previous analysis, as well as the high proportion of employment in the public sector. These two factors together reveal the low level of workplace creation by the private sector in this region.

Artificial Neural Network based time series models represents a really useful alternative to the commonly used Box–Jenkins methodology. The NAR (Nonlinear Autoregressive) model was used for the number

of unemployed per 1000 inhabitants between January 2010 and December 2017. The model was specified with 12 hidden neurons and d=4 the number of delays, using the Levenberg-Marquardt training algorithm. The NAR model was used for forecasting the relative number of unemployed for the period January 2018 – June 2018. The predicted values of the number of unemployed per 1000 inhabitants are fitted into the seasonal tendency of this time series and we conclude that the forecasting describes the real situation.

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RURAL DEVELOPMENT EFFECTS IN THE SOCIAL CATCH-UP PROGRAMMES. THE FUTURE OF LITTLE SETTLEMENTS IN HUNGARY

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Abstract

The presents study describes those possible models that examine the effectiveness of programmes serving social catch-up and the reduction of segregated life situations. The research involves those communities from the countryside of Hungary, who do complex development programmes at one or more segregates at their settlements. Those parts of the settlements are called as segregates which were divided into this category according to the 2011 census by KSH. Our approach involves applicant villages basically situated in the peripheral regions of the country. 85% of them count as settlements which need social, economic and infrastructural developments.

Keywords: rural and community development, reduction of segregated life situations, social exclusion, periphery of society, social mobility

1. INTRODUCTION

According to a classic German social researcher (Ralf Dahrendorf) the socio-political feature is especially characteristic of those living in social exclusion according to which in open societies conflict is individualized (the "class below class" – underclass has slight ability to represent their interest). Thus community mobility channels (successes/failures) get into the focus of attention. The mobility of settlement communities depends on the success/failure of societal catching-up related to the transformation (widening) of socio-politics.

In the rural strategy made by Bálint Csatári and his colleagues in 2004 the following categories were mentioned among success-factors: influencing moral factors, environmental-social factors, strategic influencing, flexibility in execution, feasibility of technical and knowledge basis, economical, and financial viability. In our century, the fundamental question of the different rural development strategies is how the participants and their families can be connected to the great social processes. In other words: how social mobility and social catching-up based on local and family resources can be strengthened.

We agree with Bálint Csatári according to whom spaces "influence our mood and feeling of comfort"[15]. We may associate the above quote with Maslow's hierarchy of needs pyramid, more specifically the second step where one can find motivation for housing, physical protection, safety and the protection of acquired assets. Physical safety appears as a shortage, lack of safety therefore might cause significant tension. Without satisfying basic needs (fundamental physiological needs, safety, love, the feeling of belonging

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[15] http://www.falufejlesztesitarsasag.hu/csatari-balint_-a-valos,-a-szimbolikus-es-a-virtualis-tereinkrol....html retrieved on 02/24/2017

somewhere, self-esteem and self-realization) the development needs (cognitive, aesthetic and self-realization) do not, or only partly, get realized or accomplished[16].

In the world of catching-up, the needs related to creating space must be satisfied. The main effect of developments emerges on the settlement-level strengthening the "capacity-retaining population, and population-retaining capacity." In fact, the programs of social catching-up can be considered significant in the socialization process since they exert an influence on the development of reproduction of small settlement communities (Faragó L. 2003. p. 24).

According to our notion, the common symbol of space-use strengthens the feeling of being together and improves those types of capital (e.g., social, cultural, trust capital) that are important in everyday strategy.

2. INSTRUMENT AND METHODOLOGY

2.1. The spatial emergence and assessment of segregation

In sociology a segregated area is interpreted as a phenomenon when in a settlement the living space of different ethnic and social groups significantly and visibly differ from one another. Spatial segregated area is also social segregation since it is partly the cause and partly the consequence of inequalities appearing in the field of financial income and human infrastructure (Andorka, 1997).

Segregated area, from another perspective, is a phenomenon built on significant social differences during which groups of stronger status limit the opportunities of the weak for free choice. Thus, the equal opportunities of people of inferior social status are violated leading them up to being totally marginalized. The process in itself may include active and passive components: with active intention, segregation is deliberate; in case of passivity, those involved want to be "segregated", or social processes take place in a way that they get into this status without outer intention (Ferge, 1991).

Segregated areas of society, along with the violation of equal opportunities, include being ousted from social spheres and processes. The lack of supporting social network, being excluded from political representation and/or decisions, being without power, being excluded from the social space, etc. are such components that may result in a constant status that is fed by the differences in employment and the educational system further reproducing inequalities of (Szalai, 2002).

Influenced by decades or even centuries-long spatial-structural, economical, and social processes in Hungary, apart from the housing segregation within settlements (in cities the so-called slums, in villages shabby houses), this phenomenon can be observed among most villages and regions. Ethnic-based segregation (ghettoization) is identified by Ferge as spatial exclusion (Ferge, 2000) whereas Albert and Kalocsai (2009) take into consideration several factors. One of them is the narrowness and/or comfort of housing conditions, the significantly worse existential situation (income, employment, education, financial debt, etc.), being socially stigmatized, the frequency of the different deviant behaviours (alcoholism, drug addiction, mental illnesses) and the strongly restricted chance of "getting out". According to Duncan-Duncan strong relationship can be shown between spatial and social distance. Based on the phrasing of Virág (2010) citing him, the location of social and ethnical groups and its shift is in itself the spatial appearance of social inequalities; as a consequence the emergence of segregated areas is inevitable.

In a settlement development approach, the concept of segregated areas is used in a relatively narrower sense although the area-based definition is practically in accordance with the above. This means that most

[16] http://old.ektf.hu/hefoppalyazat/pszielmal/maslow_motivcis_piramisa.html retrieved on 11/03/2016

scholars agree that social distance between different social groups will become spatial, physical distance as well. Segregated areas refer to the concentrated co-inhabitants, families of low socio-economic status which further strengthen inequalities in incomes, infrastructure and access to different services. Therefore, it is clear that the biggest losers of settlement segregation are the social layers of lower social status since the social groups of high social status have the opportunity to be concentrated in the areas of the settlement according to their preferences, whereas groups of low social status may get segregated in a way and where they "are let to".[17]

The well perceivable form of socio-spatial polarization brought to the surface by the emergence of segregated areas (in its narrower or wider sense) is not a new phenomenon but it evolves with the increase of differences in incomes. Segregated areas are such living spaces where there live only people with similar social background. Even though they can differ from the entire village from different perspectives (religious and ethnical, etc.); they are mostly segregated on an economic basis.

Considering the location inside the public administration borders, fundamentally two types of segregated areas, representing social closures, can be identified. On the one hand, there are segregated or segregating areas embedded in the structure of the settlement, on the other hand, there can be found segregated areas separated from the settlements without basic living conditions. Another general feature is that the living spaces of the lowest social status are located in minor segregated areas and are not coherent with each other. Therefore, in these settlements, the amount of segregated areas is higher because of the number of inhabitants (Ladányi, 2008).

In villages, in most cases a spontaneously emerging ('traditional') or an artificially created ('new') living area served as the basis of the emergence of segregated areas. The settlements of gypsies of Hungarian mother tongue, in most cases (not always), were located at the outskirts of the village, whereas the settlements of those of Romani or Boyash („Beás") gypsies were situated distant from the village, even at a distance of four or five kilometres. With the passing of time, the former ones were included within the structure of the village as the village has expanded while the latter ones were moved to a specially created new space of living. The new segregated settlements were created as a result of relocation conducted by authorities or of new purchases/constructions, in the majority of the cases in parts located in the periphery (Kemény – Janky – Lengyel, 2004).

The practical impoundment of segregated areas faces several hardships, because they do not keep the boundaries of the evolved parts of settlements (especially in the cities). Statistically, by processing the data of the censuses at many levels, the Central Statistical Office (CSO) detaches the real segregated areas and the endangered areas with the application of the so-called segregation index taking into consideration the two most important factors of social foundering: income through employment and education. The impounded segregated areas mean those areas where the ratio of those not having regular income exceeds a determined value in certain types of settlements within the population of active age (i.e., the population of 15-59 years of age). In light of both indices in a settlement with a population lower than 2,000 this value is at least 50% whereas in the most developed districts of the capital city the threshold is 20% but it is a common criterion that the population of a coherent part of settlement must reach fifty. In case of settlements with a population of fewer than 200 people, the amount of the segregation index is determined for the entire area and since no housing blocks are separated the whole settlement is qualified as a segregated area.

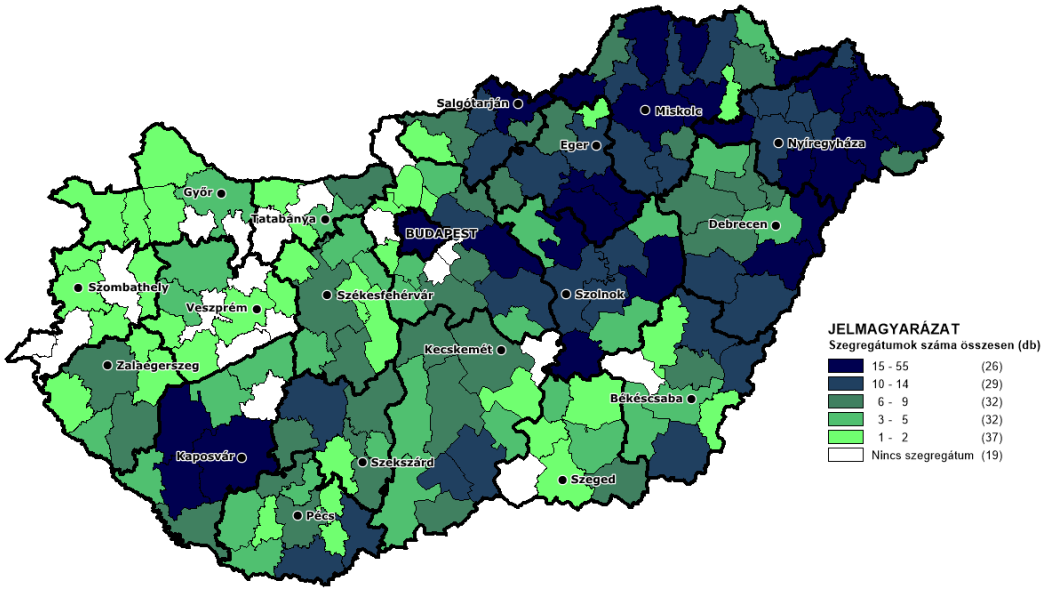
The segregation index at the level of settlement parts exactly identifies the segregated or segregating areas but it has its own limits. In itself it does not show for example the physical location of segregated areas, their actual number, the size of its area and population and its other characteristics related to the given

[17] Hajdúböszörmény Integrált Városfejlesztési Stratégiája. <The integrated real estate development strategy of Hajdúböszörmény> Hajdúböszörmény. 2010.

settlement (e.g., accessibility of certain services, the narrower and wider social judgement of the segregated area, etc.) either. The data of the census used for the basis of the impoundment are grounded in almost half a decade old features (it is an extreme but existing chance that in the place of the former slum there is a residential area). Considering all these, it is purposeful to supplement the data of the CSO by using information at settlement and segregated area level and also so-called soft indices related to social provisions (in the present situation, the supports related to housing).

Based on the information at our disposal in 2011 in Hungary there was at least one segregated area in 700 settlements (in total 1,386 were registered), within which 483 villages were at issue with a total of 750 segregated areas (Figure 1).

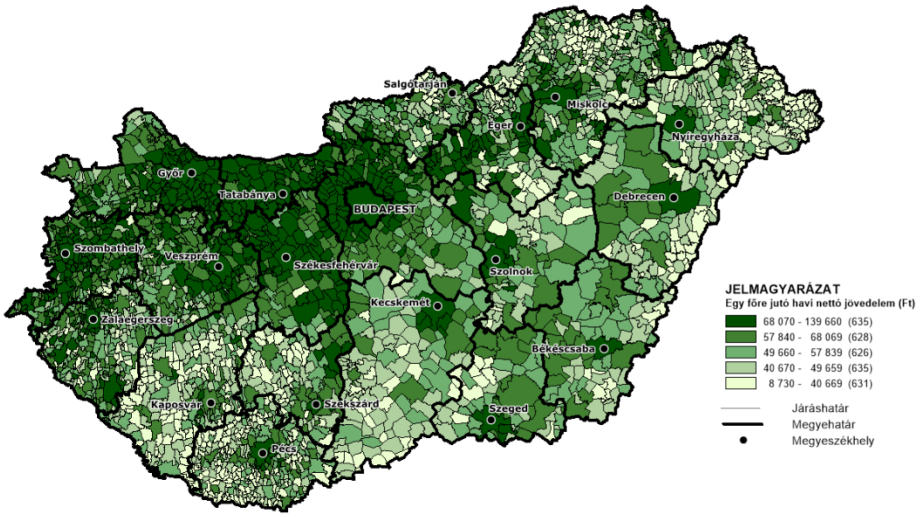
Figure 1: The number of segregated areas in total by micro-regions (2011)



Source: Own editing based on the report of CSO.

The Hoover-index serving the calculation of segregation index takes only two indices into consideration. However, considering the fact that these two indices substantially determine the living opportunities of individuals and households, strong relationship can be observed with other factors influencing regional inequalities. In light of the centre-periphery relation system burdening rural regions, within this, mainly small settlements, it is not surprising that in Hungary in case of all regional levels (from settlement parts to regions) a large difference can be shown regarding the value of monthly net income. The capital city and its agglomeration and the NW Hungarian counties can be characterized with a value much higher than average, whereas inhabitants of Szabolcs-Szatmár-Bereg county are in the most unfavourable situation, without any change, considering the amount of incomes intended for livelihood (Figure 2).

Figure 2: The regional distribution of the monthly net income (without tax discount) in 2015 (HUF)



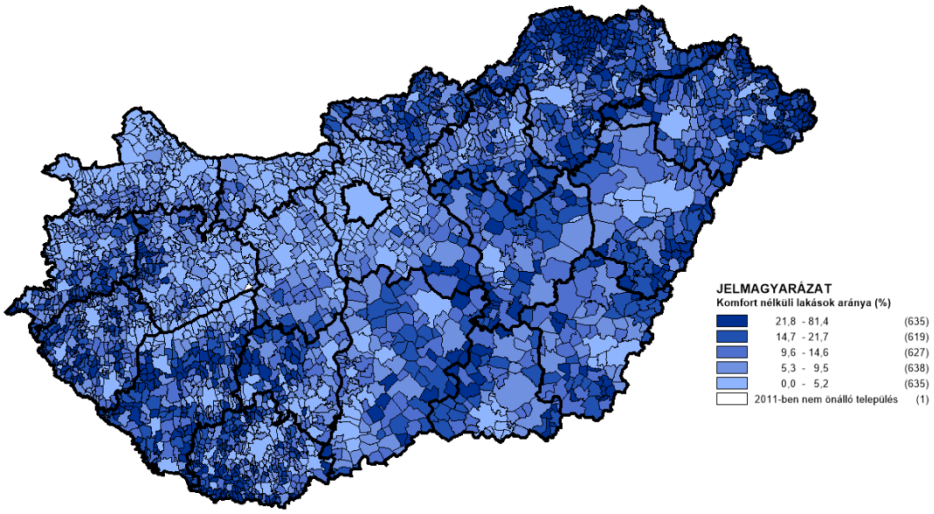
Source: edited based on TeIR data

Living conditions are in a strong relationship with incomes that can be described with several indices. In accordance with the goal settings of the primary project demonstrated in this study, in our case we highlighted the observable differences of the ratio of houses without comfort. Comfort level, determined by the law, shows the amount of facilities installed in the flat. The lowest level is the one without comfort that includes min. one room of 12 square-meters; it possesses a cooking area and there is a toilette and heating, moreover access to water is provided.

The spatial-structure observable in terms of housing conditions shows evident correlations with the socio-economic status. Thus, the major quality problems are substantially typical of peripheral settlements of disadvantageous backgrounds (Figure 3). In the villages at issue local real estate market is characterised by substantially lower demand as a result of socio-economic features, besides the quality deficits, it is also a characteristic feature that the ratio of empty houses is the highest here. Even though this index is near 13% at the national level, the realized utilization of real estate (might it be rental) is significantly restricted by the fear of owners from risks.

Housing without comfort constitutes refers to the same category; however its evaluation within the settlement significantly depends on whether it emerges as a peculiarity or it represents the average; this means that in mental map of the people living in the given settlement the category of segregated area, site, wild site might become strongly relative (for example, in NW Hungary such living conditions are judged as segregated area that are typical of even the entire settlement in NE Hungary in a given case).

Figure 3: The ratio of flats without comfort out of the total number of flats in 2011 (%)



Source: edited on the basis of CSO census data

Comparing the two maps, the strong relationship between low incomes and bad living conditions is evident. It is especially true for the outer periphery areas of North Eastern Hungary demonstrating the symptoms of constant breakaways that strengthen each other. This not only shows unfavourable traits of general living conditions but it also marks the significant infrastructural underdevelopment of the settlements which influences population retention in the short and the long run. It also negatively influences the reproduction of local inequalities and their increase, as well.

3. RESULTS AND DISCUSSION

A questionnaire survey was conducted among small settlements in the frame of the project entitled EFOP-1.6.1-VEKOP/16 Support of catching-up cooperation of the Chief Directorate for Social and Child Protection. On the basis of the commission of the General Directorate for Social and Child Protection, the HROD Community Economic- and Social Development Centre conducted the survey. We created a sample of quotas among the valid applicants the basis of which was that we examined the projects numerically and considering representatively we created the sample in a way that in every region the settlement projects will be proportionally represented. Thus in nearly half of the entire population (54 settlements) we conducted self-administered questionnaires.

The direct objective of the research is the identification and examination of the living conditions of those living in segregated areas and the human resources, capacities, best practices and professional needs of the complex settlement programs and the local governments launching them. The indirect objective of the research is to contribute to the social catching-up of communities living in segregated areas and in deep poverty and to help educational, social, economic, labour market, health and health development integration and to stop and overturn the unfavourable economic, social and demographical processes related to moving away and depopulation experienced in rural settlements.

Among the improvements we were curious to know which were especially useful for the living community of the segregated area included into the program.

The most useful programs helping catching-up were conducted in the field of education, adult education, vocational training (this improvement program was mentioned in 25 settlements) and of labour market, employment and employability (in 22 settlements). The improvement mentioned with the third greatest

frequency was training, labour market development; seventeen settlements found it the most useful program.

The participants found the aid to housing with investment tools, presence-based social work and the programs intended for the improvement of access to human capacities the least useful.

We were curious to know which previous, former programs, improvements, practices our respondents mention regarding their exerted influence on the communities. The most often mentioned program was the social welfare work program and the basic competence improvement trainings, furthermore the Child Houses of Secure Beginning and the programs related to them and the different programs building the community. Among the EU projects, developments related to housing such as social houses and different preventive and health-preservation programs and the Complex settlement program (provision for the access to complex human service) are mentioned which contains social, community-building, educational, medical, training and employment elements for the sake of reducing disadvantages, furthermore they helped the improvement of the living conditions of those living in segregated area-like environments.

The access to infrastructural assets of those living in the segregated areas included in the program does not entail a difference in all cases; in most of the cases, according to respondents, they do not always differ. The state of public security, the buildings for living and public areas represent salient results. In case of these assets, the situation is much worse in the segregated areas. The state of buildings for living is in worse condition than those in the other parts of the given settlement according to 55% of the respondents. Public security and the state of public buildings in more than half of the segregated areas are worse to a great or small extent. With respect to waste management, electricity supply and quality of drinking water, the situation is good.

The most typical case is that the child nurse deals with the communities of the segregated areas included in the program (according to 93% of the respondents it is very typical). She is followed by the organizer of the social welfare work program (according to 89% of the respondents) and the family assistant (according to 88% of the respondents). According to the participants it is the least typical that the priest or the spiritual clerk deals with the people in segregated areas (36% of the respondents). He is preceded by the policeman (64%) and the public educators (65%).
It is expected that most infrastructural investments aim at renovating public areas and central spaces. The representatives of 29 settlements assumed that in the following year such investment will be realized. In 27 settlements public education institutions, culture houses, institutions providing community spaces are expected to be renovated, transformed and extended. In 25 settlements the direct environment of buildings is expected to be renovated. In the segregated area of 22 settlements positive decision was made to renovate public playgrounds, public outdoor sports-fields and other services buildings. In 18 settlements, green areas and public parks are expected to be created and renovated and public administration buildings are expected to be renovated, transformed, extended and their direct environment is also expected to be renewed. In 11 settlements, historical and cultural heritage sites are expected to be protected and developed and in 10 settlements the market owned by the local government and market halls are expected to be created and renovated.

The society of segregated areas is unorganized; the rate of unemployment is high. In this chapter we tried to reveal the data related to employment of settlements of disadvantageous background that have the worst capacity of interest validation. Upon response to these questions apart from the knowledge of exact numerical data we requested respondents to give their estimations.
The ratio of unemployed people is higher than 50% in 21 settlements. The following settlements reported ratio of unemployment of more than 80% in segregated areas: Ároktő, Hernádpetri, Vilmány and Rakacaszend.

The most important employer, in 80% of the cases, is the local government. The social welfare work programs contribute to the provision of the subsistence of the people living in the segregated area, simultaneously after finishing primary school the local government provides training opportunities connected to social welfare work and the chance of acquiring a profession.

Among the programs aiming at strengthening community cooperation, the most typical ones are the village days or village festivals. Thirty-six settlements reported such types of programs. In the settlements there are churches, community events and extra-curricular activities (such as special subject training, sports education). In 24 settlements the civil protection is also actively present. The different free-time activities and sports programs are present at more than one-third of the settlements. Artistic activities such as amateur performance activities, performing arts activities, arts-and-crafts activities and local history exhibitions offer programs for the community in 13 settlements. In five settlements there is a so-called social land program that aims to contribute to the reduction of regional disadvantages, to strengthen local social and economic welfare, and to sustain social economy, and increase the level of employees. These settlements are Ecseg, Fadd, Ötvöskónyi, Porcsalma and Jászladány.

People living in segregated areas actively participate in village days, village festivals and extra-curricular activities. Among them the participation in church events are not so typical. In case of free-time sports events, nearly half of those living in segregated areas take part. They rarely take part in events related to artistic and cultural programs such as amateur performance activities, and local history exhibitions and village collection.

4. CONCLUSION

As the result of our research we learned about complex socio-political programs, the effects of the local social catching-up initiatives and the established community practices which can be adopted. The multidisciplinary analysis of the social catching-up projects of rural Hungary contribute to the identification of some common characteristics coming from the different macro-environment, aimed to help the efficiency of the interventions.
The quality of the cohabitation of disadvantageous societies determines the future of the small settlements basically. Probably the poorest (mostly those who have the biggest lack of capitals) communities will have less access to social mobility.
The community and rural development effects support the solvency demand, which keep the settlement services. This strengthens the principle of the population retention capacity and the capacity retention which can be defined as population-attracting capacity from the view of the settlement.
This segregated life status reducing complex program exceeds the previous programs in minimum two elements. One of them is the systematic collection of the best practices. This also represents the tasks of the catching-up and development work. The other result is the perspective of community forming effect. Community forming is not only the task of the inhabitants and those supporting the segregations, but also mentors of gypsy origin and intellectuals who deal with such disadvantaged social groups.

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GENERATION MANAGEMENT IN TOURISM

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Abstract
In the field of tourism development, innovation appears usually in the form of new tourist products or with unchanged content in the renewal of communication or in repackaging existent product elements. However, in many cases environmental changes force tourism enterprises to innovate. Both tourist service providers and tourism developers need to consider the generational aspects. Generation related problems are classically related to human resource management as a factor which plays an important role in case of employees involved in providing personal services. The second, but not the secondary aspect is related to the generational characteristics of demand that should be taken into account by service providers. The theoretical background of the study presents the human resources task in the given topic. Generational demand characteristics are identified by a primary, question-based method, and the supply was analysed through the observation of generations' specific tourist products. Comparing the obtained results leads to the conclusion that tourist offers need to be adjusted to generation specifics.

Key words: tourism management, generations, labour market, service market

1. INTRODUCTION

Theories about the relativity and acceleration of time have recently become tangible for tourism professionals, instead of the classical three-generation social model, there are five generations for tourism demand and the labour market, at least three active generations for management at the same time. The relationship between the earlier generations and the growing new generation was never free of controversy, and it was a problem for both groups involved to accept new values and to understand the new operating scheme. This, on the one hand, may have been a conflict with different generational values, on the other hand, it requires a new type of adaptation and proactivity to retain market positions. The question arises whether this adaptation and proactivity in the tourism services market and in the tourism labour market is experiencing, whether communication systems to influence individual generations have been established. The research of consumer behaviour, attitudes and managerial employees by different generations is justified because of the specific communication style of age groups, both as transmitters or receivers. There is a method and there are means specific to of each group, influencing them should be carried out accordingly. The study reviews preliminary knowledge of the characteristics of the general and tourism implications of each generations complemented by research results which can serve as a suggestion for tourism service providers who choose a generation-specific differentiating product development strategy.

2. MATERIAL AND METHODS

2.1. Theoretical background

The research of generational characteristics was intensified in parallel with the acceleration of generational change, in the early years of the new millennium, scientists could sum up but not standardize their vision. The distribution by age has become more subtle (Pál 2013), which is also expressed by increasingly expressive names, but the differences remain with regard to birth dates, which are increasing in case of the younger generations. A more realistic solution could be the generation's demarcation based on overlapping age intervals. The positive / negative deviation of the dates set by the experts of the field (Howe and Strauss 2010, Martin and Tulgan 2002, Oblinger and Oblinger 2005, Reeves and Oh 2007, McCrindle Research 2012, all referred by Pál 2013) increases in the younger generations. This difference is ruled out by the use of overlapping age intervals (Table 1), which according to the theories, is made from the starting and closing birthdays of the generations by referred experts, and recognizes that in overlapping years the demarcation is determined by other characteristics of belonging to the generation.

Table 1: Generations' age intervals

Veterans	Baby Boomers (BB)	X generation	Y generation	Z generation	Alpha generation
1925-1946	1943-1964	1961-1981	1978-2000	1995-2010	2010-

Source: own elaboration

In the demarcation, the year of birth as an orientation base is complemented by belonging to the perceived group, the family, the career, the work, the marriage, the religion, the politics and the effects of the historical events that have come to life, so called the cohort experience (Pál 2013). Living a common historical and cultural experience within a cohort has an effect on the development of value orientation that results in belonging to the same generation. The "born into it" is becoming more and more influential environmental impact, the young age group adapts to it well. The third major element of the cohesion of generations is the individual situation outside of the cohort experience and environmental impacts, that is, the individual life-stage, the social, economic status, the physical and mental state (Törőcsik et al. 2014). Characteristic cohort experiences also determine consumer attitudes and habits, not only because of common historical trends, but also because of common beliefs and behaviours that also influence the development of tourism experiences. Researches before the turn of the millennium included the behaviour value-attitude-based characterizations, later supplemented by culture, locations and organizational factors (Meretei 2017), which determined the specific characteristics of new generations entering the labour market. Each generation in its younger ages is most characterized by higher-than-average diversity of their motivation, lifestyles and habits, they become more homogeneous over time (Töröcsik et al. 2014).

2.2. Generations on the labour market and service market

The generation attributes are captured by their relationship with each other (Paul 2013), therefore it is difficult to outline generational features in tourism.

For generation management in tourism, the veterans and the alpha generation do not play a significant role neither in terms of employment, corporate management nor as guest /traveller functions, the market needs of older people are already known and taken into account in the creation of supply, and very young people's purchase intents appear in demand of family needs.

The BB generation functions in all three roles, their behaviour is known, well modelled, predictable. The performance principle determines their working activity, they stick to the rules, they value stable jobs and fair recognition of their work (Tari 2010), their language skills and their use of language are amongst the extremes.

In terms of the labour market, it is a seemingly problem-free generation, today's in 50-60's ages people started working in a more tranquil social and economic situation, working time was predetermined, and management was personally known because of the corporate size. Compared to the other two generations of workforce, their work patterns are radically different; one of its reasons is the environment in which they move to the labour market.

The 30-40-year-old X generation members have been faced with unlimited working hours in the new work culture of multinational companies. The 20 to 30-year-old Y generation members are more likely to hold jobs, even though they have to meet high requirements of the labour market. The virtual life of the Z generation, which is just emerging on the labour market, makes it difficult to integrate into a real tight environment, and it is probably felt in the workplace as well. Thus, there are three active and expanding, differently socialized, educated generations present in the labour market, with different values, expectations, professional knowledge and language skills. It is unavoidable that each of them should have a specific HR strategy developed for them, with regard to recruitment, training, compensation, knowledge and experience transfer, succession. This cannot be omitted in career management, among the extensive functions of generational management, it coordinates generations at a conceptual level in order to be understood the same under the same definition.

Until now, this one-language talk problem was not present; companies met this phenomenon at members of the Z generation. It is important to convey the organizational culture, the transfer of the service provider's attitude in particular for services, for reasons of consumer satisfaction, which may also be a problem for the emotionally less nuanced Z generations. If companies do not handle this gap, the organization loses its knowledge, and organizational culture becomes poorer. Instead of this, the goal should be that the competences of various age groups are used as efficiently as possible for the organization.

Overall the number of generation Y is low, the labour demand will surpass supply, which leads to increased competition between employers. At the same time, masses of workers called 'freeters' appear who are less tied to their workplace or even work in more than one place to make a living. This also raises organizational integration problems because they do not tolerate the restriction of their freedom. The generation does not want to prove that they work from dusk till dawn, but by doing their job quickly and efficiently (Tari 2010).

Workplace behaviour patterns are characterized by almost the same criteria, in general terms, by attitudes, goals, content of self-realization, relationship to group work and knowledge sharing, values, technology, job change, motivation, performance appraisal, learning, development, conflict management, leadership, loyalty, skills development and remuneration criteria.

2.3. The X generation in the labour market

Considering the HR aspects the X generation shows the following characteristics of (Grail Research 2011, Bencsik et al. 2013, Szlávicz- Sztretykó 2012):

- the convenience users of information technology and tracking the latest developments accordingly
- they adapt only in case of need, they fight for their ideas, they are great warriors and arguers
- they are individualist and sceptical opposite to leadership in view of the work organizations
- self-centred, medium-term planners
- their goal is to work safely in a multicultural environment and in good status
- they see rapid career development as the result of their self-accomplishment
- their natural environment is group work
- their knowledge sharing is based on reciprocity and reward
- appreciate hard work, openness, respect for diversity, they are curious, pragmatic
- rule-makers, they consider important equal opportunities, they show less respect for the hierarchy, sophistication of their sense of reality, strong need of proof
- they want the latest technology, but they do not exploit the potentials of technology
- the change of job is considered essential for a competitive curriculum vitae
- motivated by the status and the income
- they want to actively participate in performance appraisal, they are future oriented, deliberately set goals, plan their career
- they prefer flexible, shorter training sessions, they are good trainers, interactive and adaptable
- they are ready to compromise for conflict management
- they require a democratic structure based on participation
- they are loyal to individuals and groups but not to the company
- they expect immediate remuneration, they do not believe in workplace safety

2.4. The Y generation in the labour market

Considering the HR aspects the following characteristics of the Y generation can be listed (Grail Research 2011, Bencsik et al. 2013, Szlávicz- Sztretykó 2012, Tari 2010, McCrindle-Wolfinger 2010, Kiss 2016, Nagy-Józsa 2017, Málovics et al 2015, Börcsök 2017):

- they are born info-communications, they are friendly, acceptors they flaunt the benefits of the Internet, and technology change is handled comfortably
- it is important for them to feel good, they are problem-seekers in communities
- success, careers and money are of paramount importance to them
- they are not "obedient", but they are self-governing personalities
- they already have a lot of work experience during their studies, so you have to deal with expectations towards the potential employer
- they want a meaningful and responsible job, they are agile and purposeful, they see self-realization in decisions, so they have to match their work goals with individual goals
- long-term career ideas are used for their current work, their commitment is not complete, they are not tied to the workplace, but to their colleagues
- their weakness is time management, however, they do not want to do overtime, the wage is more valuable than leisure time
- they are constantly awaiting confirmation, but do not doubt their own abilities, they must see the results of their work
- they like to feel good at work, they have unlimited zeal to work, they expect partnership from all levels, they want to do a job they like, if they are not satisfied, then they move on
- at the workplace they are warriors of justice, cooler and harder
- they have horrible salary expectations
- their knowledge is widespread but superficial, they know less by mind but they know where to look
- they are less adaptable, they soon want to achieve everything
- they are dissatisfied, they are impatient, they have nothing to lose if they do not see a career in the field, they move forward, or they get bored quickly and are unmotivated
- they have experienced internships abroad, foreign studies made them open-minded and mobilized, and the location, scheduling and time flexibility of the work are also expected
- acting as an opinion supervisor, as an independent consumer, or as a consultant who influences the consumption of others
- their characteristic values are speed, freedom, self-knowledge and self-determination, uniqueness, individualism, sense of belonging, fashion, security
- they are able to formulate their ideas independently, they are energetic, interested and open-minded
- it is natural for them to have multinational working methods, multiculturalism
- they do not want to "miss" anything, they always want to be available everywhere, they live in constant tension, they are anxious
- speak at least English
- they are ambitious, they love challenges, want meaningful tasks
- they believe in teamwork and it is important for them to be surrounded by staff with whom they can work together, but they do not hide behind the group, the development in the group is also important to them
- they are not afraid of questioning authority-based decisions, they want to take part in the decision-making process as well
- they do not prefer traditional workplaces, disappoint them, they look for loose conditions and flexible staff instead of rigid structures
- they are full of innovative ideas and want to change, if they are not heard, they become obscure or move on

- their views are selfish, they are short-term planners
- they are contenders, their goal is to become the leader as soon as possible
- they want to realize themselves immediately
- they like to work in a group, they believe in the success of a joint effort, but they want to prove it with convulsions
- they do not share their knowledge, or only when they are in their interest or if they are compelled
- they are flexible, mobile, widespread, but superficial for their knowledge, they are success oriented and creative
- great freedom is their desire, they do not respect traditions, they practice new forms of knowledge search
- they are characterized by reverse socialization and lack of subordination, they underestimate soft skills, EQ
- the Internet is the basic communication tool for them, they get used to interactive solutions
- they are happy to work from a home-office, part-time working, or at the same time they open up more career opportunities
- great scope, decision-making and self-realization are motivating them
- they expect direct feedback from the performance evaluation, they are controversial and future oriented
- they learn quickly, individually, on an IT basis and interactively
- they are triggering conflict
- they are loyal to themselves and their personal relationships, the privacy priorities are stronger than the workplace
- the development of skills is a fundamental motivation, they are also looking for new information while working
- they need performance-based pay, considering their own market values (which can sometimes be overvalued)

2.4.1. The Z generation in the labour market

Considering the HR aspects the following characteristics of the Z generation can be listed (Grail Research 2011, Bencsik et al. 2013, Szlávicz- Sztretykó 2012, Málovics et al. 2015, Kései 2011):

- personal freedom and sharing their social life with the public is important for them
- fast life rhythm, they are characterized by their actions and not words and emotions
- they are brave, initiators, the rules are less respected, they are practical-minded
- a global generation, they grew up in the same professional technical environment, culture is globalized both in everyday life, in language and in technology
- they interact with each other and communicate simultaneously in the real and virtual world, sharing gives them an enormous amount of information available to them, they are informed, but their development of emotional intelligence is slower
- flexible, smart, tolerant for different cultures
- content and knowledge orientation
- their ability to concentrate is low, the speed is evaluated more accurately
- the work culture of mobile devices, which is not linked to location and time, mostly online, common working (even internationally)
- their mobility depends on the strengths of individual challenges and community involvement
- the relationship with management is determined by courageous initiative and self-confidence
- they are up-to-date, seeking real-time information
- they like brief information, understanding of longer communications is problematic

- they are interactive, and open minded, the involvement in processes is natural for them, their idols are the celebs close to their age
- attraction is important to them, they express their uniqueness and their belonging to the smaller groups (scenes, clicks) with brands
- information has no value for them due to ease of obtainability and free sharing
- they live at a faster pace
- trial and error learning and problem-solving are characteristic
- they work in community, partners, trust in the power of the community, know how they can contribute
- they are considered as a consumer brand for the workplace as well
- they are learning for a long time
- they are often frequent job seekers
- it is more difficult for them to socialize at the workplace, coexistence with other generations outside their own age group, and to observe constraints and formalities
- the technique is in "their blood", the various means of communication
- there is a lot of pressure on them, they will have to decide as soon as possible which profession they opt for and what career they want
- their language use is unique, slang is used
- the most typical characteristic is social contemplation, they live in the present, they have no commitment, they are happy with what they are, they enjoy the present
- their purpose is to acquire meaningful work
- they would like to become individuals who gain a recognized place in the community
- it is natural for them to work in group in the virtual world, however they are reluctant to work in groups in real life
- their knowledge is shared virtually, easily and quickly, they hold the knowledge publicly without hesitation
- they respond quickly to everything, they are initiators, brave, they are characterized by information acquisition and content search
- they have a different view of their world, they dare to think, joy and enjoyment are at the centre of their life, but they are not consistent with their thinking
- the boundaries of work and entertainment are confused, wherever they are at home, or rather they are at home everywhere
- they are perfectly capable of sharing their attention, they are characterized by multitasking
- the technical background is fundamental to them, there is no question about operation, but they are critical to the content and convenience of use
- their job changing is quick and capricious
- they can be rewarded with immediate rewards and freedom
- they do not know their limitations, they are confident, their value system and their self-image are distorted, which may be a problem in performance appraisal
- interest-based, informal learning is their characteristic
- they easily trigger conflicts but they do not become aggressive
- the responsibility is not appreciated because it has not been experienced yet
- they are loyal to their communities
- they try out things that are meaningful for them
- they are not addicted to money

2.5. Young generations in the service market

The main drivers of young people in Hungary are the desire for adventure and relaxation, the disengagement from everyday life (Taskó 2016). Youth tourism can also be formulated to include

"independent travels of less than one year between 16-29 years of age, which is partly or entirely motivated by the desire to get acquainted with other cultures, gain life experiences and / or the benefits of formal or informal learning outcomes outside the normal environment of the traveller " (Mester 2008).
Today's young people travel more than previous generations, make a journey to more diverse destinations, spend more on travel, reserve on the Internet, they are craving for information and experiences, they try to get the most out of it and can do so. They are open, mobile and desire travel and its symbolic and functional content. The destinations they visit have a "symbolic" content, on the one hand, it is a sense of self-expression of their own personality, and on the other hand it influences opinions formed about them boosting social reputation. However, in addition they are critical, conscious and they increasingly value informational superiority. For them, the whole world (or at least the developed world) is a potential travel destination. They desire to go on a journey, travel, and have community experiences, but all they do is to make full use of the opportunities offered by the Internet much like "digital explorers" (Málovics et al. 2016).
The Y-generation's preferences are adventure instead of comfort, variety instead of habit, simplicity and speed instead of prudence. Numerous publications are offering apartments or rooms for short-term accommodation for the Y-generation (Airbnb). The Y generation is the most heterogeneous customer group, with style-conscious and brand-loyalty customers. Opinion leaders they are happy to appear in an advisory and consumption-influencing role.
The Z generation is considered to be a strong purchasing power (Grail Research 2011), and not because of their age as their members do not make their purchasing decisions alone. One can identify a closer parent-child relationship, which also affects the decisions. Another effect that influences the purchasing decision is the promotion, instead of the unstoppable social media campaigns, the experience-oriented promotion is preferred. Their prominent consumption categories are the external appearance (beauty, body care, clothing), nutrition (soft drinks, confectionery, fast food), leisure, hobbies (music, games, disco, cinema), sports (sports equipment), transport (bicycle, moped, traveling), school and work (computer and accessories, separate extra lessons) (Törőcsik 2011). The service packages designed for them must be tied to the technology used by the generation and provide its flexibility. Another feature to be playful, whether online or offline, the tourist supply offered to the age group cannot be without the appearance of the game in some form.
Today's young people do not consider traveling complicated, prepared, conscious, so it is increasingly difficult to present the desired "wow" experience. While elder generations have chosen package holidays to reduce insecurity, young people with enough language skills to travel organize their journeys based on opinions. They experience the travel as a joint experience. They can optimize travel cost and make a map of market to avoid unnecessary spending. If they are future travellers, virtual walks can influence their travel decisions, but then it should be an experience for them, which makes them believe that can get the real experience only there. The future is for making such wow experiences.
As far as information is concerned, there is a greater selection than ever before in younger generations, therefore the arousing, grasping, and catching attention is a challenge for marketing. It's up to a fraction of a second and the offer will be skipped. Today's young people believe in the power of the internet community, they deem it trustworthy, they rely on it. They are part of this community, so they have faith in it. They read forums, find blogs and share their own opinions and experiences about traveling. They can plan a trip more easily, relying on the opinions of others.

2.6. Survey

Among the diversity of hotel product strategies, based on the capabilities, resources, market opportunities, actual and potential demand, in close connection with the strategy and programs developed for the other elements of the marketing mix, two basic concepts are distinguished, a differentiating and diversifying product strategy. In today's well prosperous hotel industry's business, differentiation is becoming increasingly important besides the diversifying strategy of the years of crisis. Hotel service products are well defined for guest segments or groups.

Products on domestic websites of qualified four-star hotels have been evaluated based on their generation specificity. The general offer of 177 hotels is assigned to six categories. In the first, there were hotels with universal supply, where such age segmentation could not be identified where younger age groups were also affected. The second category includes those who have facilities for travellers with small children; these childcare services can be traced well. In the third category, they also take care of the leisure time of those guests, who travel with teenagers. In the fourth category there is a diversified service offer targeting young people. In the fifth category hotels, young people were also nominated for at least one supply element. The last category is with well-differentiated, young generation offers.

3. RESULTS

A very small part of the multitude of service providers has a general supply that does not take age differentiation into consideration, but at the same time they are well prepared for the reception of small children, the acquisition of child-friendly devices will quickly pay off thanks to the payable Y generation, and satisfied consumers generate new guest turnover. However, with the growth of children, there is a deficiency is hotels, while the leisure time management is entrusted to parents in the case of school-aged children. Among the groups addressing the younger generations in some way are of the same proportion as the diversified, wide-ranging choice (Figure 1).

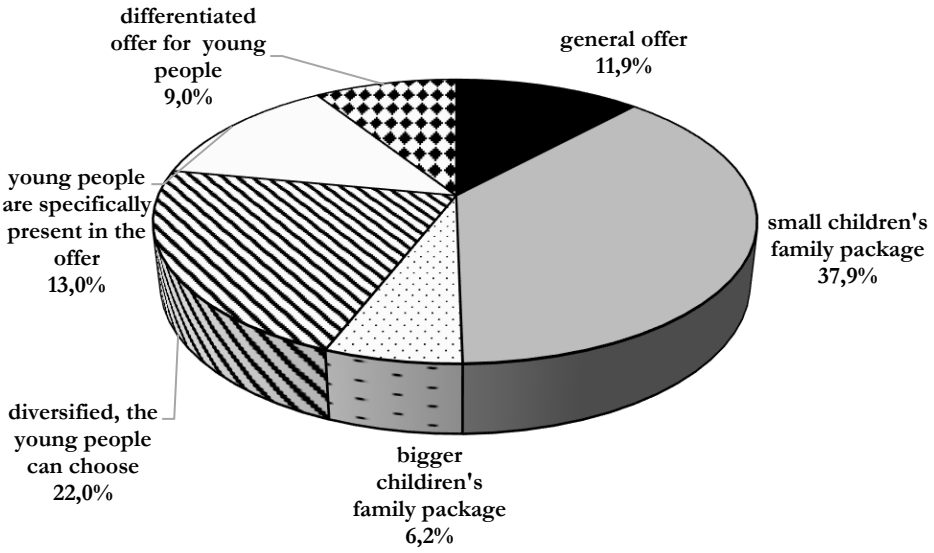

Figure 1. Generation-specific offer of four star hotels in Hungary
Source: author's own elaboration

With regard to the relation between the generation-specific offer and the other features of the four-star hotels, the baby-friendly services are offered to a greater extent in rural wellness hotels, the hotels in Budapest are characterized by the general offer, the diversified supply of rural metropolitan hotels offers some choices for young people, thematic hotels offer products specifically for the different segments.

4. CONCLUSIONS

For the Z generation, also called the globalized and digital generation, a special competition will start in the hotel industry. It will be difficult to compete with the "internet point and click" because they grew up in a world when the information was a click away, which is not always possible for personal services like tourism. Trusting in their courage, in their overall mood, the empathic and moody ambience of the hotel industry, the emotional environment can make trips and holidays enjoyable for them.

Since young people are technologically superior, they do not have to adapt, but businesses need to tolerate and prepare for Y, then Z generation as a workforce and as a consumer. The Z generation with a technology-centred attitude is a challenge as an employee in tourism which is a personal service sector. Will they be able to adapt to the guest or can their media-driven attitudes be transformed into person-centred service attitude where the service provider itself is the medium. Do the guests / travellers of the same age require a personal interactivity in the pure technological environment, how much experience and emotional value remains.

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LEADERSHIP ANOMALIES CAUSED BY SCARCE WORKFORCE

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The most severe limitations of the development of the Hungarian economy are the lack of qualified workers. 81 per cent of the companies do not find skilled workforce, while professionals are also missing from the labour market. Numerous national and international projects are cancelled for this reason. Currently there is an excess supply of workforce in some professions, while there is a severe shortage in others. The education of professionals in Hungary does not match the requirements of the economy; neither in quality or quantity, nor geographically (Garai P, 2009). The shortage is the most severe in the construction industry; here 94 per cent of the companies do not find skilled workers. The situation is similarly bad in the metal industry, where 93 per cent of the companies are affected by the lack of workforce, while the third step of the imaginary podium is taken by food and machine industry (Semsei L, 2017).
Considering these aspects in our research – based on the national survey on skills shortages – we carried out in-depth interviews with the HR leaders and owners of four big companies of Somogy County about the problems occurring in the process of finding the right workforce, their future plans and the possibilities for development.
All four interviews confirmed the national and international tendency that it is getting harder and costlier to find and integrate skilled workers into the organizational culture, who are able to work independently. The respondents see the solution in the complete reorganization of vocational training and the initiation of internship programs.

1. INTRODUCTION

By the end of last year the number of employed people has broken a historical record: the Hungarian Central Statistical Office recorded 4 million and 450 thousand people being employed. At the same time the registered unemployment rate has decreased as well, and now it stands at 3.8%. But despite the promising statistics, employers find it harder and harder to hire qualified workforce and there is a serious lack of skilled workers. It is important to mention, however, that this phenomenon causes problems not only in Hungary, but on global level as well. Almost 40% of the international employers questioned reported serious problems in hiring competent workforce. This is also supported by the Survey on Skill Shortages of ManpowerGroup (Figure 1), which has shown that the shortage of skilled workers had never been so high before than in 2017. According to the survey from 2016 to 2017 the percentage of skill shortage increased by almost 10% and in Hungary it has reached 57%, which also means a ten per cent increase in only one year.

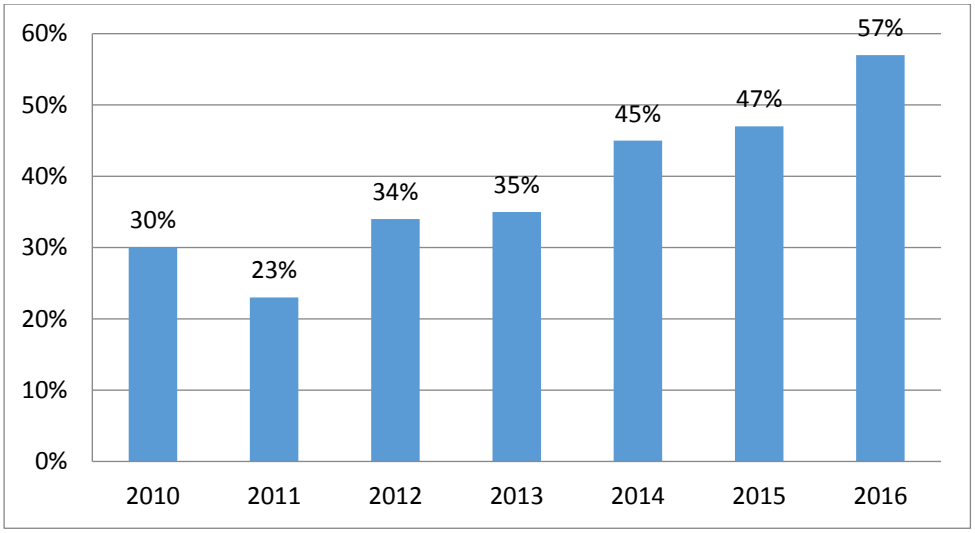

Figure 1: Changes in skill shortage in Hungary

Source: ManpowerGroup 2017

But what could be the reason for this? What will happen to the small and mid-size companies and the multinationals if they cannot hire the necessary skilled workforce? What answers would employers give to these questions? Do the media depict the right scenario at all? In order to find the answers we carried out interviews with employees, who hire workers from sectors where skill shortage is recorded and we analysed the answers to provide an overview on our microenvironment, Somogy County.

2. LABOUR MARKET ANALYSIS OF SOMOGY COUNTY

According to the labour force survey of the Hungarian Central Statistical Office (2nd quarter of 2017) 132,400 people of the 15-74-year-old population are active on the labour market of Somogy County and out of this population 123,300 people were employed and 9,1 unemployed. The employment decreased by 1,200, while unemployment increased by 1,600 compared to the second quarter of the previous year. The activity rate (56.6%) increased by 0.7 percentage points compared to Q2 of 2016, while employment rate (52.7%) remained unchanged and unemployment rate (6.9%) increased by 1.2 percentage points (ec.europa.eu).

The census data on the economic activities in Somogy County in 2011 showed a less desirable picture than the national average (Figure 1). According to the national labour indices, Somogy County was positioned in the weakest third of the ranking of 19 counties. Currently there are 160 inactive people per 100 workers, which mean 22 more than the national average.

Table 1: Employment data of Somogy County based on the 2012 census

Settlement	Male			Total	Female			Total
	active	inactive	dependent		active	inactive	dependent	
Kaposvár	49,7	23.7	26,6	100	39,9	36,5	23,5	100
Other cities	50,2	24,8	25	100	40,7	38	21,3	100
Cities in total	50	24,4	25,6	100	40,4	37,4	22,2	100
Villages	46,6	27	26,4	100	33,6	41,7	24,7	100
County in total	48,4	25,7	26	100	37,2	39,4	23,4	100

Source: Hungarian Central Statistical Office 2012

During the analysis we must discuss the wage situation of the region as well. The wage level in the county – analysing year 2016 – was lower than the national and the Southern Transdanubian average. The average net wage of the people employed in December of 2016 was 145.511 HUF, which is 98.8% of the regional average. Figure 2 introduces the net wage data of the country.

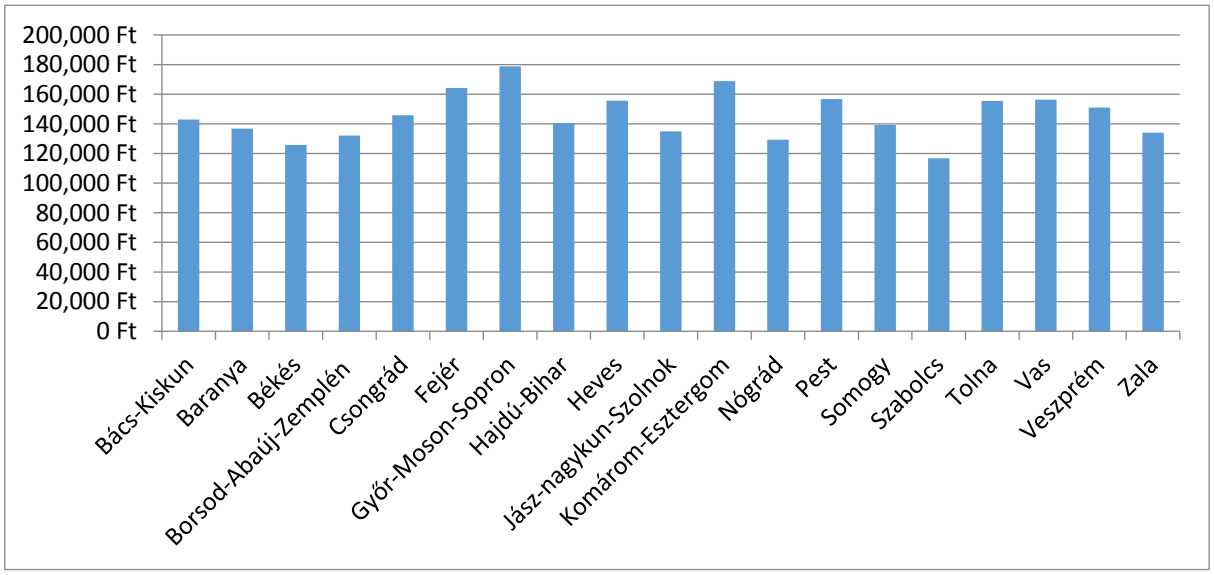

Figure 2: Net wage in the counties of Hungary

Source: Hungarian Central Statistical Office 2017

The average gross wage of blue collar workers in Somogy County was 144 000 HUF, while in Budapest and the north western counties it was about 170-190 000 HUF. In case of white collar workers the gap is even higher: in Somogy County 270 000 HUF on average, compared to a general 300-370 000 HUF of monthly wage in the more developed regions. When comparing the different sectors, the highest salary may be reached in transportation and logistics, storage and telecommunication, where blue collar workers are better paid as well. Considering white collar workers, the second place is taken by industry, administration, security and social security. In case of blue collar workers the lowest wages are taken by the workers of health- and social care according to the Hungarian Central Statistical Office (Varga J, 2015).

But what are the consequences of these negative tendencies? Gábor Draxler, the regional president of the National Association of Entrepreneurs and Employers gave the following answer to this question: "Those, who could do it have already left to other EU countries. They have looked for a job elsewhere and accepted all the consequences, like having to live separately from their families, in the UK, Germany, or France in many cases. Those, who stayed at home, are often trying to take their chances in the northern counties. The roots of this problem need to be sought in the educational system." (barcsihirek.hu). Professions with the most skill shortage in Hungary (Figure 3):

1. Workmen (electrician, welder, carpenter etc.)
2. Drivers (truck and lorry driver, heavy equipment operator)
3. Engineers (machine, architect and electronic engineer)
4. Catering industry workers
5. Doctors
6. IT specialists
7. Team leaders
8. Accountants and financial specialists
9. Nurses
10. Skilled workers

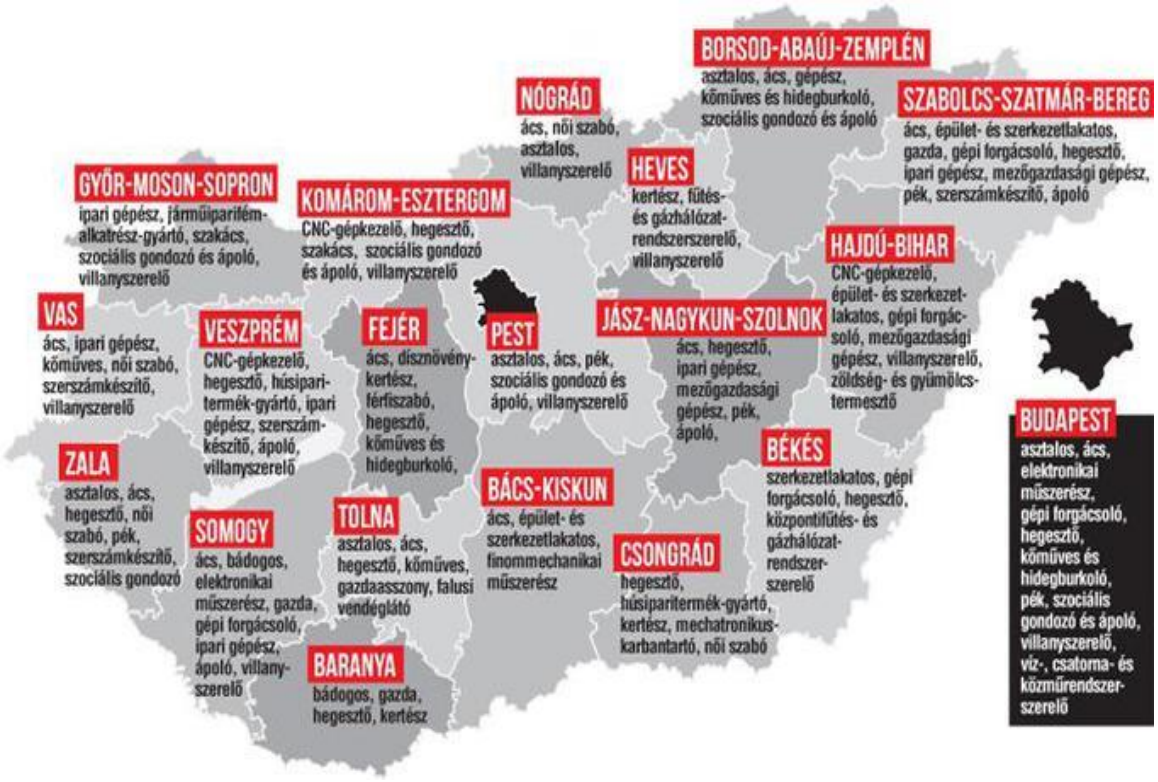

Figure 3: Skill shortages in the counties and capital of Hungary, 2016

Source: www.online-kalkulator.hu, 2016

According to Figure 3 our county lacks specialists in the following jobs: carpenter, plumber electro-technician, farmer, milling machine operator, industrial operator, nurse and electrician. In order to eliminate these shortages, we need to optimize the amount and quality of education, which is strongly supported by Somogy Chamber of Trade and Industry (Harsányi M, 2017). The steps and efforts made so far and the suggestions for improvement may be summarized in the following:

- In the past years numerous vocational training centres were implemented in order to support the students in starting their practical education from 9th grade already.

Educational counsellors of the Chamber negotiate with a wide range of enterprises in order to enable more and more students to participate in dual education programs in our county. These efforts have their positive outcomes visible in the processes of Kaposvár University as well, since 10 students of the Faculty of Economy and 11 of the Faculty of Agriculture are currently participating in such dual programs.

- Local Chambers employ the County Development Councils, who make suggestions of professions with skill shortage every year. Based on these suggestions a list of 20 professions is set, which will be applicable for the Adolf Szabóky Scholarship.

3. MATERIAL AND METHODS

In order to achieve the aims posed to this research we applied primary and secondary data sources as well. Our primary data collection consisted of a set of interviews carried out at four large employers in Kaposvár and its surroundings. The reason why we chose these companies was that all of them employ people working in sectors where there is skill shortage. Our interviewees were owners and HR leaders, who provided us with an insight into their HR strategies and recruitment mechanisms as well. Data collection happened between December 2016 and January 2017. The responses were recorded with the permission of the respondents. Before the beginning of the interview we informed our respondents about the aim of the research and anonymity as well. The interviews lasted an hour on average. In order to make our interview flow smoothly, we have sent the draft interview to our respondents in advance to enable them to prepare the data. The interview consisted of four sections: in the introductory part we collected informative data, and then the questions focused on the presence and the effects of skill shortage on selection, recruitment and future opportunities. The interviews recorded were transferred to the computer, then analysed them with the help of Microsoft software (Microsoft Word). There were no unexpected events during the interviews. Our results are not representative, but provide an opportunity to discover causal relationships.
We gathered articles, publications, studies and online resources in order to back up our data by secondary information as well.

4. RESEARCH RESULTS

We start introducing our results by the presentation of our interviewees in Table 2.

Table 2: Introduction of the respondents

	Respondent I.	Respondent II.	Respondent III.	Respondent IV.
Main activity of the company	metal-industry	metal-industry	personal services	repair services
Gender	male	female	male	male
Age	31	40	58	49
Level of education	CNC operator	international trade economist HR MSc	economist	high school degree
Years spent at the company	4	12	6	25

Source: own data collection

Following the introductory part we asked about the problems concerning skill shortage, its reasons and the means of handling it. The answers to this question are shown in Table 3.

Table 3: Skill shortage at companies and the ways they handle it

	Respondent 1.	Respondent 2.	Respondent 3.	Respondent 4.
Does skill shortage appear at your company?	yes	yes	yes	Yes
When have you realized it first?	2013	2015	2015	2010
Which was the first profession the company had shortage in?	milling machine operator, welder, locksmith	welder	electrician, TMK mechanic, bus driver	milling machine operator, turner
In which professions is the shortage the largest?	welder	welder, milling machine operator	electrician, TMK mechanic, bus driver	milling machine operator
Is the company struggling with skill shortage currently? If yes, how many workers would you need?	yes, 3-4 people	yes 1-2 people	yes, 10-15 people	No
From 1 to 5 how hard is it to find skilled workers? (1: easy; 5:causes a serious problem)	5	4	5	3
Do you think it is true that 'employees need to fight for the good workforce' as the media suggests??	yes	yes	yes	Yes
What do you think is the reason for such a situation on the labour market?	weaknesses of the education, inability to compete with foreign employers.	blue collar labour is not attractive when choosing a profession, so only those of	'price competition' among the employers – employees go for the short term benefits	lack of well-educated skilled workers, job offers abroad

Source: own data collection

Our first question was whether skill shortage had appeared at the companies of our respondents; and they replied without exception that they have experienced it for the past decade. For the three companies operating in the metal industry it is a serious problem to find good experts in welding and milling; and it is even harder to retain them. According to our opinion, the problem could be solved by organizing their own education/re-education programs. According to Respondent 2 they have made efforts to organize welder and turner courses, and also contacted an adult education centre, but the courses were cancelled due to the lack of interest. As a solution the company needed to bring welders from Croatia for a monthly wage of 1.000.000 HUF. However, the language barrier caused problems as well, so this was not a long-lasting solution. According to our opinion this could be related to the fact that blue collar work is not attractive for young individuals, and the ones, who find their profession in such a job work abroad for far higher wages. Respondent 3 complained about the shortage of bus drivers, for which the reason is that there are no courses in the area, so they may only attract workers with education and experience from competitors.

All of the employers asked agreed with the media about the problems of the labour market in saying that they need to fight for good workers. However, good workforce has to be also retained, not only hired. To achieve this all the respondents put an emphasis on competitive wages, attractive cafeteria system and good work conditions supporting employee satisfaction. On the week following the interview we could read on Sonline.hu news portal (30.01.2017), that at the company of Respondent 3 significant changes were made from 01.02.2017. Apart from the general wage raise of 18% all the employees receive 17 500 HUF cafeteria – a choice of SZÉP holiday card, voluntary health fund, Erzsébet vouchers or 100 thousand HUF. Besides fuel-savings – as a taxable income – bus drivers receive a further amount, and all the workers get a 12 thousand HUF worth voucher to the local spa for recreational purposes.

For our question why they think such a situation could occur on the labour market most of our respondents gave the answer that vocational training is not satisfactory and that many workers leave the country to find a job with better wages abroad; and this is something even the larger companies can't compete with.

The next part of the interview focused on recruitment, selection and the characteristics of the motivation system. The questions and the answers given are summarized in Table 4.

Among the employees it was only the one in the service industry not being able to motivate the workers in choosing the company instead of the competitors. The company representative explained this by the fact that there are numerous competitors, who offer short term jobs with high wages, so the majority of the blue collar workers choose this option instead of the long term, safe one with lower wage. The motivation policy of the other three employers considers the need of employees for suitable working environment and team. These aspects support employee satisfaction and build loyalty and long term working relationships. Our interviewees follow the philosophy that 'satisfied workers are the key to successful work'. So, we can see in the responses that besides material benefits all the employers put an emphasis on non-material tools of motivation as well.

Recruitment happens via friends and word-of-mouth, online and newspaper advertisements at all the companies except that of Respondent 2, whose company owns an online database of potential workers. Selection criteria include aptitude, decision abilities, professional skills and experience at all of the companies. Certainly they also look out on the wage and other requirements of the potential employees as well. The answers include the importance of professional knowledge, which implied the inclusion of further questions in our interview. We asked how the respondents see the skills of those entering the labour market; and how their level of knowledge affects the selection process. Respondent 2 indicated that their company realizes the provision of the necessary professional knowledge and skills in the form of

participating in vocational education. They regard both theoretical and practical education important, since all the respondents complained about the lack of suitable knowledge - both practical and theoretical – among freshmen entering the labour market. When asking about scholarship as a form of motivation, Respondent 1 expressed that the problem lies not in motivation, but in the educational system, which is the main reason for skill shortage; so the solution is not in motivation either, but in providing wide range of opportunities for satisfactory education of young individuals (BERKE, 2010; BERKE et al, 2011). On contrary Respondent 2 regarded the scholarship system as a good idea, which is motivating and successful; and Respondent 2 trusts that it will be efficient in diminishing skill shortage.

Table 4: Characteristics of the recruitment, selection and motivation system

	Respondent 1.	Respondent 2.	Respondent 3.	Respondent 4.
Are you able to motivate skilled workers to choose your company instead of the competition? If yes, what are your tools?	yes, by higher wages and secure job	yes, wage raise, cafeteria, attractive work conditions, uniform	no	yes, homely work conditions, favourable wages, team spirit
How do you get new workforce?	advertising (internet, newspaper), word-of-mouth	first own database, then advertising (internet, website)	advertising, word-of-mouth, Regional Employment Office, references	advertising, word-of-mouth
Which characteristics do you regard as important upon selection?	professional skills, diligence	education, experience, references, wage requirements	professional skills, experience, wage requirements	attitude, aptitude, teamwork skills
Would you rather hire a worker with experience than a freshman, or is it neutral?	yes, but if the freshman is diligent and ambitious, then it is neutral	when the job requires professional skills then yes, otherwise neutral	depending on the job team leader may be a freshman, but a bus driver should be experienced)	rather a freshman, as they integrate into the team more quickly than the older ones
How much time does it take to find a new employee for an open spot?	it depends, sometimes it takes weeks, in worst case even months	2 weeks on average	6-8 weeks on average	immediately

Does this time mean income loss?	yes, a lot	no, it is possible to solve it within the company	no, it is possible to solve it within the company	No
Do you think the young individuals learning a profession, where there is skill shortage enter the labour market with suitable knowledge to work at your company?	many are not even close to the minimum requirements	we educate the students at the company we try to provide them with the necessary practice	no, they would need more practical education	No
What do you think about vocational educational scholarships?	The problem lies in the education, not motivation	it is a good thing, we trust in its motivational effect	-*	-**
Do you employ interns?	no	yes, about 50%	yes, almost everyone, about 100%	No

* cannot say anything about it, ** hasn't heard of it
Source: own data collection

To the question whether they would hire, experienced employees or freshmen, most of the employees would hire those, who have just finished their education if they are ambitious and motivated, but education and experience are also crucial in the selection process. However, they also need to consider wage requirements as well; and in some cases, and certain jobs they are not able to compete other companies offering better options. Half of the respondents employ interns for both blue and white collar jobs. Their aim is to retain these interns, whom they have already trained, solving skill shortage by this. We may ask the question why skill shortage is present at these companies. The problem is that companies have no tools to make students choose the company of their internship as a workplace, so when they finish vocational training, the former students will choose the option with the higher wage.
In the final part of the interview we aimed to discover more about future expectations, with special focus on filling the open jobs at the company (Table 5). Our first question focused on whether the respondents are afraid of skill shortage becoming more severe. As for Respondent 1 the situation could not be worse than it is, so the tendency may only be positive, however the other three respondents think this is not the worst yet. Our next question matched to this topic as well, aiming to find out more about future possibilities. Respondent 1 – slightly contradicting the first response – has a pessimistic view on the future described as hopeless. Respondent 3 also agreed, saying that there are no forward-looking processes visible, which could diminish skill shortage. Respondents 2 and 4 were somewhat more optimistic, they trust in the educational reform and its positive effects. Respondent 4 emphasized that as there are a lot of young and middle-age employees at their company, they are not in such a big trouble. Our last questions focused on the possible solution alternatives, where our respondents have suggested a couple of solutions. Respondent 1 suggested that helping small and mid-size companies would be an option; the improvement of their situation could be a possible solution. If these companies were competitive and could provide higher wages to their employees, that could make these professions more attractive for young people. Respondent 2 sees the solution in the media, undertaking marketing campaigns to make blue collar jobs more attractive via the right communication and channels. All those solutions could be acceptable that are able to reach young people and may influence their decisions by making blue collar work more popular. To support this, they enable students to visit their factory and have built a system of mentorship. Respondent 3 thinks that making vocational education more efficient by putting a bigger emphasis on

practice would also help the cause a lot. As an example this respondent mentioned that they pay a mentoring fee for one of their partners in order to help young workers apply and improve their practical knowledge. Respondent 4 could only imagine a long-term solution including the right politics towards families and education and handling demographic issues as well.

Figure 5: Future possibilities and solution alternatives

	Respondent 1.	Respondent 2.	Respondent 3.	Respondent 4.
Are you afraid of not being able to find suitable workforce in a couple of years?	no, the situation is already bad, it cannot be much worse	yes	yes	Yes
What kind of expectations do you have in the future concerning workforce?	completely ambiguous	optimistic, because of the education within the company	completely ambiguous	as there are a lot of young and middle-aged workers, the outlook is not that bad
How do you think the empty spaces could be filled?	semiskilled workers	skilled work should be made more attractive	dual education with later job offers for the students	with more skilled workers
What kind of solution would you suggest to solve the skill shortages in Hungary?	if the situation of small and mid-size companies was better, they could afford higher wages and make the jobs more attractive	better marketing and advertising for blue collar work targeting students choosing their career	more efficient vocational education	generating a positive wave in demographics

Source: own data collection

After the interviews it became obvious that there are numerous problems and questions to be resolved, such as reforming the educational system to focus more on skill shortages by in involving all parties of interest.

5. CONCLUSIONS AND SUGGESTIONS

After carrying out the interviews we make the following suggestions:

- All the four respondents spoke about severe lack of skilled workers, which could be solved by re-education

- We cannot solve the problems of the labour market without educated, skilled workers and leaders speaking foreign languages. A solution could be for the companies to finance language courses for the employees to fight language barriers.
- Local employees cannot compete with foreign ones in terms of wages, which makes a lot of skilled workers to leave
- The respondents try to make the job offers more attractive by offering different cafeteria benefits
- For young individuals blue collar work is not attractive, not even the higher wages can attract them to fill these positions. The solution could be more efficient communication with the help of the media.
- All employers agree that the material taught and the skills expected in the jobs offered are not really matching. According to our opinion the solution could be dual education.
- The employers already fear the growing severity of this problem, the tendency to lose more workers and that their development plans will be threatened by the lack of skilled workers.
- Yearly rotation of different professions may prevent excess supply in any jobs
- When organizing education in jobs with skill shortage (e.g. plumber), there is a need for regional or national cooperation.

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INNOVATION CULTURE AND INTELLECTUAL CAPITAL POTENTIAL OF THE HUNGARIAN CITIES

Zoltán Koltai, PhD

Abstract

Competitive cities are associated with high incomes, living standards and good conditions for the labour force. Of course, it is not only economic aspects that make a town successful and liveable. The meaningful possibilities of spending leisure time, learning, culture, sport, trade or good health services are also parts of our lives. Moreover, there are other things we have to mention, like reliable public transportation, public services at reasonable prices and of reliable quality, innovation culture and many other things as well.

The topic of territorial competitiveness has evidently gained major attention in the recent years. Besides the increased interests we can see the processes of globalisation, as well as the transformation of the economy and society, the spatial development objectives of the European Union – and also us, with our changing needs, better chances of mobility and perhaps our growing interest in our environment.

In the following pages I would like to analyse the topic of competitiveness and success from a complex territorial point of view. In the first chapter containing the introduction of the basic concepts I also briefly examine urban competition. The second part of the paper presents the Hungarian researches conducted at city level. Finally, the paper presents market research findings concerning the Hungarian settlements, and about the success of Hungarian cities as business locations and the appraisal of their desirability.

Keywords: city competitiveness, success, Hungarian settlements, innovation culture, business location

1. INTERPRETATIONS OF COMPETITIVENESS AND SUCCESS

The concept of competition is defined by many authors in a variety of ways. In one of the perhaps most comprehensive approaches "competition is an activity of two or more parties trying to gain advantage over one another, within the given rules" (Chikán 1998, p. 98.) The goal of the parties participating in competition is the largest possible market share, and the resulting higher profit, through the acquisition of some scarce resource. We can mention functions, institutions, mobile investments, infrastructure development, cultural, sport and other events or other scarcity factors (development resources, information, valuable labour force etc.). These are all related to the intention to gain some better position, in the more fortunate case improving quality of life for society (Enyedi 1996, Lengyel – Rechnitzer 2000, Horváth 2001).

In the specialty literature we can find several different viewpoints regarding the nature of competition. Some believe that this is a special situation where competition actually has no losers, in the background there lies specialisation along with comparative advantages. Others say that the concept of territorial competition is closer to absolute advantages and because rivalry goes on for the division of rare resources, there must be both winners and losers in the process.

There is a European and an American approach to territorial competition (Török 1999, Lengyel 2003). The European interpretation is more characterised by a top-down view, attributing a great significance to extra-economic factors like community and governmental measures, while the American approach is mostly determined by a bottom-up approach, leaving much more independence to actors participating in the competition (companies, sectors, clusters). (Accordingly, the so-called top-down organized planning/programming regions are more compatible with the European type, while internally and bottom-up organized nodal regions match the American interpretation more.)

Competitiveness has two important aspects. "It expresses achieved and quantifiable success, economic performance, i.e. results achieved in competition; and also means the potential chance in the competition, the ability, skills and attitude to successfully compete. We can also see, in addition to the interpretation of success for the past and the future, an expectancy of the lasting nature, future persistence of the present successful performance" (Lengyel 2003, p. 173). In other words, we can distinguish between so-called input-oriented and output-oriented competitiveness. The quantification of macro-economic performance is typical for output-oriented competitiveness, whereas the input-oriented attitude is more focused on the existence and quality of the environmental elements, the background criteria.

A region can be called competitive "if its strategically embedded economic base optimally uses and generates (promotes the expanded reproduction of) high order resources of the region purchased at market prices, at the same time reaching lasting competitiveness on the relevant international markets" (Palkovits 2000, p. 125).

In the opinion of Chikán and Czakó competitiveness has two basic dimensions, the type of dominant groups of factors providing the basis of the competitiveness of the national economy, on the one hand (resources, investments, innovations), and the extent of participation in foreign economic relations, the scale of competition, on the other (domestic, international, regional or global) (Chikán – Czakó 2002).

The next definition already features economic and social policy objectives simultaneously: "Regions and cities are competitive if their economy is open and their income per capita is continuously increasing, and if employment rate is high and not decreasing, several layers of the population will probably benefit from this income" (Lengyel – Rechnitzer 2000, p. 137).

The competition of regions and cities is closely related to the competition of companies, as the development of territorial units partly depends on their ability to create or attract adequate economic activities. On these terms we can distinguish between two basic viewpoints. First if we consider regions as a whole, their competition is similar to that of the national economies, emphasizing the role of their economic performance and their output. Furthermore, we can start from the competition of companies as well, looking at the factors and conditions that will lead to competitive advantage in the respective region. In Malecki's opinion one of the two sources of competition within a country is market investment (capital), the other – as a prerequisite of the former – is the acquisition, the attraction of the skilled labour force (Malecki 2002).

The favourable competitive position of territories can also be assessed by the three aspects below (Palkovits 2000):

- openness of the region, economic performance on the international markets, stability and solid foundation of their competitive positions,
- large proportion of knowledge-based activities (high level of incomes of the region's population),
- strategic interests of the economic actor to stay, their regional and local integration from a management point of view (not only by ownership).

Expanding the concept of competitiveness, *success* also seems to be a concept suitable for the comparison of the development levels of regions and cities. In Lengyel's opinion, being successful is a category broader than competitiveness and lasts for a longer time: "…regional competitiveness relates to the economy of the region, the actors of its economy and the closely related social factors, i.e. a category of regional economics, comprehensible in the short and medium term and strongly influenced by market cycles and innovation waves. Success, on the other hand, is a long-term category, also containing extra-economic factors like the region's society, environment, bonds and stock, geographical position etc." (Lengyel 2003, p. 290).

In success, the importance of non-quantifiable characteristics in addition to measurable factors is emphasised by Boddy when attributing a special importance to the effective operation of local administration and the level of business services (Boddy 2002). Under regional institutional

system we can mean institutions themselves, the effective system of relationship among them, the quality and efficiency of, and trust in public administration, the so-called social capital. These characteristics will probably not differ much within a country but may very much differ across nations.

"In a successful region income equals growth. A significant part of this income remains, and is reinvested in the region, in different forms of corporate and personal taxes, for the operation and development of the settlement. The growth of incomes benefits all leves of society, economic growth does not damage the natural environment, built and other cultural values of the region. And finally: growth concerns all settlement groups in the region, it does not increase spatial disparities within the region" (Enyedi 1998, p. 411).

The existence of the following actual factors can make a settlement or a spatial unit successful (Enyedi 1996, 1997, 1998, Cheshire 1999, Jensen – Butler 1997):

- ability to change the economic structure (with special regard to the spread of sectors with value increasing and multiplier effect),
- high proportion of so-called value increasing sectors in the service industry (presence of high level business and financial services, research and development, higher education, high level cultural services),
- knowledge based production is prevalent (in connection with the significant use of the highly qualified labour, with their above-average demand for a high-quality settlement environment, quality of life and services),
- the presence of innovation capacity and research and development is strong (chance of technology transfer),
- successful cities are cities that have power, decisions are made in successful cities, these are the places where corporate and financial centres are concentrated (concentrating thereby highly qualified employees with high incomes in the respective settlements),
- presence of strong and growing middle class (with above-average qualification and income), with favourable urban social structure (paradoxically, in practice this can coincide with significant social polarisation and emerging social conflicts),
- valuable environment, adequate urban policy and provision of high quality public services (related to the non-material needs of the population),
- successful conflict management at a level acceptable for the public opinion, with the intention of preserving the social environment,
- significant external (international) relations, integrated in the urban relationship system of an international macro-region (which may be occasional trade relations as well as long-term information and network relations, and the development of external relationships requires background criteria like transport junctions, airline and railway connections or hotel capacities with adequate quality and quantity),
- increasing incomes and employment, as an effect of which significant amounts of development sources are raised from locally collected taxes (provided that the centralisation of taxes by the central state budget is not excessive, as in this case gaining the sympathy of the redistributing central power forces the application of totally different methods, separating urban development and the development of the local economy from each other).

In the cases success is not an isolated phenomenon but leads to the birth of successful regions, development axes which will bring the competitiveness of a whole country or group of countries in the long run.

2. EXAMPLES FOR SUCCESS AND COMPETITIVENESS AT CITY LEVEL IN HUNGARY

Since the regime change and up to the present day there has been a strong interest in the interpretation of the positions occupied in the Hungarian settlement network, primarily with the intention of the researchers to explore the main driving forces of the rearrangement.
Some of the researches introduced in the following pages present the topic of competitiveness in a complex way, during the analysis attention is paid to a broader range of mutually influencing factors. Moreover, we also present approaches that focus on a single aspect, one partial area of competitiveness, forming an opinion about the desirability of settlements. The real issue is not the existence of spatial disparities, it is much more about how big they are, and how the researchers measure them and how they perceive the direction of their changes. Behind the occasional conflicts of different viewpoints, we find the multi-dimensional character of spatial disparities, various possibilities of quantification, as well as diverse attitudes reflected in the interpretation of results achieved.
The paper omits analyses built on so-called soft methods (questionnaire, interview).

2.1. Categorisation based on human resources and innovation

The research of Beluszky definitely supports the correlation between the volume of intellectual capital of a settlement and its position in the urban hierarchy (Beluszky 2000). Debrecen, Pécs and Szeged form a separate group, followed by Miskolc. Although with somewhat lower values, Győr, Nyíregyháza, Székesfehérvár and Kecskemét are also in the group of the "cutting-edge" cities. The next larger group involved Kaposvár, Veszprém, Sopron, Szombathely, Eger, Szolnok, Zalaegerszeg, Gödöllő and Békéscsaba (regarding other county centres, Szekszárd had position 18, Tatabánya position 20 and Salgótarján position 25). The existence of intellectual capital plays a significant role in approximately 50 Hungarian towns and cities, in the rest of the settlements it is rather the lack of it that causes a disadvantage. Settlements performing significantly better in this ranking compared to their positions in the settlement hierarchy are Gödöllő, Esztergom, Baja, Gyula, Vác, Gyöngyös, Keszthely, Szentendre, Szerencs and Jászberény, an opposite move in the competitiveness ranking is shown by Nagykanizsa and Siófok. We get interesting results if we focus on specific intellectual potentials. In some of the towns and cities intellectual activity does considerably influence the image and the functional roles of the settlement (examples are Keszthely, Gödöllő, Esztergom, Sopron, Szentendre, Kalocsa and Szarvas), in other cases the high values of specific indicators which are only explained by the low population, and are much less likely to lead to real competitive advantages.
An attempt was made by Rechnitzer to demonstrate the reception of innovations, when he looked at the innovation environment of Hungarian towns and cities in several, consecutive researches (Rechnitzer 1993a, 2002, Rechnitzer – Grosz – Csizmadia 2003, Rechnitzer – Csizmadia – Grosz 2004, Grosz – Rechnitzer 2005). He classified the variables taken into consideration in the first analysis into five factors (Rechnitzer 1993a):

- group expressing the organisational activity,
- innovation regarding product and activity,
- intellectual resources,
- social and political innovations, social activity,
- activity and assets of population of the centre and the hinterland (surrounding underdeveloped region around the city).

According to the survey based on factor analysis, the innovation environment of settlements in the years of political transition was primarily determined by their institutions (factor 5), education (factor 3), and the presence of new type businesses, the scale of entrepreneurial activity (factor 1). Within these, of primary importance were human resources, the proportion of people with secondary and higher education qualification as a basic background for innovation. Geographical distance from Budapest has a negative impact on the reception of innovations by towns and cities, i.e. the farther a settlement is located from Budapest, it will have smaller innovation environment. The survey extended to the urban hinterlands found that very significant differences in the competitiveness of towns or cities can be generated by the condition

of their narrower environment, as settlements in the hinterland can only be the users of the innovation capacities of the centre, but may as well significantly contribute through cooperation born among them to the strengthening of the role of the centre. The main finding of the research is that the innovation environment or an urban hinterland was primarily determined by the infrastructure of the centre (factor 5).

Interesting comparisons can be made by a brief look at more recent research findings of Rechnitzer (Grosz – Rechnitzer 2000, Rechnitzer 2002, Rechnitzer – Csizmadia – Grosz 2004, Grosz – Rechnitzer 2005). In addition to providing a more recent insight into the competitiveness of Hungarian towns and cities, these researches also give considerable extra information on the moves of the respective settlements within the urban network, fortelling potential changes in the future, too. According to the repeated surveys, the role of modern business and economic services in the development of settlements has increased, and the significance of the accessibility to communication infrastructure, and the income and consumption potential of the centres has further grown (Rechnitzer 2002, Grosz – Rechnitzer 2000). The most advanced level of the city type is the *active and stable cities: centres of innovation and economic renewal*. This group has 25 members, out of which 16 are county centres (with the exception of Tatabánya and Szolnok); the other settlements are Sopron, Hódmezővásárhely, Baja, Szarvas, Keszthely, Gyöngyös, Mosonmagyaróvár, Gödöllő and Rétság. These centres have usually established regional functions in the urban network, and are home to 35.2% of the urban population of Hungary. (Newcomers in this group, not represented in previous researches are county seats like Eger, Miskolc and Szekszárd, and some small and medium-sized towns.) Next in the order are *towns with special functions: holiday resorts and industrial towns* (15 settlements), which are holiday resorts on the shore of Lake Balaton and other small towns living on thermal and medical tourism (Hévíz, Zalakaros) on the one hand, and industrial towns, on the other (Martfű, Paks, Százhalombatta, Szentgotthárd and Tiszaújváros). The difference between them is that the first sub-category (holiday resorts) is characterised by high level of infrastructure, excellent income and consumption potential and the broad range of institutions offering personal and business services, whereas the latter feature is less typical for industrial towns. (The number of the group has almost doubled, a former member, Sopron moved one level up, while Kőszeg, Szentendre, Érd and Budaörs moved downwards in the order.) The *transforming towns capable of improving their positions: centres stabilising their economic and social functions and expanding their urban and regional roles* show the chance of the birth of secondary, meso-regional centres due to the settling down of new urban functions and their favourable geographical locations. This group involves among others, Szolnok, Tatabánya, Dunaújváros, Ajka, Vác, Várpalota, Pápa, Komárom and Hatvan (the number of the group has almost doubled, with 58 settlements now). Regarding the two county centres listed here, Szolnok has improved its position, as opposed to Tatabánya which, as the only negative exception, has worse positions now than in the early 1990s. There is a next group called *towns in intermediary, transitory situation, in peripheral position, and centres with instable structures in the agglomeration of Budapest*, with a strikingly expanding number of elements (from 9 to 61), and although some towns have lost their former positions (e.g. Szentendre, Kőszeg, Érd, Budaörs, Jászberény and Makó), for small towns founded in the 1989-98 period (approximately 26 towns), being in this group is more of a privilege. (The majority of these 26 towns can be found in Transdanubia, the agglomeration of the capital city and in the territory between the Danube and Tisza rivers). Towns in this group can also be called potential meso-centres; the majority of them started from an innovation deficient situation and changed their regional positions for the better by the end of the decade. The number of settlements in the category last in the order, called *lagging-behind towns with deficient functions* has dropped (from 101 towns to 58). The new services are typically provided for them partly by the nearby big cities and partly by the traditional middle towns with larger economic potential, and if new institutions occasionally appear in these towns, they have low significance and limited functions for the time being. The majority of such towns can be found in the trans-Tisza region and North Hungary (Gyula, Hajdúszoboszló, Sátoraljaújhely, Ózd, Záhony and Kazincbarcika), but towns from Transdanubia can be found in this category as well (Nagykanizsa, Komló, Csorna, Szigetvár, Mohács, Tolna. Special attention should be paid to the loss of the formerly more favourable positions of Nagykanizsa.)

In the new, extended research approximately 30 variables were organized into five dimensions at the principal component analysis (Rechnitzer – Csizmadia – Grosz 2004, Nárai 2005). According to the research findings, along principal components 1, 2 and 3 (which stand for principal components 'economic development level', 'schooling and management', and 'social activity', respectively) the towns and cities of Hungary make two groups of by and large the same number of elements, i.e. the proportions of towns and cities in more favourable and in worse situation than the average are balanced. To the

opposite, on the ground of principal components 4 and 5 (principal components 'human resources' and 'innovation', respectively) more than three-quarters of all settlements were below the average. Cluster 1 (*regional centres with complex structure – primarily innovative centres*) includes the most innovative members of the Hungarian urban network (Szeged, Pécs and Debrecen). These cities were in the focus of higher education and innovation processes, they possessed favourable labour force and economic parameters, schoolings levels high above the average, and were characterised with knowledge-oriented labour force and also with outstandingly high values of human and innovation indices. (Within the group Szeged showed the best values, from innovation aspect it is the most developed countryside city of Hungary.) Cluster 2 is made by Miskolc (*regional centre with complex structure, with less favourable economic parameters*), only showing a lag in the average value of its economic development level (principal component 1), in dimensions closely related to innovation (principal components 4 and 5) it is among the leading cities, too. Miskolc in the research was a higher education and innovation centre that was not able to use its innovation potential for the real renewal of its economy. As a matter of fact, cities in cluster 3 (*centres with sound economic foundations and developing innovation potential – secondary innovative centres*), i.e. Győr, Székesfehérvár, Kecskemét, Veszprém and Nyíregyháza, are also standing out on the basis of their innovation endowments, still they make a separate type because of two special features they have. On the one hand, they showed the best economic features (principal component 1), whereas the values of their human resources (principal component 4) were somewhat worse than the values of the city group in the previous category (it is true, on the other hand, that they still have values high above the average). Within the group Győr has the best innovation endowments, but in the areas of institutional and human conditions of higher education (principal component 4) it is still slightly below the values of Veszprém and Nyíregyháza. The favourable positions of the settlements in cluster 4 (*settlements with significant higher education and human base*) are primarily due to their extended higher education activities (principal component 4), and also to their outstandingly intensive social activity (principal component 3). Cities in this category (Sopron, Szombathely, Békéscsaba, Kaposvár and Eger) are evidently capable of renewal, which they have already proved with their social features and their higher education activities. (The most essential change, anyway, was done in this cluster by the researchers when they repeated their survey, narrowed down to the circle of cities with county seat rank (Nárai 2005). It may not have been fully justified that they enlarged the group with three settlements – Szekszárd, Szolnok and Zalaegerszeg –, considerably altering thereby the homogeneity of the cluster. The remaining five cities with county seat rank – Dunaújváros, Hódmezővásárhely, Tatabánya, Salgótarján and Nagykanizsa – were put into a separate cluster called big cities in unfavourable situation, with innovation deficiencies.) Settlements in cluster 5 (*micro-regional centres with favourable endowments*) are evidently not among the innovative cities. Their categorisation as a separate group is more justified by their outstandingly high social activity, but they also show above-average figures in almost all principal components (the respective settlements are Szentendre, Szekszárd, Zalaegerszeg and Szolnok). The innovation potential (principal component 5) of the members of cluster 6 (*towns with primarily higher education orientation*) does not exceed the average, but the dimension of human resources (principal component 4) have very positive values (Gyöngyös, Keszthely and Gödöllő). Two settlements in the agglomeration of the capital city, Budaörs and Budakeszi are quite different from all other types, because they have extremely favourable economic and labour market features (principal components 1 and 2) and their innovation potential (principal component 5) is also above the average, but their human resources (principal component 4) are much worse. All other members of the Hungarian settlement network can be described at the best with average parameters, more often with below-average indices. The authors categorised the rest of the towns into two groups and further five clusters. The last group is made by 185 towns (75% of all towns in Hungary) with 2 million inhabitants, they were considered as definitely *underdeveloped from the aspect of innovation*.

Rechnitzer's partial survey made on the basis of social-political innovation can also be categorised into this group of examinations (Rechnitzer 1993b). He describes towns and cities according to the political and social activity of the local communities, on the basis of, among other things, political and economic demonstrations, environmentalist actions, events and the frequency of the foundation of new organisations. In his findings it was the big cities with major bourgeois traditions and also accumulating regional functions (with universities of several faculties, and with lively intellectual life) that were the most active, "innovative" from socio-political aspect.

Comparative analyses were also made on the basis of demographic processes of the cities with county seat rank in 1990-2001, ageing index and the proportion of the elder generation (Nárai 2005).

Also, there are cases for the analysis of the spatial development level of micro-regions, counties and regions from the aspect of human resources (Kanalas 2000, Csatári 2003, Csatári – Tóth – Kanalas 2004, Kramarics – Szekeres 2007, Lengyel 2007, Nagy 2007, Kiss – Tagai – Telbisz 2008, Garami 2009, Szalainé 2009, Baranyai – Baráth 2009, Grosz 2011, Farkas 2012).

3. HUNGARIAN CITIES AS BUSINESS LOCATIONS

The survey related to the businesses started in early 2004 and in the layered questionnaire surveys (breakdown of the Hungarian businesses by regions and company size) over a thousand entrepreneurs and business managers answered our questions (Koltai 2006, 2007, 2014a, b). Thanks to the personal interviews, almost all of the questionnaires filled out proved to be suitable for evaluation.
We sought the answer to the following questions:

- What aspects do Hungarian businesses prefer when choosing their business location?
- Which Hungarian settlements are considered competitive by company leaders and why?
- Which are the settlements that the stakeholders see as real economic centres?

3.1. Evaluation of the attractions of the locations

From the answers given to the first question we wanted to find out how much the location factors that we had collected were important when designating the place of operation. We asked respondents to evaluate the ten aspects of competitiveness below on a five-grade scale:

1. economic structure of the settlement (e.g. sectoral breakdown, entrepreneurial activity, connected industries, suppliers' connections),
2. innovation culture and intellectual capital potential of the settlement (e.g. secondary and higher education institutions, number of research institutes, research and development capacities),
3. regional accessibility, geographical position of the settlement (e.g. transport and telecommunication infrastructure, road network, railways, airport, the accessibility of Budapest),
4. costs related to operation (e.g. wages and their contributions, taxes and tax allowances),
5. activity of the municipality, settlement development policy (e.g. city marketing, public services),
6. quality of the urban environment as a place of residence (e.g. natural environment, historical traditions, cultural and leisure activities),
7. supply of public institutions in the settlement (e.g. public services, operation of tax office and job centre),
8. business services of the settlement (e.g. banking network, industrial park, operation of business development office, local media),
9. qualification of labour force, skills of the settlement's population related to work productivity (e.g. schooling, language skills, adaptation willingness, GDP per employee),
10. the settlement as a consumer market (e.g. high incomes and consumption potential, catchment area, density of population).

As it can be seen in Figure 1, respondents put regional accessibility, the geographical position of the settlement to the first place, which is followed at some distance by being a consumption market. The next group consists of factors considered as medium important ones, including the presence of business services, the economic structure of the settlement, the costs of operation, the professional skills and productivity of labour force, and then come factors such as availability of public services, endowments of the settlement as a residential place and the settlement policy of the municipality. The lowest values were attributed on the whole to the innovation culture and the intellectual capacities of the settlement on the whole.

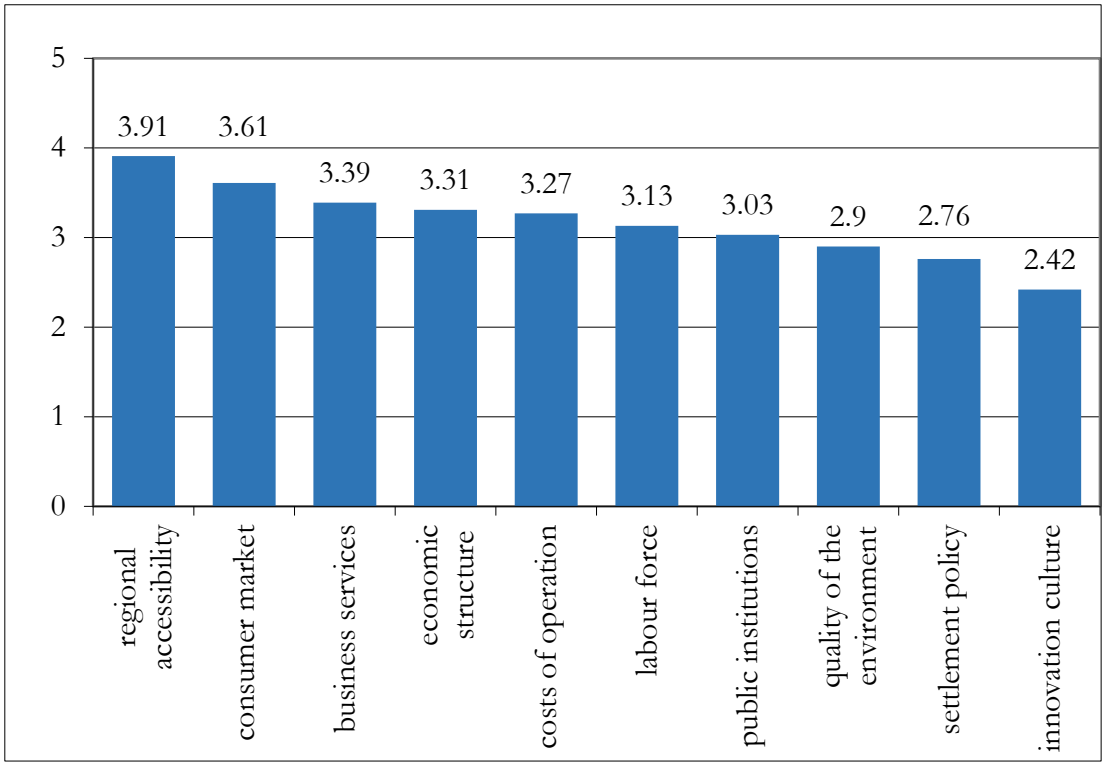

Figure 1: Order of importance of factors making a location attractive, in the responses of the Hungarian businesses, 2004-2005

Source: Questionnaire survey of the author (2004-2005)

Among other aspects, the coexistence of operation of the business and the place of residence was most frequently mentioned, which demonstrates that for micro- and small enterprises the place of residence usually determines the choice of business location as well.

Although the most important location factor, not depending on business size, is the category of regional accessibility and geographical position (in all four company size categories – micro-, small, medium-sized and large enterprises – this was ranked first; however, the highest score to this aspect, 4.21, was given by large companies), we can see interesting tendencies if we look at the orders of the respective factors by company sizes.

Due to the high proportion of micro-enterprises in our sample, the responses given by the smallest companies (with 1 to 9 employees) almost perfectly coincide with the responses of the representative sample, and there is hardly any difference between the sample and the small businesses. (The lowest figure in the total of the survey was an evaluation by the micro-businesses, they appraised the index of innovation culture at only 2.36). On the opposite, responses given by middle-sized companies (with 50-249 staff) and even more, so by large businesses (with employees in excess of 250) are considerably different than the data in the layered sample. For mid-sized companies, not surprisingly, the economic structure of the settlement was the second most important factor, they also appreciated the category of the skills and productivity of the labour force, just as costs of operation became more important when deciding about the potential location. On the other hand, the consumer market character of the settlement was much less appraised, together with the quality of business services, and the endowments of the settlement as a place of residence matter less for this category of businesses.

Again, the least important location factor was innovation culture, and the intellectual capital capacity of the settlement.

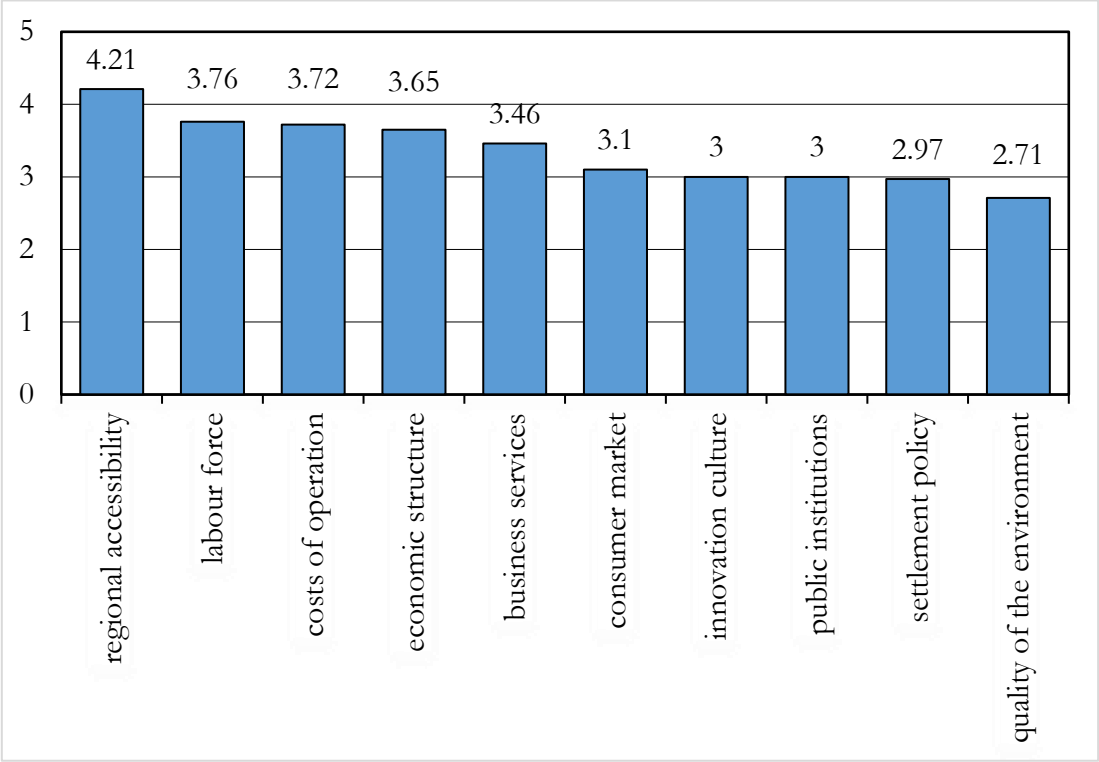

Figure 2: Order of importance of factors that make a business location attractive in the responses of the Hungarian large businesses, 2004-2005

Source: Questionnaire survey of the author (2004-2005)

In the order of importance defined by large businesses, regional accessibility (that they appraised even more than the average) is followed by qualification and productivity of the labour force (Figure 2), but factors more important for them also include costs of operation, economic structure, and settlement policy; also, the role of intellectual potential, innovation was significantly appreciated in this circle. (We could say that it is only large businesses that attribute some partial significance to this latter factor when evaluating potential locations.) According to our expectation, the consumer market character and the quality of environment of the settlements was seen as factors of lesser importance, which indicates that at this level businesses usually no longer produce for the local market, and the location must be less suitable as a place of residence than a business location in the first place.

On the whole we can say that parallel to the growth of the company size, the perceived importance as a location factor of the economic structure of the settlement, its innovation culture, operational costs, the quality of the local labour market and the geographical position of the settlement is increasing. Opposite to this phenomenon, there is a clear decrease in the attraction of the quality of settlement as a place of residence and as a consumer market, whereas the activity of the municipal government, the provision of the settlement with public institutions and the existence of business services are factors actually independent of the company size.

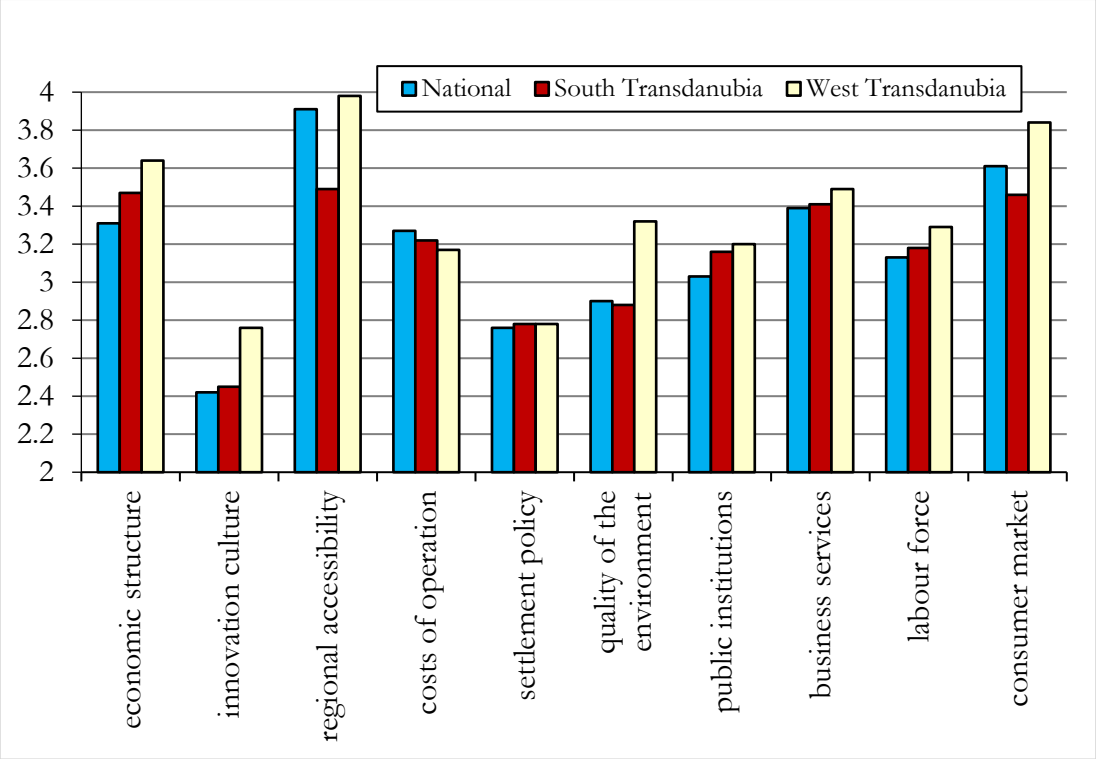

Figure 3: Regional disparities of factors attractive for Hungarian businesses, 2004-2005

Source: Questionnaire survey of the author (2004-2005)

Looking at the location of the businesses by regions we can also demonstrate some correlations. The existence of economic relations, suppliers' connections (Factor 1) and the innovation culture of the location (Factor 2) were most appreciated by businesses in the three regions of Transdanubia, although in both cases the rates given by South Transdanubian companies were the lowest. The values given by companies in Central Hungary are somewhat below the average. Regarding regional accessibility (Factor 3), there is already a clear distinction between the west of Hungary and the rest of the country, as this factor was given a below-average score by companies in South Transdanubia just like in the regions North Hungary and the South Great Plain. The highest score to this factor was given by companies in Central Hungary. It is worth noting that regarding the activity and settlement policy of the municipal governments (Factor 5), the supply of public institutions (Factor 7) and also the skills of the labour force (Factor 9) were most appreciated by companies in the North Great Plain region, while the attraction of the place of residence (Factor 6) was seen as most important by businesses located in West Transdanubia. The score for the latter aspect was the lowest in Central Hungary. As for the assessment of business services (Factor 8) and the quality of the location as a consumption market (Factor 10), respondents in the three economically more advanced regions (Central Hungary, West Transdanubia and Middle Transdanubia) gave the highest scores, to which data of businesses from the North Great Plain are the closest again. (The lowest values in the total of the sample were given to innovation culture by companies of the South Great Plain – 2.21 –, while the highest score was given by respondents of Central Hungary – 4.12 – to regional accessibility.) Figure 3 shows the disparities between the scores given by companies in South Transdanubia and West Transdanubia.

4. CONCLUSIONS

Can we expect a kind of global economic equalisation from the economic processes becoming borderless? We know that the other important function of competition, efficiency is very much different across the various regions. The answer is a brief 'no'. What is much more likely is the survival of disparities, although at a different level. In other words, even less developed countries will experience a significant economic development, but the gap between them and the advanced countries will not decrease in the future. In the background of this we find a specialisation different form the previous ones. In other words, advanced countries no longer react to competition of developing countries (mostly to cheap labour) by the traditional economic policy, but with a new kind of division of labour.

Therefore, we can distinguish between two quality levels of the localisation process presently going on. On the one hand, in the centre regions of globalisation (the knowledge creating regions) resources providing high order company advantages are concentrated, which are inaccessible for less developed regions (globalisation peripheries, neo-Fordist, in the better case knowledge applying regions). In the latter regions, activities are less profitable, easily substitutable and therefore can only offer low level of competitive advantages. While standard inputs and technologies are made available at once by globalisation, the more advanced dimensions of competition still remain geographically limited. Simultaneous processes are the geographical decentralization of production and the geographical concentration of intellectual activities, especially decision-making. In the present global economy, long-term competitive advantages of companies remain local, including special skills, human and social capital, innovation processes – in one word the knowledge-based economy continues to be concentrated in space for the foreseeable future. On the whole this process maintains the existing spatial disparities. Instead of the competition of regions it is much more appropriate now to talk about competition of cities, and this can even be further narrowed down to the competition of big cities with decision-making centres. Instead of the former determinants, good endowment with basic production factors, location of consumer markets, geographical distance, other factors are appreciated, like qualified human resources, innovation capacity of the population, high quality residential environment, leisure time facilities, quality of the city management, or city marketing. The importance of special local endowments is increasing in acquiring better competitive positions among settlements; conditions of the city competition are much less clear-cut, or predetermined, than they were in the previous decades.

The goal of measuring success in the territorial sense in my opinion is to assess the position of a given territorial unit as objectively as possible, and on this ground to look at what needs to be done for its development. It is important to realize in what a respective settlement differs from other settlements of similar size and functions, because the competition among towns and cities has many actors of similar endowments, therefore some speciality must be found. If we accept that the goal of competition is to enhance the well-being of the local residents, we can also say that the tool of successful participation in the competition is a special, but flexibly modifiable development programme based on the partnership of and operating in the coordination of local politics, businesses, the civil sector and academics; a development programme that the local stakeholders know and support as well.

Features of successful settlements may be quite varied, from flexibly modifiable economic structure through highly qualified labour force and favourable social structure right to the environment of the settlement. Those European regions have become really successful that were able to define and operate a strategy on the basis of their own indigenous endowments. Such a strategy must always be closely related to the competitive advantages of the local businesses, so first we have to explore the potentially competitive sectors and also collect the factors from which their real competitive advantages can be derived from. Regions incapable of making programmes on

their own can only temporarily stabilise their positions, and even that usually happens from the use of some central support.

The goal of the research was to provide information for the elaboration of such a development strategy based on real local needs. The findings clearly demonstrate that the different parts of Hungary are not only characterised by different endowments and very diverse relative positions, but often also by population with diverse needs. Of course we are aware of the fact that a considerable group of the attractions of the settlements is not exclusively formed by local decision-makers, and that only longer term programmes can lead to favourable changes in many cases. Nonetheless we think that responsible development concepts that are specific, maybe concern exact target groups in the settlements and strive for long-term economic success can never neglect personal experiences, and the utilisation of them in a complex regional view.

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INTRODUCTION OF LOCAL CURRENCY IN HIGHER EDUCATION INSTITUTIONS

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Abstract
The study presents an economic model where a university operates as a pilot area and, in a figurative sense, as a settlement in the economy. Our goal is to show how regional money can be introduced into the local economy by the university as a management body and how it can be used with the highest possible circulation speed, how much money should be placed and in what form can it be realized.
The primary objective of the system is to increase the turnover of local businesses, but also to provide discounts for university students and employees; and to make it possible to use university services with the help of local currency. The secondary aim is to create a scholarship program the financial background of which would be provided by the interest rates on the deposit that was the security of our local money. When it comes to setting up the model, its expandability is important, since in a case of a successful system it is important to expand it to the widest possible extent, of course taking into account the limits of the region, since the most important feature of local money is that it can be spent only in the given local area.

1. Introduction

The development of the local environment and economy are influenced by numerous factors, analyzing separately the various areas (parts of the country, counties, districts, settlements, districts of a town) the development is very special. The importance of local levels was highlighted, for example, in the 97/2005 (XII.25.) Parliament decision of the National Regional Development Concept (Országos Területfejlesztési Koncepció - OTK) and, thereafter, at present operative 1/2014 (I 3.) Parliament decision of the National Development 2030 – National development and Regional Development Concept (Országos Fejlesztési és Területfejlesztési Koncepció - OFTK), however, the characteristics of the areas had to be taken into account. These input factors and individual features can advance economic growth, but they can also be a barrier to promoting positive changes.

The general objectives of the OFTK include value-creating, economic development that provides employment and a prudent local currency system can play a significant role in promoting it. In addition, the introduction of local currency can have a positive impact not only in case of the general objectives but on the specific goals as well, including functioning rural areas, healthy food production and supply, food processing industry development or the reduction of area differences, regional convergence and economic stimulation.

At local level – here we mainly refer to settlements – the development of local small and medium-sized enterprises (SMEs) is a continuously occurring problem or topic. We can find numerous practical solutions from providing tax benefits to local initiatives, such as the introduction of local money.

One of these alternative local development instruments is the introduction and use of local currency and one of its most important aims is the preservation of income at local level. In our model it was assumed that a "fictitious" higher education institution is involved in the operation of the system. It is intended to provide students and employees with discounts which contribute to increasing the local business turnover.

The local cash flow would be further increased by the development of a special scholarship program, to which financial background would be provided by the interest rate on the deposit of the security for substitute money.

2. Local economic development

Local economy is an aggregate of coordinated actions/functions, people, institutions, materials, resources and procedures, which are operated by the mobilization of internal resources, motivated by the special features of the settlement, the micro region, and the potential of the resources that can be exploited and whose development is conscious community intervention in the economic processes on behalf of sustainable development. The aim of local economic development is to create a sustainable local economy, an internal market for local businesses, and to ensure a satisfactory standard of living for the local population (Czene - Ricz, 2010).

The local development of the economy is becoming more and more prominent, while businesses are trying to comply with the conditions of the global market economy. Economic operators in towns can be regarded as a starting point of globalization because they make the various services and products widely available. However, creating an extensive single market is almost impossible because of the special features of the regions. As a result of the regional division, the variable geographical and economic conditions, every geographical location has independent local gorvening laws, where demand and supply are balanced individually and differentiated (Káposzta, 2007).

The imbalance can be traced back to several factors:

- regional differences,
- economic branches, sectors,
- number of enterprises,
- profitability of industries,
- demographic conditions,
    - distribution of age groups,
    - education,
    - traditions,
    - nationality.

All in all, although the services and products produced by the local economy can appear in external markets outside the economic area, their main purpose and task is to supply the demand of the local market.

The concept of Local Economic Development (LED) appears to be widely accepted. The local economic development is a deliberate intervention in local economic processes with an objective to create a better situation for local people (Bajmóczi, 2011). Different elements of the method are applied almost everywhere in the world where the government or a local initiative would like to increase the output of the local economy, while keeping in mind the competitiveness and income generating capacity of businesses in the region.

In the course of developing the local economy new resources are being explored and used which is an essential prerequisite for the active involvement and support of local economic operators and the population of the region. The goal of local economic development is to create a new economic structure and operating scheme that helps to increase the competitiveness of the region in the long run by the positive processes generated by itself.

The development of the local economy is based on small and medium-sized enterprises. In most cases, this segment has the majority of workplaces and thus most employees at the level of settlement (Bajmóczi et al., 2016). The development of SMEs hereby contributes to employment creation, wage growth and hence the development of the specific economic area. They also play a major role in introducing local payment instruments. Small and medium-sized enterprises are usually strongly associated with the settlement and the neighbourhood, so they are also participating willingly in the development of the region. Most of the owners, management members, employees, and in many cases a very high proportion of buyers are local inhabitants.

The participants in the LED process have been studied and identified in many studies. Based on these, the stakeholders of local economy development can be divided into four main groups:

- Local governments,
- Economic sphere (profit-orientated enterprises, chambers, business associations)

- Knowledge transfer institutions (vocational training institutions, secondary schools, higher education institutions)
- Development agencies (Bajmóczi, 2011).

If we look at the most important features of local economic development, it is clear that the introduction of local money can be linked to several aspects and so help to operate the "new economic system". The most important factor in local economic development is that the process starts as a local initiative (local government, enterprises, non-profit sector, population) and it has to be further supported by market and economic operators in the region. For long-term sustainability, economic development should focus on local resources while giving attention to the development and operation of local markets. In order to achieve lasting success, it is worthwhile to expand the economic development goals with community and social goals, which will enable the process to reach wider acceptance.

3. The appearance of higher education and local currency in the Local Economic Development (LED) concept

If we look at the possible types of local economy development, there is a wide range of tools based on practical examples and experiences, which can be classified into 11 large groups (Swinburn et al., 2004, Áldorfai-Topa, 2015). The introduction and use of local money appears as such in one form of financial measures, as an economic incentive instrument but its indirect impact can be traced much more widely.

1. A higher education institution can also play a significant role in the ***production and development of local products and services***. Various researches can contribute to innovation and thereby to the development of local SMEs. The process can be broken up into three groups, depending on what promotes the quality and sales of local products and services.
2. After the completion of the research and development process, marketing experts from higher education institutions can also help to improve the ***sales and promotion of local products and services***. In this activity, entrepreneurs will learn about current trends and opportunities, and how they can exploit the potential of their business. Based on the experiences, the following key tools and initiatives can be shown to contribute to sales and promotion activities, and the role of higher education institutions is important in coordinating and assisting them as well. Based on local money, customer communities can be created, which can also contribute to the growth of the turnover. If local money is introduced in a higher education institution, a stable consumer base will be established among employees and students, which will ensure the circulation of money.
3. Higher education institutions in the given region can have a significant role as well in coordinating the ***collaboration of the local economic organizations***. With the help of a connection network it can bring together the market operators, for example, it can help them collaborate and develop them by introducing "good practices". Such collaborations can be seen among many operators in the settlements.
4. Higher education institutions, though they may have less influence on it, can appear as participants in ***developing the social economy and local communities*** as well.
5. The ***shaping of attitudes towards local economic development and environmental sustainability*** has to become a separate concern. There are several methods available in the process, from introducing local currencies, discount for local products, to the stimulation of conscious consumption which complies with the requirements of sustainable development. Popularization of this way of thinking can be initiated and supported by educational institutions whether they belong to the primary or tertiary education system.
6. Not only higher education institutions, but also vocational schools can promote the development of the local economy through ***specialized vocational training***.
7. Promoting ***local business development and investment*** are the basis for the sustainability of the process. If the measures focus on short-term profit steady growth may not be achieved. Higher education insitutions have a major impact on innovation as well, and in cooperation with the profit-oriented sector, can play an active role in inventing and developing innovative solutions in view of reaching effectiveness. The tools of business development and investment promotion are

not exactly defined methods; it is a process which is influenced by the characteristics and specialities of the region, society and businesses.

8. Higher education institutions can play a role in dealing with ***financial measures*** that support local and regional economic development, making it easy for entrepreneurs to understand them and their practical implementation. This is where the question of introducing local money is examined, and the role higher education institutions can play in the process. In what ways and to what extent can higher education institutions be involved, whether they can use local money to pay some of the salaries and scholarships to help increase cash flow.
9. The next group are the practices of ***the development of local and regional environmental sustainability.***
10. For steady growth and development there is a need to develop ***local and regional complex economic development programs*** in the coordination of which each member has to participate, including higher education institutions as well. Universities can launch special programs on the use of local money, whether it is a local government or a civil initiative.
11. Last but not least the developments outside the economic sector, which contribute actively to the well-being of the people in the region, must not be forgotten. The ***programs, which are based on the local and regional cultural and natural conditions*** help to spend leisure time usefully, and in addition with the help of conscious developments, the tourism potential can be increased (Swinburn et al., 2004, Áldorfai-Topa, 2015).

3. Introducing local money in a higher education institutions

In order to introduce local currency in higher education institutions, a comprehensive environmental analysis should be constructed to assess the risk factors and impacts associated with the introduction.

Financial culture in Hungary has not yet developed to an adequate level; the social structure and traditions of the former system have not allowed the young generations to develop their financial way of thinking. For this reason, special attention has now been paid to the development of financial awareness at the level of primary education. The consequence of earlier "ignorance" is short-term financial perspective. In addition, the transformation of commercial–purchase - habits and culture is another major risk, in the course of which the buyers prefer cheaper products against higher quality but more expensive local products. It is not by chance that in practice there are many examples of setting up programs for local economy development.

In today's political environment there is a more supportive attitude. In the case of the implementation of the Balaton Crown, the local and national political forces agree, while the connection between the Sopron local government and the HA-MI European Cooperative Society hinders the necessary spread speed for the use of local currency (Tóth, 2011). The agreement of the local economic community and the local currency of Alsómocsolád are exemplary, with the exception that the extension of the feasibility - geographically and quantitatively - is very limited. Unfortunately, the same problem, limited extension, is still a problem if we plan to introduce local money in higher education.

If we take into account only the university in terms of local money, then the institutional system has an advantage but some problems might occur related to the introduction of local money. Higher education institutions operate in a relatively closed system therefore university serves as a pilot area where local money is implemented.

The supply and development of the IT environment is suitable for all variations of solutions, the background for electronic or for banknote implementation is guaranteed. For example, introducing a university card may also be possible if the institution has a wide range of services. The protection of security components and internal accounting systems can be solved at the same level as in the case of legal tender. Economic productivity becomes possible in a quality that gives confidence to users, such as higher quality raw materials, larger sizes, more protection elements, more beautiful design, etc.

4.1. Users of higher education local currency

Introducing local alternative money would be limited at first to the university campus (Figure 1). It should be concentrated within narrow bounds, especially in the areas of retail sales to students and employees. Delivering the products of the external units, their services must be paid locally in "local money". The mobilization of customers in the case of rigid-demand goods - which is more relevant to our local currency - is lower. In addition to the commercial sector, it is possible to talk about successful introduction and operation, such as the Alsómocsolád Rigac, when it is accepted in the production and raw material market.

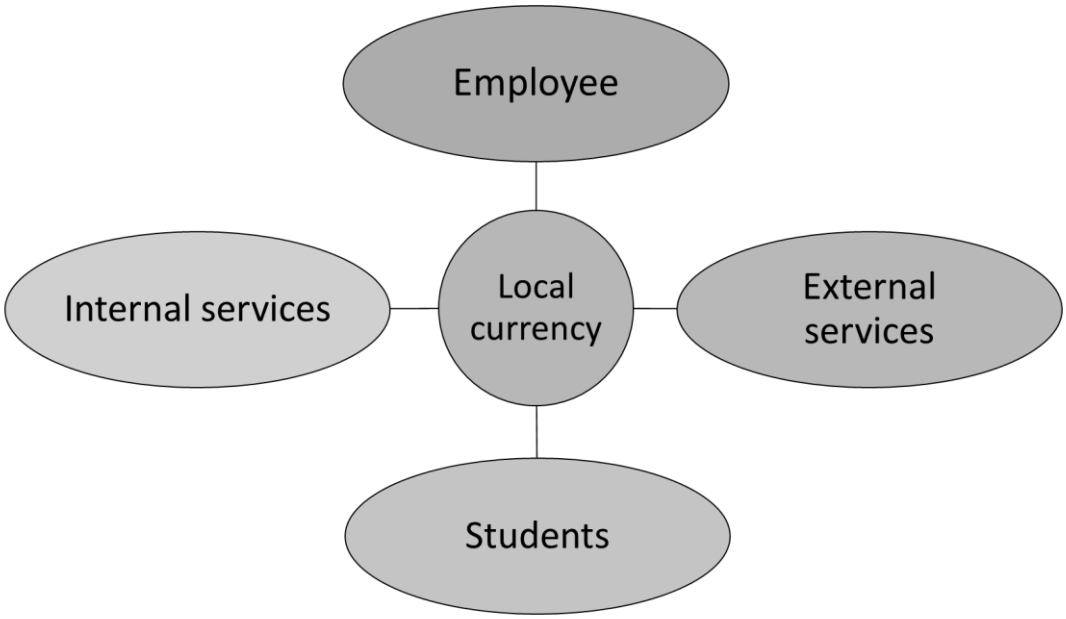

Figure 1: Participants in the local money market
Source: authors' own elaboration

In addition to the legal currency and substitute money forms on the market, local currencies have to compete with other settlement systems - voucher and point collecting card systems - for the acceptance of users and their conscious financial decisions.

Classical marketing and the uniqueness of local substitute money represent two completely different areas; therefore, standard marketing tools are not applicable. To promote a financial product and selling it by emphasizing its quality, positioning is not enough. In order to promote the sale of this product we need to raise awareness and only then we can promote it.

In case of our local substitute money, traditional marketing is only partly applicable, there is no physical product; the asset we are selling is basically trust in the new currency.

A voucher can be useful not only from a marketing point of view but it also has financial benefits. Issuing electronic money involves the introduction of a plastic card, which can be used to implement marketing objectives. The communication message should be clear in order for the university to accept the new currency. Local money can be well received if the users can have a certificate of ownership to increase their trust. This certificate needs to be pleasant to look at and inspire trust in the users of the currency.

Actually this is a closed system and at first the number of vendors accepting the new form of currency will be low. However, it will spread as time goes on and trust towards the new currency grows, more and more vendors will start accepting it. Vendors accepting the new currency can also join the marketing effort by participating or contributing to promotional efforts in their stores. These promotional methods may offer users periodic or on-going benefits, and will also help vendors achieve a higher turnover. The currency should only be introduced if there is sufficient number of vendors where the use of this currency is an option and is ideally associated with a freedom of choice and loyalty towards local vendors.

Word-of-mouth advertising is more effective because a satisfied customer is the one of the best forms of advertisement. Traditional communication channels are complemented with promotional material items and the vendors' staffs also contributes to these efforts. This is a very unique product; therefore, we need a good public relations strategy to maintain trust and constantly reassure users of the currency's safety.
When we are about to choose advertising tools and marketing strategies for this new currency we must consider traditional marketing tools of the financial products and services. Informing customers creates a sense of sympathy.
The most important task is to select the leader who represents the mission (the "face" of the system). This person should be someone who represents the long-term interests of the new currency system. The other important point of contact is the vendors' front line staffs who directly communicate with the buyers. They are the first to receive feedback and we need to make sure that this feedback is handled appropriately in order to improve the system.

4.2. Technological challenges

The introduction of a money substitute has to have certain hardware components. An electronic system which is based on pay pass[18], gives users several advantages such as not needing to replace used or degraded bills and it is also fast. Unfortunately there are several question marks left regarding the issuance of electronic money. In order to develop and operate the electronic system there is a need for a complex IT infrastructure. It is hard to estimate the costs of this IT infrastructure, furthermore, security measures need to be implemented into the system to avoid fraudulent use of the currency. The advantage of the electronic system is that, although costly and technologically difficult to implement, this type of system would be the most modern and most transparent. Hungarian law at the moment only allows for paper-based issuance of negotiable vouchers.
Another option is issuing a voucher, for example something similar to the "Rigac" of Alsómocsolád which was introduced on May 1, 2013. The local government printed approximately 7 million HUF worth of Rigac at a cost of 300.000 HUF. Although the value of these vouchers falls short of the "Balaton Crown" and "Kékfrank" in Sopron, the cost of printing is only a fraction compared to these. However, they can be easily and quickly distributed to the people in voucher form. Another advantage is the involvement of employees and students in designing the voucher.
Beside the form of the currency, paper or virtual, the question of the system of discounts is part of another study, which also presents two options. On the one hand, a classic discount system would be a main objective, and the use of the local currency would be associated with the use of discounts. This option includes the possibility that individual businesses and individual product groups and services can be provided with their own discount rates. The other option would be a conversion system where you could receive more local money in exchange. In this case, however, it is necessary to create the security for the new currency, because all issued money substitutes have to be hedged. In addition, such a redemption rate should be defined which primarily stimulates consumption. Otherwise the system is vulnerable to fraud.

4.3. The university as an economic operator

At present, business organizations operating within universities can usually be divided into two basic groups. On the one hand, we can talk about the university as an operator and about the businesses that do economic activities within the university. These operators can be the following:

- A shop that sells general food and locally produced cold foods,
- A cafeteria that operates as a restaurant,
- Lecture notes and textbook shop,

[18]PayPass is a recent bank card-based payment technology operating with one touch, without PIN code, which makes it easier and faster to pay.

- Recreational service providers.

The involvement of external service providers is also essential for the introduction of the local university currency system. We assumed that employees receive 10% of their salary in local currency, which can be completely spent in the local economy in case services will continue to develop. In order for the system to become operational, it is essential to develop partnerships with local businesses. Due to the limited number of stake holders in the higher education institutions and the low quality of services, there is a need to provide more opportunities to spend the local currency.

In the school year 2016/17 a total of 65 higher education institutions were operating in Hungary according to the statistics of the Education Office. Out of these 65, 29 were state operated institutions, 22 were operated by the church and 14 were private institutions and foundations. These institutions employed a total of 22,418 teachers and 33,374 other staff. Based on this data we can estimate that an institution has an average of 345 teachers and 513 other staff. In calculating incomes, we calculated with the first incremental point of the teachers, while the average earnings of the other employees were based on the average income of 2017 (gross 264,200HUF) (Hungarian Central Statistical Office, 2017). In the case of the net incomes we disregarded any deductions (Table 1).

Table 1: Sales in local money sales for employees

	Staff (research workers+ other)	Staff (teachers)	Gross wage	Net wage	10% of the wage, for an institution
University professor		27	528 000 Ft	351 120 Ft	942 082 Ft
College professor		9	396 000 Ft	263 340 Ft	233 360 Ft
University associate professor		65	369 600 Ft	245 784 Ft	1 597 596 Ft
College associate professor		16	290 400 Ft	193 116 Ft	309 283 Ft
Senior lecturer		64	264 000 Ft	175 560 Ft	1 127 905 Ft
Assistant lecturer		45	211 200 Ft	140 448 Ft	628 343 Ft
Trainee assistant		0,4	195 400 Ft	129 941 Ft	5 398 Ft
Master instructor		3	269 300 Ft	179 085 Ft	46 838 Ft
Other teachers+ research workers+employee	513	116	264 200 Ft	175 693 Ft	11 061 902 Ft
Aggregate	513	345			15 952 705 Ft

Source: own calculation

If we assume that employees of a higher education institution get 10% of their salary in the local currency, then an average of approximately 16 million HUF per month will enter the local economy as a money substitute. This means an average of 18,586 HUF per person, which the staff of the university could spend at local and external service providers.

4.4. A scholarship system based on a local money system

Besides the wages of employees and other benefits, we also examined the amount of student scholarship payments in local money. The necessary data was collected from the statistics of the Hungarian Education Office. The subsidies students receive from the state can be divided into four groups:

- Study scholarship,
- Republican Scholarship,

- Regular social scholarship,
- Other benefits.

The table below (Table 2) shows the proportion of people entitled to benefits in different institutions. To quantify the size of local cash flow, we calculated the average for total higher education. In the school year 2016/17 a total of 205,560 full-time students studied in a higher education institution.

Table 2: Percentage of students receiving subsidies

	Study scholarship	Republican Scholarship	Regular social scholarship	Other benefits
Foundations	0,77 %	0,13 %	0,6 %	4,4 %
State institutions	21,84 %	0,54 %	14,41 %	45,74 %
Church institutions	23,03 %	0,64 %	16,74 %	42,08 %
Aggregate	21,03 %	0,53 %	13,98 %	43,79 %

Source: Educational Office

Based on the statistics of felvi.hu, the latest 2015 data show that institutions provide a minimum of 29.000 HUF worth scholarships based on student performance. Not all institutions have participated in the data collection, so lower amounts may also occur. According to the 51/2007 (III.26.) Government Decree, the benefits and payable allowances of the students participating in higher education, the monthly amount of the scholarship may not be less than five per cent of the student's normative rate, namely 5 975 HUF per month.

The Republican scholarship was 34 000 HUF per month in the 2016/2017 academic year. The monthly amount of regular social scholarships cannot be less than 20% (currently 23 800 HUF) or 10% (currently 11 900 HUF) of the annual student norms depending on social conditions. We did not have more detailed statistics on regular social scholarships, so we assumed that the distribution was 50-50% based on the student's needs. The other benefits were determined on an average of 10 000 HUF. Based on the above data, if 10% of all forms of benefits and scholarship are disbursed in the local currency, then we can calculate 4 159 533 HUF entering the local economy every month on average in the case of the students.

5. Conclusion

The introduction of local money systems can be a key element in the practical implementation of local economic development (LED). The aim of the survey was to determine exactly how much local money could be issued within the university, what is the amount of coverage we need, and what form the currency should take.

Based on available information, we estimated the amount of new currency that can be integrated into the wages of university employees and into scholarships and allowances on a monthly basis. We also assumed that students who benefit from state scholarships spend their money in the form of local currency. Data collected and presented by the present paper can help us gain a better perspective on the requirements that need to be met in order to implement a local currency system.

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THE OPPORTUNITIES OF ISLAMIC BANKING IN THE AGRICULTURAL AREA

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ABSTRACT

This paper aims to present the opportunities of Islamic finances for undertakings in the agricultural sector from a theoretical perspective. Nowadays, the so-called sharia-compatible finance transactions are more and more popular as means of financing investments and developments by agricultural enterprises affected by external, environmental risks. The same applies to insurance-type transactions. The special profit-loss sharing (PLS) of Islamic banks is a risk diminishing factor for agricultural financing. The special financing system develops the financial environment for the agricultural sector in developing countries. The growth index of capital supplement loans is more and more promising in the above mentioned countries. Consequently, these special, alternative financial opportunities develop the chances of getting loans as well as the operation of undertakings and the growth of their profits.

1. INTRODUCTION

Nowadays, the so-called sharia-compatible financial system, based on Islamic ethics, is becoming more and more popular in terms of investments and developments for agricultural corporations that are exposed to external or natural risks. The same pattern applies to insurance. The application of the special practise of profit and loss sharing (PLS) affects agricultural financing as a factor, which reduces the risk of bankruptcy. The unique financing system improves the financial environment for the risky agriculture of the countries in the third world. As the growth index of capital supplying investment credit is getting more and more promising in the countries mentioned, the special, alternative financial opportunities increase the chances for somebody to receive credit and improve the operation of his firms and foster their capacity to obtain more profit in agriculture. Since agricultural financing is exposed to natural elements and to that of financing as well, (common) risk and responsibility bearing has a significant role as profit and loss sharing (PLS) does. The Islamic agricultural financing involves its financial principles. When investing in this sector, it serves as a prominent example for the things mentioned above. The murabahah, takaful and salam affairs create partnership with the landowners.

In general, funding for the agricultural sector is also undercutting funding for the industrial or service sectors as it is more exposed to external natural hazards, such force majeure. Thus, the investor operates at a higher risk. However, in the case of Islamic agricultural financing, the opposite can be observed, the main reason for which is in the Profit and Loss Sharing System (PLS). That is why, in developing Muslim countries (like Malaysia or Indonesia), there is an increasing demand and need for sharia-compatible banking and financial products in agriculture.

Today, primarily because of the particularities of agriculture, agrarian financing is struggling on a global level, the so-called agricultural bank or the Islamic Bank model could be a possible solution. Problems arise from the fact that production results from the time of expenditure to a heroic time due to the biological cycles of cultivation. In addition, compared to other sectors, productivity is lower everywhere, and return on investment is slow. Exposure to natural factors increases the risk of return on investment and the repayment of loans granted (mainly by repaying it on a monthly basis). Due to the low profitability of agriculture in relation to the other sectors of the industry and the capital inefficiency of the enterprises in the sector, commercial banks are often willing to finance agricultural businesses only with a high risk premium (Lentner 2004). The caution arising from concerns about the risks in agriculture is exaggerated, especially since we know that most of these risks can be addressed. For example, banks could encourage producers to secure insurance for their agricultural activities (such as takaful insurance) for the purpose of reducing income insecurity as a result of the natural exposure of the sector and reducing credit repayment risk.

2. THE SIA-COMPATIBLE TRANSACTIONS IN THE DEVELOPMENT OF AGRICULTURE

The external demand for agricultural enterprises is mostly financed by various project funding grants. It is important to say that, for example, in 2010 the liabilities of Hungarian agriculture are roughly HUF 1000 bn. Out of which bank financing is 61% while the supplier's debt is 26%. In the ratio of banks, the difference is due to the fact that 42% of them finance agriculture, but indirectly sell their loans to leasing and/or factoring companies and subordinated integrators. The other half of Integrator loans can be classified as suppliers (Kemény et al., 2010). Different sectors have different production cycles, but agriculture is characterized by significantly longer production cycles. This is the entrepreneurial capital, which leads to the long-term commitment of funds. Based on the source of own resources, subsidies, foreign borrowings (credit), the biggest problem of start-up and consolidating economies is the lack of capital. Small and medium-sized agricultural businesses have their own source of limited resources, which is why the role of external resources is important. However, loans are expensive because of high interest rates, and are difficult to obtain (Baranyai–Sipos–Takács 2008).

As opposed to bank financing (as it manifests itself in lending), there is general mistrust on the part of farmers. Sharia-compatible transactions, however, build on trust because of their religious background. Earlier research has raised a number of problems with regard to the situation of agriculture and agricultural financing, as well as bank credit support, such as the low profitability of the sector, credit guarantees, high bank collateral, ways of claiming subsidies and supplying farmers with unsatisfactory information and excessive administration. The biggest problem with regard to agricultural financing is the large capital shortage of businesses. In Islam religion they have development of discounted, professionally adequate capital replacement schemes and the government is involved in agricultural financing. But Western-style banks are still worried about the financing of agriculture, due to the high risk. In the Islamic banking system, it has been recognized that much more emphasis needs to be placed on providing farmers with better information, as the development of a consultancy network and easy access to information (personal presence) for farmers also have a positive impact on unaware farmers who are looking for external resources and development. Information and communication asymmetry or breakdown between farmers and banking intermediaries is intended to eliminate on-the-spot health assessments. Information breakdown can be traced back to the aging population, which can be traced back to the average age of farmers and can be perceived as a kind of generation breakthrough (Privóczki–Borbely–Bognár 2015).

Similarly to agro-banks, a major role of Islamic bank financing is in the field of financial intermediaries and young entrepreneurs who are open to innovation, to improve the financial situation and development of a given agricultural enterprise. The human focus and Islamic financing can also be captured in interpersonal relationships and communication. The growth of foreign capital was justified by the fact that the growth rate of equity was lower than the growth rate of the assets. Today, however, many changes have taken place in the agricultural economy, including in the system of agro-financing. Profitability in agriculture is smaller, slower and riskier compared to other sectors, and agricultural income is lower than in other sectors. A key issue for the operation of agricultural enterprises is on-going financing of continuous production and development. The natural transformation of the economies of both developed and developing countries lies in the modernization of the banking sector and the form of co-operative credit institutions in Hungary which mainly finance agriculture. It is interesting that the savings co-operatives provide services where other credit institutions fail to do so; traditionally in small rural settlements these organizations work thanks to tradition and the benefits of membership. However, savings co-operatives do not represent a significant part of the market as in other Western European countries. In our opinion, in the post-socialist countries, the Islamic type of bank financing in the form of savings co-operative credit institutions could be operational, and the other possibility would be the establishment and initial operation of foreign working capital, investment, and thus the capital-strong Islamic banks with existing high balances may act as founding banks. Agricultural businesses are struggling with market acquisition and market retention problems, and many missed investments, and it is difficult to maintain the competitiveness of raw material production and processing. Under international treaties,

such as the TTIP agreement, which aims to strengthen competition and profitability, internal markets need to be expanded and opened to financially strong international competitors (Varga–Ary 2016).
Since there is usually no possibility for agricultural enterprises in developed countries to restore their competitiveness on their own because there are no sufficient domestic development resources available for this purpose. It is therefore necessary to have foreign funds, an influx of foreign capital (Podruzsik 2005). The acceptance of the market and corporate organization methods used by foreign investors is not always the best option. The alternative, Islamic type of agricultural financing practiced for almost half a century could be an appropriate alternative, but the actual role of these resources, the advantages and disadvantages, must be in balance. One of the goals of local banks may be to provide current assets to start new start-ups or agricultural projects. Another possibility is to provide equity capital for agricultural projects and agricultural subsidies. For sharia-compatible transactions, supervisory councils consider the moral ethical practice as a basic requirement, and thus the professional assistance of farmers. "Islamic banks have social responsibility. Each worker in such a credit institution must behave in such a way that anybody who contacts the bank can see that the use of capital is also a religious act" (Bánóczy–Varga 2016).

3. THE OPERATION OF FINANCIAL PRODUCTS OF ISLAMIC BANKS (MURABAHAH, TAKAFUL, PATH)

The most important financial product for the agricultural economy is Murabahah (cost plus sale). Principle 9 must conform to the sharia-compatible Murabahah transaction:

Validity terms of the Murabahah transaction	**General Conditions for Sari Compatibility**
Production should be a real production activity, the product (sold at a reasonable price) is the object of sale.	Keeping in mind social and social sustainability
The subject of the business must be owned.	They provide loans for those who really need it
The object should measure the value	It is in the interest of the owners of the project
The subject of the deal should be a halal product	Mostly, it gives you the opportunity to participate in the funded activity
The object must be identifiable and measurable	Select a project to be financed by the investor
Sales must be immediate and effective	Providing customers with information richly
Sales must be immediate and effective	Keeping customers interests in mind
Price must be agreed	
There may be no other conditions for sale	
The risk and responsibility associated with the matter must be recalled from the seller to the buyer	

Source: authors' own elaboration

If the premise 9 is met, a valid Murabahah contract is created, which is a pre-determined and accepted transaction of the supply. Profit may be the hijacked, selling price or a lump sum set at a percentage. Thus, if a farmer wants to solve the problem of feeding by using an external source in the form of a Murabahah transaction, for example, poultry feed, then:

The required amount of Murabahah:	1 000 000 HUF
The run time of Murabahah:	90 days
Payment:	lump sum
Profit Rate:	12 %
The freight forwarding fee:	5% of the cost of the goods

Source: authors' own calculation

Based on the above example, the total cost of Murabahah is 1 000 000 x 5%, i.e. 1 050 000, followed by the sum of the profit ratio increased by 12% (1 050 000 x 90/365 = 3107), i.e. 1 081 070 HUF. From the example, it seems that the terms of repayment, in terms of a credit concept, are more favourable compared to the agricultural year.

Murabahah transactions are used to provide a number of products designed to mitigate the risk and to develop a shared risk or liability. Such is takaful, "Islamic insurance". The insurance obligation is not a new element in the loan agreements, as it is still mandatory for property loans to invest during the loan term. In the financing of Islamic banks, it strongly encourages the use of special Islamic financial products, Takaful Insurance. The utilization of Takaful's agriculture has a positive impact on the agricultural sector. On the one hand, due to the risk management, it can reduce the risk factors, and on the other hand, the insurance risk insurance community also grows. Nevertheless, this may improve the willingness of producers to self-care on the long run. It is necessary to emphasize that farmers have to use external resources to develop a viable farm size, and good agricultural financing models and policies will result in improved efficiency. However, banks providing credit can claim their mortgages in a Western-type scheme on the holdings of their own companies or individual farmers. Familiar characteristics of agricultural production - seasonality, biological processes, crop specific properties, production exposure, length of production processes, etc. - require significant external resources.

Takaful is based on social fundamentals and is based on two principles, on the one hand, on uniformity and risk sharing. Therefore it serves its rich financial protection. Since it operates with the establishment of a common insurance fund, all members of the insurance community should be willing to support the other members and to guarantee their individual and collective coverage, and the takaful bilateral relationship. It should also show itself in the private strategy of enterprise development. Takaful works in agricultural financing as a capital instrument to ensure the main transaction. The profit sharing and the profit and loss sharing model (PLS) were discussed above. To avoid the loss of the Murabahah transaction solely to the entrepreneur or the owner of the capital, the parties sign a prior contract. In doing so, the bank is integrated into the insurance community of the surrounding landowners, and thus the bank creates territorial developments. This support strategy is complemented by the mandatory zakat associated with the transactions (mandatory embedded in the transaction). The zakat is also shown in the aid strategy. The two transactions (murabahah, takaful) are followed by the salami, where Islamic banks appear as buyers. Farmers thus have a secure buyer, so farmers do not have to keep their goods or crops because of the market. The essence of the salami is that at a pre-negotiated price (below the market price), even the crop or the end-products are secured, and bought by the bank (Pálfi 2010).

In this case, immediate resale at a higher price brings the bank's profits, but the entrepreneur gets more capital in a faster and more secure way. The three financial products are designed to eliminate the following issues. Agricultural production is seasonal, which causes many problems for producers, and purchasers make the farmers more difficult for speculative purposes. This gap underscores the need for warehousing, as intermittent sales can cause significant liquidity difficulties for producers. This need may be increased if internal use of the product is done within the company. Due to the biological nature of the products, however, this is limited. It is important that you have access to external resources for the smooth running of your business. Exposure to nature, biological factors and weather have a major impact on production and yields. You can try to reduce these impacts, but to eliminate them completely is impossible. In agriculture, therefore, the principle of timeliness plays a major role, which means that at certain stages of growth, all the necessary equipment and tools for production must be available at the same time, otherwise the process cannot be continued and it is not possible to relocate it. This may lead to some work anomalies, and therefore the need for unrealistic, seasonal overtime work may become necessary. The use of human labour, the moral nature of employment, and eco-friendly, sustainable, environmentally-friendly management are all the basic requirements for funding, as it only complies with the principles of Islam in this way (Braham 2012). However, a multi-step contractual agreement and various safeguards make a sharia-compatible deal much more time-consuming than traditional. During the salami, the bank can sell the produce on the commodity market, so it is worth to point out that AAOIFI accepted the creation of investment funds linked to gold as a commodity by the Islamic Finance Institutions Accounting and Auditing Organization, which, on the one hand, can serve as a guarantee for agricultural financial financing. The new rule came into force with standard 57 in 2017. However, it is important to note that commodity futures transactions related to futures in gold are still not sharia-compatible (AAOIFI Nr.57). The so-called Taqabudh contracts remain valid for food trade, so the possibilities for boosting agricultural futures transactions are limited in this respect, despite the fact that commodity futures transactions have a positive impact on the agricultural sector (Bujtár–Kecskés 2017).

4. SUMMARY

In the light of the above discussion, Islamic agricultural financing can satisfy demand and contribute to the economic growth of the agricultural sector more effectively. It can be a sort of alternative solution to the financial problems affecting the agricultural sector. In the development of agricultural enterprises, three products (murabaha, takaful, salam) are present and closely related. Thus, usually several contracts are signed between the bank and the contractor. Islamic banks solve the interest rate (riba) by financing a multi-financial contract when financing a source request from an agricultural entrepreneur, resulting in several transactions. Obviously, the sale of goods with a lower profit margin, by increasing the number of financial products (by increasing the number of transactions) reaches the optimum profit associated with the given financing target, but at the same time it has a tremendous impact on the risk of financing because the transactions are created separately and the contractual obligations can be enforced. Effective agricultural financing of Islamic banks characterizes human focus, ethical cash management, profit and loss sharing, joint risk bearing, resistance to external damage and stability as a positive one. Even on the negative side, it is characterized by slower external sources, narrow usability, delimitation and more intense control.

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