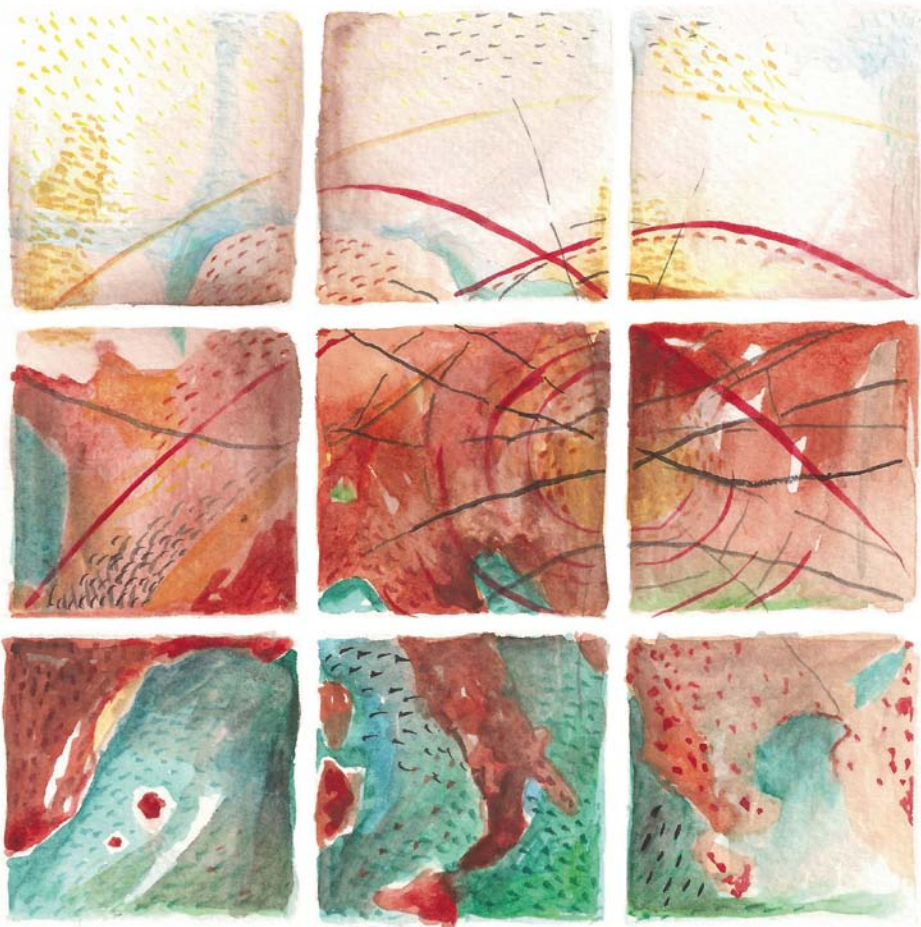




# The Győr Automotive District

EDITED BY  
ZOLTÁN CSIZMADIA · TAMÁS DUSEK



**THE GYŐR  
AUTOMOTIVE DISTRICT**



# THE GYŐR AUTOMOTIVE DISTRICT

MONOGRAPHS OF THE “GYŐR AUTOMOTIVE INDUSTRIAL  
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DEVELOPMENT” RESEARCH NO. 7.

Edited by  
ZOLTÁN CSIZMADIA - TAMÁS DUSEK



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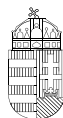
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## Preface

The research on the spatial structure of society has been strengthened throughout the last 30 years in Hungary. The institutional framework of the new branch of studies called regional science has been established, thus, it has a broad base in higher education and research, its embedding in scientific life and its international relationships, as well as its human resources, are widespread reaching from Doctoral Schools to qualifications awarded by the Hungarian Academy of Sciences. In the framework of a research finished in 2012 (TÁMOP- 4.2.1./B-09/KONV-2010-0003 “Mobility and environment: Environmental researches in the Central and Western Hungarian region) – which was a forerunner of the current research programme – we examined the location factors of the automotive industry in Central and Eastern Europe, looking for Hungarian and regional positions and analysing the specificities, structural and operational factors of supplier networks (Rechnitzer – Smahó 2012a; 2012b). In the research group these results raised the following scientific questions: how a district or region based on automotive industry is organized, how its economic, social, institutional and networking specificities can be described, and how its development can be influenced, formed by different tools. The scientific questions were elaborated in Research Programme TÁMOP- 4.2.2.A-11/1/KONV-2012-0010 “The Győr Automotive District, as the direction and tool of regional development”, and after the successful project the analyses were started in the fall of 2012. The results of this research were published in six volumes in Hungarian language and two volumes in English. The first volume in English was the summary of theoretical research results in the field of industrial districts and city centres of Central Europe (Somlyódiné Pfeil 2014). The present volume is a collection of the most interesting localized, regional and city level empirical research results of research programme.

Győr and its region belong to the most dynamically developing regions of Hungary. When speaking of region we understand the city’s catchment area within a radius of 60–100 km. It is city with county rights, and the capital of Győr-Moson-Sopron County. The city is located 120 km distance from Budapest and Vienna, while it is situated 80 km from the Slovak capital Bratislava. Győr and its region has highway, railroad and water transport connections to the national and neighbouring (Vienna, Bratislava) capitals. There are two international airports (Vienna, Bratislava) and two ports in the vicinity of the city. The city has excellent transport connections: it is located in two (IV, VII) European transport corridors. The main roads determining the economic life of the Northern-Transdanubian region start from or pass by this city. The economic trauma of the transition found the city in a relatively beneficial situation: due to its favourable geographic location and multifold economic structure the city has undergone significant developments in the 90ies. Győr became a favoured destination for foreign investments; the appearance of new industry diversified further the city’s economic structure. As suppliers for Audi global companies settled in the city, however, national and international SMEs on advanced technological level are present as well. In comparisons with the other cities of the Western-Transdanubian region (Sopron, Szombathely, Nagykanizsa, Zalaegerszeg) Győr’s leading



role is unambiguous; its provisioning indicators are almost in every aspect higher than in other cities with county rights or cities in the region hosting higher education institutions. Győr's primacy is outstanding considering every factor connected to innovations and its indicators are similar to other Hungarian regional centres, development poles.

The goal of Győr's development is to create a regional centre, as sub-centre of the Vienna-Bratislava-Budapest Central and Eastern European development region, in which – through the improving establishment of the institutions supporting knowledge – industrial and technologic conditions can be renewed. It is an explicit goal that the institutions of the city shall be able to assist the integration of the Northern Transdanubian region into a new European development area, and this integration shall be accomplished by a development, which sustains urban environment and enhances its capacities in order to provide attractive living conditions for the people living in both the centre and the region. Győr is a traditional industrial centre, which was able to modernize its economic structure in the 90ies by itself. The formerly determining automotive industrial background was renewed by the fact that the German Audi AG owned Audi Hungaria Motor Ltd. established an engine factory plant in the city in 1994. Today the plant produces two million motor vehicle engines yearly, and soon 100 thousand motor vehicles are going to be assembled, and thereby even more modern industrial and service operators will settle in the city and the region. Győr has been establishing gradually its regional service functions, among others university level education, health care, commerce and trade, advanced business and technological services, cultural and sporting activities.

Through the analysis of a successful and forward-looking – automotive industrial district, which has a wide set of functions and regional connections, the research might offer new approaches to the theory and practice of both national and international development policies. The research is conducted on two levels; thus, the goals are completed in these dimensions. The theoretical goal is the thorough and professional description of the theoretical model of a development centre and industrial district, as new systems forming and developing the region (Somlyódiné Pfeil 2014). These analyses need to present all specificities, which prevail in the Central and Eastern European region considering the economic structure, situation of the urban network, as well as the tools and institutions of urban and spatial development. The analyses might form a scientific base for the programming period 2014–2020, by the exploration of new territorial organizational structures and the description of their operation and development orientation. Our research results might make findings and recommendations considering the whole region, its internal (intraregional), domestic and cross border (interregional) relationships, and – with regard to both methodology and content – it could support planning.

The second phase of research is the phase of empirical analyses, which are city and region specific, and the results might verify the assumptions of the theoretical models: whether a real industrial district was established, how it follows the existing Western and Eastern European structures, and if all this is verified, what interventions and developments could contribute to the success of the local actors. In the Hungarian regional science – so far – there were no complex fundamental researches conducted to analyse

growth poles and the structure and regional impacts of industrial macro centres built on them. Thus, the programme should also serve the elaborate analysing methods for these spatial structures and – as a consequence of its testing – research models applicable for other large cities as well.

In this volume we have selected empirical researches aiming at the exploration of Győr and its area. Historic research of the modern, industrial Győr and the analysis of the Development Processes over the course of the 20th Century have been rather mosaic like, than systematic. Although knowledge is already available on the factors forming the historic trends of the city and its region, deeper, more ambitious explorations have not been designed yet (*Chapter 1: landmarks of the economy*). An important empirical goal is the exploration and scientific description of the Győr Automotive District, evaluation of its resources, determination of the city's and its area's system of relations (*Chapter 2: complex gravity zones*), demarcation of the cooperation's organizational, institutional and financial framework (*Chapter 6: fiscal policy*) and eventually the elaboration of the key points of a new type – regional level – planning and development system. In this cross cutting research we need to highlight those researches, which aim at the delineation of the industrial district, covering economic functions (*Chapter 7: SMEs and open innovation*), fields of social and public services (*Chapter 4 and 5: public sector and public services*) and the region-forming role of education institutions (*Chapter 3: the spatial structure of higher education*). We attach great importance to the research of the city's and its region's social structure and the human demands of the population (*Chapter 10: human development demands*) too. Throughout the last 30 years no in-depth socio structural analyses have been conducted in this region, so, our research (*Chapter 8 and 9: social structure and spatial characteristics of the stratification*) does not only fulfil a need, but – supported by the appropriate surveys and researches – it presents the structural cross-section of a large city and its region, which can quickly and effectively react to economic and social challenges.

We hope that the analyses will make it possible that relevant regional actors of research, higher education, local government, economic, professional and scientific organizations within and across national borders continually communicate and generate new co-operations. This way we need to strengthen the evolving social science research network, encourage the local institutions of economic and social researches, and their integration into the national and international scientific initiatives.

Győr, November 2014.

Prof. János Rechnitzer  
Book series general editor,  
Research director



# The Landmarks of the Economy of Győr from the Regime Change Until the Middle Years of the 2010s

JÁNOS RECHNITZER<sup>1</sup>

**SUMMARY:** The objective of the study is to present the development path of the economy of an industrial district centre from a distinct historical phase until the present era. Győr, as an industrial centre, is counted among the significant economic bases of Hungary, therefore its structural transformation is emblematic and it also reflects the specifics of the Hungarian economic development. The city's economic structure was characterised by organisational restructuring and the criteria of location choice, on which basis we established six groups. The investigations were linked to specific eras, since the distinct phases of the past 25 years were characterised by one specific development type, respectively. We started with privatised companies, and later on we continued with the group of their bold and modernising spin-off companies, we are going to reflect on the settlement of large companies and its impacts, the newly implanted firms attracted by the local resources, the consumption spaces profiting from the down-sized economic infrastructure, the emergence of tertiary (financial) organisations, and finally, we will briefly discuss the stakeholders of the new economy in the local economy. We will attach examples and case studies to our analyses for purposes of illustration and verification. The centre of the Győr Industrial District was characterised by a unique development path during the past 25 years and the elements of this model were systematised and evaluated.

**KEYWORDS:** urban economy, location choice, multinational company, location factors, base industry, consumption spaces, new economy

The purpose of the study is to provide an outline of the transformation of the economic structure of Győr with its dominant orientations, and it seeks to enumerate the key elements. The analysis is based upon available experience concerning the urban economy, information accumulated by the Author and the research team during the research process. Our development model which we attempt to elaborate is still hypothetical, we

<sup>1</sup> My PhD students assisted me in data collection for the purposes of this study, who I would hereby like to thank for their contribution: Judit Berkes, Katalin Czákó, Veronika Poreisz, Szabolcs Morvay, László Kucséber.

absorbed company histories for its verification in the framework of the current study, however, in the future sections of our research, we would also like to systematise the further factors which shape the economic processes through providing an in-depth analysis of urban functions.

We reviewed the post-systemic change period in the city, and we are going to present some distinct development phases of the past 25 years which we consider to be crucial from the aspect of our study. This period is characterised by the development, transformation or closing of the companies we considered determining, and in addition to the existing stakeholders, we also focus our attention on the emergence of the new economic stakeholders and the specific features of their settlement. We seek to find the motivations of the transformation and the implantation of new enterprises alike. The analysis of development in our study exceeds the mere evaluation of rentability categories which is the practice of corporate economics. Through the descriptive and analytic method of regional economics, we attempt to shed light on the influence and nature of the role of the city as a territorial entity in the transformation of firms, the changing functions of economic stakeholders and the emergence of new economic actors or activities. Besides the special business (micro)economics criteria, are the complex impacts stemming from the urban system decisive in these processes, if so, are they manifested, and what is the means and methodology for defining and reviewing (enumerating, systematising, qualifying) these factors (impacts).

We established various categories for the restructured, reorganised firms and those which established their plants in the city, the purpose of which was the elaboration of a development model. Our model was based on temporality. The post-regime change era was divided into development periods whose foundations (landmark periods) are linked to the reorganisation of firms which play determining roles in the urban economy (e.g. privatisation, stabilisation of market position), or to new development processes associated with the settlement of new firms. Natural overlaps, interrelations, linkages and ramifications can be discerned during these periods, indicating the constantly changing nature of the urban system and the entire economy with its processes of modernisation and reorganisation.

## **Privatisation Successes and Ruins**

The temporal evolution of privatisation is characterised by a slow progress in Győr-Moson-Sopron county until 1992 in line with national trends, continuous acceleration from 1993, the major part occurring between 1994-1997 (Rechnitzer – Lados 1992; Rechnitzer 1999).

Out of the firms located in Győr-Moson-Sopron county included in the portfolio of the State Property Agency, 80 were transformed into societies, 48 of which are located in Győr. Richards Fine-Cloth Factory and GYÁÉV, the Council Construction and Assembly Firm were liquidated. The Forestry of the Hungarian Little Plain Forestry Co. of Győr and the Experimental Forestry of Sopron remained in 100 per cent state ownership.

Between 1994 and 1997, 70.7 billion HUF income from privatisation were channeled to the state budget due to privatisation in Győr-Moson-Sopron county, the major share (80 per cent) in the form of cash. 18 per cent of the total acquisitions were effected in compensation notes. Domestic purchasers obtained state property mostly through compensation notes and existence credit. The major share, 92.6 per cent of the incomes originated from Győr. France became the major investor due to the privatisation of ÉDÁSZ (North-Transdanubian Electricity Supply Co) and ÉGÁZ (North Transdanubian Gas Distribution Plc.), however, Malaysians who participated in the privatisation of Rába offered a significant contribution to the income generated by privatisation.

In Győr-Moson-Sopron county, local and county governments were granted assets of 9.9 billion HUF as a result of privatisation, thus the county received a 8.2 per cent share of allocations distributed to rural areas. The county government received a total of 697 million HUF, while the cities of Sopron and Győr received outstandingly high sums.

Table 1: A comparison of privatisation specifics of various regional centres, 1998.

City	Popula- tion	Nr of societies involved in privatisation by ÁPV Rt.	Sold	Own assets	Own assets in the property of ÁPV Rt.	Foreign owner- ship	Foreign ownership
	Nr of persons	Nr	Nr	mn HUF	mn HUF	mn HUF	%
Győr	127,429	48	37	103,480	8,872	37,151	35.9
Pécs	161,018	42	32	61,780	10,417	18,640	30.2
Debre- cen	208,449	47	30	60,742	4,185	24,333	40.1
Miskolc	177,945	53	39	54,257	7,765	21,628	39.9
Szeged	166,156	36	25	38,470	2,549	11,989	31.2

*Forrás: Rechnitzer 1998, 31.*

The volume of net assets is outstandingly high in Győr, it represents 29 per cent of the assets of seven regional centres, and it is distributed among 48 companies (Table 1). Each of the examined cities is characterised by a high rate of foreign ownership. Large disparities can be observed in the net assets of the state privatisation agency, ÁPV Rt., the highest value is recorded in Pécs, and the lowest in Szeged. The number of totally sold out companies is the highest in Miskolc and Győr. If we compare the number of totally sold out companies as a percentage of the number of firms participating in the privatisation of ÁPV Rt., we can declare that privatisation remained successful in the examined cities until 1998.

We can see that privatisation has occurred in various forms and ways in the economic base of the city. A part of the companies were able to reap the advantages of transformation and privatisation, another larger group fell to pieces thus providing sites for new economic stakeholders (mostly small-and medium-sized enterprises) through the recycling of sites, and finally, there were companies which were closed and liquidated either immediately at the beginning of privatisation, or gradually (in a prolonged fashion), or following various ownership and organisational experimentations.

### *The Survivors*

Those economic organisations were counted among the survivors which were able to successfully carry out privatisation, to modernise their ownership structure, and also to transform their product structure, adapted to the changing market conditions, and remained an integral part of the urban economy. On the basis of the analysis of three successful companies of this group, we can declare that a durable development has been realised already since the eighties, a change was effected in the management quite early, therefore, a young generation took over the management functions with novel ideas, relationships, and entrepreneurial spirit, and were able to interpret the development perspectives in a wider context. Rába factory, the former flagship of the economy of Győr, can also be counted among these, whose history was discussed extensively by other domains of the research (Germuska, Honvári 2014, Áldozó 2014). These outstanding studies illustrate the transformation of this significant firm during the exciting years of the transition. We can notice that this strategic company of the Hungarian industry with a long historical past, preserving century-long traditions and characterised with an excellent development potential was not abandoned, on the other hand, in a constantly changing political milieu characteristic of the 1990s, corporate management and its various interest groups had to be in a great shape to save the company, extending its markets, and giving birth the current organisational and production system which guarantees the survival of this precious gem of the industry of Győr.

### *The Transformed Flagship: Rába Factory*

Among the viable economic organisations, the firm with the most significant historical past which determined the economic life of the city in the long run was Rába Hungarian Wagon and Machine Factory, Inc., the current Rába Automotive Holding Plc. The former public company was converted into a public limited company in 1992, and its shares were introduced in the stock market in 1997, where 45 per cent of them are traded. The rest of the owners are the Municipality of Győr, EBRD, the Ltd. formed from the management, Graboplast Plc., and DRG Hicom Group with Malaysian shareholders. The company was converted into a holding (2005), and operates a corporate organisation associated with three business sectors, therefore it is specialised in the manufacturing of running gears (Rába Running Gear Works, (63 per cent of revenues), unique compo-

nents (Rába Automotive Components Ltd., 25 per cent of revenues), and special vehicles (Rába Vehicle Ltd., 12 per cent of revenues). In 2013, revenues of 47.7 billion HUF were realised by the company group which had almost 2000 employees. In 2013, the holding established an agreement with Volvo Group on the production of hybrid autobuses, the first models were presented in October 2014.

*Successful Privatisation: Graboplast*

The Gráb factory dispose of significant tradition in both the sector and the city, provides a good example of successful privatisation. Graboplast Textile and Artificial Leather Manufacturing Ltd. was established in 1990, post-regime change, with the participation of foreign capital, experiencing several transformations, and currently functioning under the name of Graboplast Floor Covering Manufacturers Ltd. The holding performs asset management, the public company performs production, which is realised through the constant development of previous products to which new ones are added (e.g. manufacturing of floors). The company operates three sites (Győr, Tatabánya, Kecskemét), employs 526 people and realised 648 million HUF after-tax profit in 2013.

*The Sole Survivor of the Textile Industry: Glovita Gloves Co. Ltd.*

The sole successful surviving firm of the textile industry of Győr was founded in 1929, originally for the manufacture of stockings, and later on, during the past forty years, it was specialised in glove making. It underwent successful privatisation supervised by the management and was able to carry out a rapid purification of profile and became specialised in the manufacturing of multifunctional work gloves thus achieving an outstanding position on the international market. Currently over ten million pairs are being manufactured (to satisfy demands of the mechanical industry, the car industry, the health sector and the food industry). Production is carried out on 300 modern machines by 128 employees, out of whom 100 are manual workers constituting the manufacturing staff. 75 per cent of products are sold in Western Europe, therefore 60 per cent of revenues are generated by exports, and in particular, by the transport of products to Germany. In 2013, revenues from export sales amounted to 674 million HUF, while domestic sales accounted for 159 million HUF.

*The Liquidated, Broken and the Dissolved*

During the process of privatisation, several enterprises of the city were dissolved or liquidated. A part of them were already liquidated during the first phase of privatisation, at the beginning of transition (Richards Fine-Cloth Factory, State Construction Company of Győr-Sopron county). Each of these firms owned well-constructed sites, the utilisation of which began immediately, and these extremely favourable bases (well-constructed infrastructure, good accessibility, multi-purpose factory buildings, their careful separation, condition, etc.) hosted the outsourced units of these companies



during the first period, and later on, an ever wider range of small-and medium-sized companies began to emerge.

Exploitation of these sites lasted until the middle years of the 1990s which went hand in hand with the transformation of the urban structure, since the excavation of factory sites and their more organic integration generated new requirements towards urban development. New, special industrial, commercial and service zones were developed in the city on the sites of these previous companies and in their proximity, which contributed to the diversification of the local economy, and shaped its profile in a beneficial way even if the ownership relations and operational forms were not always entirely transparent.

The history of this group is very colourful! It extends from the disappearance of a previously dominant company of Győr or an entire sector and includes successful secessions, outsourcings, rapid, spectacular start-ups, sudden dissolutions and deserters of the city, when the memory of a significant company of Győr lives on in a different town, embodied in products which still carry the name of Győr. During the study of the members of this group, we found that the modernising and at the same time the absorption capacity of the urban economy were outstandingly high. As we have already indicated, the major share of the textile industry of Győr disappeared during the 1990s, the prestigious company of the confectionary industry was dissolved, two nationally renown units of the food industry collapsed (meat industry, vegetable oil industry), and a design workshop was also closed which had shaped the architectural character of various Transdanubian settlements through the design of new buildings (North-Transdanubian Architecture Design Company). The factors behind the dissolutions and to a certain extent, the transformations were multiple (loss of domestic and foreign markets, level of technology, management knowledge and interests or lack of interests, political support and concepts, foreign expansion, etc.), these factors were present in the respective sectors to varying degrees, partially extinguishing or mutually strengthening each other.

It must be highlighted that due to the diversified structure and multifaceted nature of the local economy of Győr, the city escaped from territorial crisis in the 1990s, no massive unemployment and operational crises were experienced. The deterioration and reorganisation of previously dominant sectors occurred within their closed boundaries and channels, were not communicated outside and consequently, did not induce the collapse or crippling of the urban economy. This is due to the fact that the new period of Győr's economy commenced already during the first half of the 1990s with the emergence of new investors and new enterprises which, on the one hand, absorbed the liberated workforce, and on the other hand, boosted the urban economy.

#### *The Fading Textile Industry of Győr*

The reorganisation of the traditional textile industry of Győr lasted for over a decade after political-economic transition (Orbán Horváth Márta, 2014). It entailed the transformation of the six dominant firms in the city (Richards Fine-Cloth Factory was dissolved:

1992, Győr Textile Works Inc. dissolved: 1994, Gardénia Lace Curtain Factory Inc. dissolved: 2008, Buda-Flax Linen Weaving Company, Inc. dissolved: 2013, while Glovita Glove Closed Co. Ltd., Graboplast Textile and Artificial Leather Manufacturing Ltd. are operating) supervised by the former leaders, with the involvement of foreign and domestic capital, in multiple phases, accompanied by constantly renewed market, business and organisational repositionings and inter-firm acquisitions. The story of the six firms is quite heterogeneous, yet we can state that the change in the global economic position of the textile industry, the fact that the sector has left Europe, the drastic reduction of manufacturing costs and the loss of foreign markets have all contributed to the transformation and deterioration of the companies of Győr. What the two surviving and successful firms have in common is that on the one hand, the ownership share of the management in the firms is determining, on the other hand, targeted product development (specialisation (work gloves) and diversification (wallpaper, parquet floor manufacturing, special flooring) were realised simultaneously, and finally, they were able to carry out a flexible adaptation to foreign market changes.

The textile industry of the city had 12 000 employees in 1985, the current two operating companies employ 650 people, not only in Győr, but in other towns as well. The functioning units of the New Economy have occupied the abandoned sites of the deteriorating industries, shopping malls (Gardénia, Győr Textile), small firms, shops, catering units (Richards). The city's educational base related to the textile industry (vocational training unit) was closed in 2004.

*A Success Story in the Construction Industry and its Liquidation: Integrál-Hexa Inc.*

Integrál-Hexa Inc. was founded by six individuals who obtained the right to purchase the building contractor company established by the Public Construction Company of Győr in a privatisation tender in 1994 (Rab, Szabó 2001). The state of the construction industry was quite unfavourable during that time, however, the owners disposed of sufficient professional experience and relationships to enable them to join the slowly developing industrial construction investments. The company executed successful construction projects on a very intensive competitive market, specialised mainly in the building of industrial and commercial facilities, initially at the level of the region but later on in wider spatial dimensions. They participated in the investments of Audi, Opel, Siemens, Philips, Bosch and Praktiker, which served as an appropriate reference to qualify them for high-quality construction works, and beyond these we must add the construction of community facilities of Győr (Győr ETO Stadium, University Sport Hall, new thermal spa), which were also based on embeddedness and high-quality work. The company became internationally renown, its tenders were successful and its leaders prestigious. The intensive market competition, the economic recession affecting the construction programmes demanded a strategic change from the corporate leadership, which was manifested in a shift towards the realisation of self-constructed projects. The market of these latter, however, did not provide a stable and permanent demand during the evolution of the crisis, therefore the company accumulated substantial debts in 2009 which

ultimately led to its liquidation. The company conserving the traditions of the building industry of Győr was thus compelled to leave the market.

*The factory was closed but its products have remained: Győri Biscuit Ltd.*

The 130-year-long history of biscuit manufacturing and confectionary industry of Győr reflects perfectly the restructuring of the ownership, organisation and products of domestic industrial units. During the years before the political transition (1987), the factory having regained autonomy was transformed into a joint venture with an Austrian subcontractor (1989), and its production unit in Jánossomorja was divested with the inclusion of a further foreign owner. The Győr unit was purchased by the United Biscuits group of English interest in 1991, which launched the modernisation of production. The English proprietor acquired the Székesfehérvár factory of Stollwerck (1999), and in 2001, it was sold along with the Győr Plant to the French Danone Group. For the sake of the concentration of production processes and to facilitate the reduction of costs, the new owner decided to relocate production and the machines and equipment to the more state-of-the-art Székesfehérvár factory, all the while preserving the Győri Biscuit products and brand name boasting an excellent market position. The closing of the famous biscuit factory provoked outrage in the city, which was liquidated despite the protests (2007). Manufacturing was terminated in Győr (Negro production was continued in the Győr Industrial Park) but the historical factory site was sold, the new owners rapidly demolished the factory buildings, and currently, only an office centre and a workshop remind us of the Győr confectionary industry with its century-long traditions. The company's name has been kept by the new and mostly unknown owners succeeding each other at a rapid pace, due to which in the constantly changing organisational and ownership structure of the domestic confectionary industry, the 'Győri Biscuit' and its products will continue to represent real business value.

*Once a Factory, Now but Two Chimneys: The Vegetable Oil Factory*

Aldolf Kohn, in collaboration with his brother-in-law, Henrik Austerlitz, founded the first steam powered vegetable oil factory in Győrsziget in 1851. The operation of this noteworthy Győr plant was uninterrupted until December 18, 2000, when the last worker left the company. Currently, two chimneys have remained on the factory's site to evoke the glorious past, or perhaps to cut off the costs of physical planning, we do not know. The factory was absent from the 1994 database of the state privatisation agency, presumably it was privatised in 1992, the foreign owner bought it out and the Cereol Inc. was founded, which became the leading firm in edible oil production, and had 300 employees. Significant technological developments and costly investments were achieved at the company, since a transition to more state-of-the-art production and packaging occurred. Then, all of a sudden, staff reductions and the redeployment of products began, and finally, the factory was closed at the indicated date, the machinery was relocated to Martfű and the area was sold. In 2008, we could read in the local

newspapers that an entrepreneur from Győr purchased the old factory site where an urban cultural centre will be built to concentrate the main educational and artistic institutions. These plans were dissolved, but the two chimneys have remained, as well as the glorious past sinking into oblivion!

## **The Daring and The Innovators**

Károly Rab and József Szabó (2001) conducted interviews with 23 company leaders at the turn of the millenium, who founded their units around the regime change, and whose operation was deemed successful at the urban level. The owners of the majority of these enterprises were employed in the management of public companies where they held their previous jobs, or in some cases they worked as department leaders in these companies, which enabled them to establish their new independent enterprises relying on their accumulated experiences, knowledge and linkages. Thus, they were able to exploit their former professional knowledge, business relationships and employees' working culture in their new activities, and in some cases they succeeded in purchasing a former site, or they launched their enterprises in a family milieu, and later on, after the take-off, they created their new, rapidly developing factory sites. Several envisaged the maintenance of their activities and the growth in the newly established Industrial Park of Győr, thus constructing the new plant and factory site.

In the case of the daring and the innovators, the inclusion of foreign capital or business partner in the newly launched enterprise can be observed, but there are also examples of explicit domestic ownership. Later on, in the majority of the cases, the foreign co-owner was bought out by the founders themselves, or with the inclusion of a domestic enterprise. We were able to discern two main types on the basis of the product and activity.

The first group contains those who preserved the initial profile, or more precisely, that during the time of the spin-off, which was subject to further amelioration, continuous technical, technological improvements, contributing to raising the number of employees, yet these companies preferred to remain at the lower level of the category of mid-sized enterprises. They emerged on new markets, in which process they were supported by their foreign capital partner, and their success was a function of continuous innovation. The other group consists of those firms which engaged themselves in new activities, and found the niche in the market where they were able to satisfy the demands through their well organised enterprises. They penetrated the domestic and later on, the international markets of the new or partially new domain and they continue to operate successfully in the present era as well.

The bulk of the enterprises were able to survive during the past 20-25 years, and had the capacity to develop (implying market expansion, creation of new jobs, technological upgrading, renewal of their factory sites, continuous development of products and activities, building new sites in other settlements, expansion). Several entrepreneurs joined and actively shaped the urban and the economic public life. This enabled them to become the maecenas of the city's events, have gained respect, have obtained professional recognition in public life as well, and have become the symbols of successful entrepreneurs of Győr or the nation. The owners were 35-45 years old at the time of the foundation, which means that a part of the

firms have arrived to the dilemma of generational change (partially due to age, and partially due to the desire of the founders to enjoy the fruits of their labour), therefore, several of them have retired or considering retiring. A generational change was also observed in the group of the bold and the renewers, i.e. in the successful medium-sized entrepreneurial sector, which will presumably set new directions for the pursuit of activities, production structure, organisational systems, social embeddedness and linkages.

*The Expanding System House: Synthesis System House*

In the domain of IT, Szintézis subsidiary company was established from the software development and service company before the regime change in 1987, and later on Szintézis Computer System House Llc was created in 1990. The company with its seat in Győr specialised in software development, computer assembly, IT consulting, education, has local units in Budapest and Salgótarján, and has subsidiary companies in several settlements. The organisation employing 300 people pursues an expansionist policy abroad as well, thus it has outsourced units in Romania and Slovakia as well. As a result of the continuous development, the company has obtained an ISO certification. The enterprise co-owned by four individuals registered an after tax profit of 21 million HUF in 2013.

*The Continuous Innovator: Jankovits Hydraulics Llc.*

The first family business which settled down in the Győr Industrial Park (1997) was the Jankovits Hydraulics Llc. (Rab, Szabó 2001). The successful development of the company established in 1992 specialised in the small series fabrication of unique and special purpose hydraulic machines and the design of equipment required them to abandon the family house and to construct a 500 m<sup>2</sup> production hall and a 320 m<sup>2</sup> office building in the first industrial park of the country. The firm experienced uninterrupted growth, has obtained numerous professional awards, and has continued the extension of its site (2006, 2011), has obtained ISO certification (2005), carried out constant product and technology development, (implementing the unique block production method, environment-friendly hydraulic cylinders and energy-efficient PSUs, measurement laboratory), an extended its foreign business relationships. The company has remained profitable since years.

*From a Turner's Workshop to an Emblematic Firm: Borsod Workshop Metal Work Ltd.*

László Borsodi began to work in the GDR, and having returned home, he desired to find a job where he might enjoy the trust of his colleagues and perform autonomous and creative work. He was unable to find such a job, therefore, he obtained the industrial licence in 1981.<sup>2</sup> This decision has served as the basis of a 30-year-long success story, during which he experienced almost all of the major pitfalls and also the successes of domestic companies.

2 Rudolf Lehőcz 2006: Borsodi Workshop. The first 25 years. Széchenyi Press Ltd., Győr.

The first order he received involved the production of the scissors of looms. He was able to accumulate sufficient profits to be able to continuously replace and develop his fleet until the regime change. Initially, he worked for the textile industry, which, however, had drastically been downsized by the beginning of the 1990s, consequently, the new profile of the company became the production of unique components. The company successfully adapted to the market demands, delivering products to Opel, and later on, to Audi, meanwhile, a reorganisation was carried out (conversion to a company with the inclusion of family members). The customers were satisfied with the high-quality products, commissioning increasingly larger shipments. In order to enable the extension of production, the company purchased one of its subcontractors, and thus was able to open a new site in Kisújszállás (1999) in addition to its mother plant in Ménfőcsanak. This latter site was replaced after the purchase of a piece of land in the Győr Industrial Park (2001) where the construction of the new plant was financed from own resources, and a new plant was also established in Szombathely (2004).

As regards the development of the company, it has obtained several professional qualifications, awards, develops its activities on a permanent basis, has acquired newer and newer tools (e.g. in 2008, the extension of its site involved the construction of a new heat treatment system with the value of 1 billion HUF), and it is also characterised by constant technical, technological innovation, the application of new products, tools and processing techniques. The Borsodi Workshop specialised in the production, design and development of unique components is one of the emblematic enterprises of the Győr Industrial District. It is able to implement the novelties, apply modern corporate management systems, penetrate new markets, but at the same time, it also takes care of its employees, their income situation and social security constitute a top priority for the corporate leadership. The company celebrated the 30th anniversary of its foundation in 2011, on which occasion it was able to obtain a qualification which enabled them to produce high-quality products for the aircraft industry. The company's founder, László Borsodi retired from his position from 2013, and handed on the leadership to his son and daughter, however, he still continues to share his professional experiences, his great business and valuable corporate leadership knowledge with the new management. Currently, the company is extended with the further development of the Szombathely site. The creation of production capacities abroad features among their plans which would facilitate the internationalisation of the company.

## **The New Flagship and its Successors**

The Empirical Economic Research Institute of Bonn (Future investment opportunities.... 1992) published a study on the investment opportunities of the Central European area. The publication of the analysis and the several media produced on its basis had a great echo both in Hungary and abroad. An issue of particular interest in the study was the statement according to which the Vienna-Bratislava-Győr triangle constituted a remarkably developed area within the entire macro-region, with its outstanding economic potential, infrastructural capacities, its labour force and its qualifications, and the culture of industrial production, and can be regarded as the most favourable

investment area within the entire macro-region, and was accordingly named the “Golden Triangle of Central Europe”. This analysis may have already been a part of those preparatory works which paved the way for the emergence of Audi concern in Central Eastern Europe, but even if it was not so, it might have provided valuable information in the decision-making process.

### *The Installation of a Large Multinational Company*

Audi announced in 1993 that it was going to set up a car engine factory for the first time in Central Europe in the form of a greenfield investment in Győr. The new restructuring, epoch changing settlements commenced with the appearance of Audi in the city and the country alike. The designation of Győr was basically motivated by the availability of a high quality industrial culture stemming from the century-long history and successes of the wagon factory, however, the working skills accumulated in other sectors of the local economy were also non-negligible factors in the decision. A qualified labour force able and willing to adapt to the system of industrial production was available, and training units from secondary schools to higher educational institutions were also present. The favourable geographical position of the city is not only the result of the construction of the motorway between Hegyeshalom and Győr by 1993, or the modernisation of the railway line between Hegyeshalom and Budapest, an equally important factor is that the city constitutes a regional transportation hub and was regarded as a potential logistics centre. The position and accessibility of the city was able to ensure the constant movement of labour from an ever wider region, which was a significant factor from the aspect of the developments. We must also keep in mind that since the political transition, until the country’s EU accession but also until our present era, foreign investors willing to establish their sites in the country have received substantial benefits (tax benefits, aid for the purchase of land and facilities, support for workplace environment design, building of infrastructure, promotion of research and development, etc.), this was particularly characteristic in the vehicle industry (Pájer, 2012). And finally, we must mention that the top management of the wagon factory began the construction of a 114 thousand m<sup>2</sup> industrial hall at the end of the 1980s, which provided favourable conditions for the rapid launching of the planned Audi investment.

The emergence of Audi, its location choice upgraded the city, since the value judgment of a large international company with significant economic potential served as a compass and orientation point for other economic stakeholders as well. The industrial and economic repositioning of Győr was now at hand!

The prevalence of the Audi-effect had multiple dimensions. The first one was the emergence of the multinational company itself, and later on, its development, which still continue to shape the economic and urban life. We are not going to discuss these elements in detail since that would require a new study, we shall be content with listing some factors such as the renewal of the real estate market, the successful organisation of higher educational training, its targeted development, the construction of various segments of research and development, the transformation of the spaces of consumption, the strengthening and repositioning of the city’s image, enabling maecenature in the areas of sport and

culture. The other dimension is called subcontractor attraction, when the base company of the local economy fosters the settlement partially of local units, but for the most part, it attracts new firms to the area which had never established their plants in the region before. The large company is immediately followed by its major subcontractors which induce demand for location and labour force and begin to search for local partner gradually, i.e. the second and third subcontractors.

Besides the product subcontractors, other firms appear which serve the needs of production, amongst them, organisations involved in logistics, maintenance or ensuring the management of financial processes; it is impossible to guarantee successful production without this network. The fourth impact of the settlement of a large multinational company is the emergence of those firms or the renewal of their operation which are directly related to the economic space. Architectural designers, building industry contractors, firms involved in the realisation of various levels of vehicle industry developments, the hive-off or new innovative companies, the organisations responsible for carrying out the development of subcontractors, but we might also mention here the new financial service providers, labour agencies or enterprises specialised in education and training (e.g. professional and foreign language training).

#### *Audi in 2013*<sup>3</sup>

For the above reasons we shall refrain from the presentation of a brief company history, instead, we shall review the company's results in 2013, indicating that we are talking about a determining economic entity in the case of AHM both at the international and national level.

In 2013, AHM produced the 25 millionth motor, the 500 thousandth Audi TT was assembled and the 10 thousandth employee was employed. During this same year, the two-year-long extension of the vehicle factory was finished, due to which the comprehensive production system was constructed (press factory, bodywork factory, varnishing plant, installation plant). The new Audi A3 Limousine and the Audi A3 Cabriolet models<sup>4</sup> are manufactured in Győr, which are counted among the most state-of-the-art passenger cars both in terms of their structure and equipment. 1 925 thousand engines were assembled in 2013, the bulk of which have four cylinders (petrol and diesel driven, the rate of the former increased, while the latter decreased), and the production of six-cylinder engines has continued (23.1 per cent), while the production of the eight-cylinder version also increased. The sale of engines to groups of the Audi concern has increased, while it has somewhat decreased towards the Volkswagen concern. Vehicle production, however, has increased by 27.7 per cent, which is due partially to the introduction of the new models. The number of employees exceeded 10 thousand, which implies a 19 per cent augmentation compared with the previous year. The turnover of AHM in the business year amounted to 5,588 million €, and it has realised investments amounting to

3 Annual Report 2013. Audi Hungária Motor Ltd. On the basis of the Corporate Communication, Győr. 2014.

4 The manufacture of the AUDI TT Roadster premium model occurred during the reading of the manuscript.



968 million € in physical and intangible assets. R&D expenditure was 537 million €, out of which 237 million € was activated as development costs.

Besides the efforts to increase output, the permanent modernisation of engines, the reduction of fuel consumption, and the restriction of the emission of harmful substances are also present. The company established its own educational base and it also supports the vocational training institutions of Győr, through the creation of workshops and the development of training systems. The cooperation with the Széchenyi István University is uninterrupted, which is manifested in the establishment of a new department in 2013, and the various departments receive research and development commissions on a regular basis. We must highlight the fact that the Audi Hungária Elementary School and Nursery School in Győr operates with growing student numbers, and the certificate obtained in them is accepted both in Hungary and Germany. AHM supports sport and cultural activities both in the city and the entire country.

#### *The Successors*

The list of the successors of Audi is not easy to compile since some of them settled down in the city for the purpose of the direct satisfaction of the needs of the large company. Other firms participate in the production process as subcontractors, however, other vehicle factories use their products as well, and some of them may even be counted as European production centres. In the following, we are going to select only two examples from the spectacularly increasing supply.

#### *The First Successor: Nematik Győr Aluminium Foundry Ltd.*

VAW established its sister company in Győr in 1993, which has produced cylinder heads and engine blocks from aluminium since the summer of 1997. The company is the subcontractor of Opel, Audi, BMW and Renault, it is responsible for the casting of the cylinder heads of diesel engines for this latter. VAW invested a total of 120 million euros in Győr. Later on, Norsk Hydro purchased the shares of VAW aluminium AG 2,645 million euros, and so the factory of Győr also featured among these.

A further change occurred at one of the determining firms of the Győr Industrial Park, when the NEMAK concern in Mexican ownership purchased the aluminium foundry which had previously been in the ownership of Norsk Hydro. Nematik Group has the world's largest independent cylinder head and engine block production capacities which are not related to automotive companies, and which, from its 34 plants, maintains business relationships with 48 vehicle factories, including Audi, BMW, Opel and Renault. The Nematik Company Group in Mexican ownership founded in 1979 is specialised in the production and development of high-tech aluminium cylinder heads and engine blocks of petrol- and diesel-engine vehicles primarily on the American continent, but have operating units in Asia and Europe as well. Nematik has 20 thousand employees globally and its turnover was 4.3 billion dollars in 2013. The Győr factory is the largest cylinder head producing plant in Europe. Currently it has 816 employees and in 2013, its net profit attained approximately 17 million €.

*The Sirect Facilitator of Production: Rudolf Logistics Ltd.*

The German Rudolf Group operates at 38 sites worldwide and has acquired substantial experience in automotive logistics. The role of the company settled in the immediate vicinity of Audi (1994) is to serve the needs of production, transport the components and parts to the production lines according to schedule, perform storage and handle the packing materials. The reception of the suppliers takes place in the warehouse of the Supplier Park built in 2012, the preparation of products for production for manufacturing according to the weekly production schedule. The logistics company employs 340 people, its after-tax profit was 80 million HUF in 2013.

## **Location-Choosers**

Location-choosers are domestic and/or international firms which regard the city as an ideal site for their operation. The location factors are for instance the geographical situation of the settlement, the transportation linkages, the availability of production areas, local and national funding policy, the available workforce or the city's image shaped by local multinational companies and other stakeholders, but higher incomes and increasing consumer demands may also weigh in the decision.

Our analyses demonstrate that location-choosers can be divided into two main categories. The first group contains those firms for which the availability of labour force was the determining factor, as well as the favourable conditions of greenfield investments in the Győr Industrial Park functioning since the middle years of the 1990s. We have mentioned in the previous sections that due to the gradual decline of the textile industry, an increasing female workforce was made redundant in the local economy, furthermore, the rate of the Hungarian population in the nearby Žitný ostrov (Csallóköz) in Slovakia is high whose employment opportunities were restricted during the 1990s, however, the two areas are well connected. This facilitated the availability of certain resources in the urban region, i.e. the disciplined female workforce with a low qualification, which contributed to the settlement of assembly based production activities. It must be emphasised, however, that during these years the Hungarian wage levels were quite competitive in European terms, therefore the city also attracted international companies which were intent upon the exploitation of this particular resource.

*The Departed*

The next two examples presented here are no success stories, to say the least. Both companies emerged in Győr with high ambitions, their rapid installation and recognition was followed shortly afterwards by a decline in production output, reorganisation, ownership change, and finally, deterioration, departure or switching to other activities with a reduced level of production. Local development policy considered the settlement of the new enterprises to be a (political) success. The rapid employment solutions did absorb the

redundant female workforce, yet the international market of these firms - based predominantly on assembly activities and unskilled workforce - underwent a primarily spatial reorganisation at approximately the same pace as its emergence (towards China and other Eastern European countries). As a result of the increasingly severe market constraints, those firms which based their operation on the exploitation of resources were unable to become integrated into the urban economy and thus, have become forgettable moments in the history of the city.

*From Manufacturing to an International Logistics center - Skiny Llc.*

In 1995, the undergarment manufacturing unit of Huber Holding Skiny Llc. emerged in the Győr Industrial Park, and after a successful take-off, as a result of the international market situation (emerging lower-cost Chinese manufacturing), the manufacturing of the product was terminated in 2011. The company changed its profile and exploiting the advantageous geographical position of Győr, the rented site was converted into a logistics center of the global distribution of three undergarment brands for which they had previously obtained external funding. During the take-off of production, 265 jobs were available at the company, currently the company has only 70 employees related to logistics functions.

*The Story of Philips in Győr*

The Győr subsidiary of Philips was established in 1997, and its activities included the production of CD and DVD writers, rewrite equipment, laserwriters and readers, CD and cassette car HiFi modules. The company produced for the car automotive electronic and consumer electronic markets and during take-off, the number of its employees reached four thousand (mostly women were employed as semi-skilled employees), and the number of commuters from the neighbouring Slovakia was quite high. The regional branch of the Industrial Technological Center of Philips was also installed in Győr, which was responsible for the modernisation of production processes and product development, and it organised the enlargement of the network of suppliers in Hungary and the macro-region. The Lite-On Group<sup>5</sup> of Taiwan purchased the Győr plant in 2006, from then onwards, it has pursued its activities under the name of Automotive Playback Modules Hungary. According to the corporate management in Győr, the change was required since Philips declared that it would orient its activities towards the health sector, energy-efficient lighting techniques and lifestyle amelioration. In addition to Automotive Playback Modules Hungary Llc. responsible for the production, Philips and the company in Taiwan established PLDS company for

5 Lite On IT Corporation of Taiwan was established in 1975, its headquarters are in Taipei. It owns thirty-two factories worldwide. Its annual turnover was 4 billion USD in 2006, the number of its employees were 35 thousand. Twenty per cent of its products are distributed under its own brand, and sells on eighty percent to large producers. In addition to part manufacturing, the factory manufactures LCD-TVs, CD- and DVD-driver car radios as well ([http://www.kisalfold.hu/belfold\\_hirek/tajvani\\_lett\\_a\\_philips\\_gyori\\_gyara/2000241/](http://www.kisalfold.hu/belfold_hirek/tajvani_lett_a_philips_gyori_gyara/2000241/)).

trading, marketing, sales and development activities<sup>6</sup>, in which the Dutch company had a 51 percent ownership and the Taiwan firm had 49 percent. By 2008, the Taiwanese owner had generated profit and was planning an expansion in the Győr Industrial Park, and he imagined his future in Győr as well. In 2010, Lite-On suddenly announced that it would terminate production. A part of the company's production hall and employees were taken over by the Austrian Melecs electronics factory.<sup>7</sup> According to an announcement of that era, one-third of the 19,000 m<sup>2</sup> production area was rented by the new factory. Out of the 450 employees previously employed by Lite-On, 200 were able to keep their job. Currently, the labour training centre of Audi is located at the Philips factory site.

### *The Integrated*

The next group of location choosers is comprised of those who were able to integrate into the economy of Győr, and they have become a major part of the urban economy due partially through the creation of new profiles, and partially through their massive investments. What characterises the integrated location choosers is that their primary location choice was gradually followed by the diversification of their activities through the development of constantly newer and newer professional areas by means of investments and product development. In their case, the station was converted into a functionally diversified site, which fostered their integration into the urban system and an active participation in its evolution. What conducts the process of integration? It is not easy to respond to this question. In a way, the historical milieu of the end of the 19th century which characterised the development of the modern economy of Győr repeats itself amidst new circumstances, when the genius loci, the favourable assets, the successful businesses, the personal commitment of a certain individual and his love towards the city or the open and receptive atmosphere of the city acted as a magnet for the emergence and the concentration of enterprises in Győr.

### *The Urban Developer: Leier Company Group*

Austrian/Hungarian, Michael Leier was granted the Honorary Citizen Award on March 15, 2011 by the General Assembly of Győr City with county rights. The reason behind the title was the local community's desire to acknowledge the businessman's outstanding economic results, his monumental and economic investments creating permanent value for the enrichment of Győr and his charitable activities. The Burgenland based Leier company group emerged in Hungary already at the dawn of the regime change, initially in vehicle

6 Philips & Lite-On Digital Solutions, or PLDS (<http://www.newscenter.philips.com/main/standard/about/news/press/archive/2006/article-15589.wpd>).

7 Melecs produces units for kitchen electronic equipment and for Tetra-systems supporting the communication of civil protection and disaster management organs ([http://www.gyorinapilap.hu/cikk/Ma\\_avatjak\\_fel\\_a\\_Melecs\\_gyarat\\_Gyorben/76373](http://www.gyorinapilap.hu/cikk/Ma_avatjak_fel_a_Melecs_gyarat_Gyorben/76373)).

trade and later on in the construction material industry. The dynamic family enterprise is currently present in six countries, and has a marked presence in East Central Europe, maintaining 37 sites with an annual turnover of 60 billion HUF.

The company has nine plants in Hungary, employs approximately 1 000 people, and generates turnover of over 15 billion HUF. The company settled down in Győr at a relatively early period (1994), establishing a building material factory in Gönyű first, in the meantime, car trade provided successful interests, and from 2005, the company won local and nationwide recognition due to the renovation of the so-called Frigyes barracks. The aforementioned barracks were built in 1897, on the basis of the plans of the military objects of the period, post-World War II it was utilised by the Soviet army, and after their departure (1988) its state has continuously deteriorated. In 1996, Universitas-Győr Foundation received it from the municipality for higher educational objectives, but it deemed the renovation too costly, therefore it was sold, and finally, Leier Company Group purchased it in 2005 and began the grandiose renovation of the building complex declared a monument by that time. As a result of the scheduled, professional, outstandingly ambitious reconstruction, four monumental buildings had been regenerated by 2010, constructing an underground car park under the rehabilitated Felvonulási Square (Leier City Center). 20 million euros were invested in an area of nearly 20 thousand m<sup>2</sup> and the immovable properties. Currently the renovated building complex hosts exclusive offices, conference halls, bank branches, residential units, the rehabilitation of which is continuous and extends to further monumental areas and buildings in the vicinity of the barracks. The state-of-the-art urban neighbourhood regeneration outstanding in European terms as well symbolises the commitment and love of the owner Michel Leier towards Győr.

*The Central European automotive logistics base: Hödlmayr Hungária Logistics Ltd.*

Hödlmayr Hungária Logistics Ltd. was founded in November 1990 under the name of Hödi Sped Ltd., and it started its operation in Gyál, and it also performed releasing agent activities (administration of finished vehicles) in Szentgotthárd in the plant of Opel Hungary Vehicle Manufacturing Ltd. The company is in full foreign ownership.

Its headquarters were transferred to Győr in 1993, where it continued its operation as Hödlmayr Hungária Vehicle Freight Ltd., and later on, it changed its name once more to receive its current name. The former Merkur site in Győr disposed of favourable infrastructural conditions, and as a result of the continuous modernisations and investments, it became suitable for the storage of cars and the preparation of their delivery. A strength of the site in Győr is that it does not only ensure public road and railway transport, but, in addition, a waterway link is also available (Győr-Gönyű harbour).

The major activities of Hödlmayr Hungária Logistics Ltd. are the provision of vehicle logistics services, warehousing and complementary tasks. Its further tasks extend to the delivery of various vehicles to domestic destinations, Western Europe and the neighbouring countries (basically from Central Europe and the Balkans to Turkey), the freight and transport of other products, the repair, rent and lease of vehicles. The company was

granted the National Quality Award in 2004 in the category of logistic service provider. Its after tax profit was 107 million HUF in 2013 and it has 287 employees.

## **Spaces of Consumption And Services**

An indicator of modern metropolitan economics is the development method and supply of its spaces of consumption and in what supply, to what extent they become integrated into the urban regime in terms of urban image, urban structure or architectural characteristics, but we might also mention the rehabilitation or loss of functions of neighbourhoods formerly engaged in commercial and service provision.

What characterises Győr is that the urban core and respectively, its City was the venue of shopping over the 20th century, until the emergence of the new cathedrals of shopping, the shopping centers. Several debates and disputes are generated by the need for the regeneration of the City increasingly cut off from the transportation network (installation of parking houses, inner city regeneration, transformation of public squares and streets), and the fact that the settlement of shopping malls in the proximity of the Inner City was a failure. The major shopping centers were constructed through the recycling of former industrial areas<sup>8</sup>, but the exploitation of city gate functions is also evident (opening section of road 83<sup>9</sup>), the inclusion of unutilised land in the process of the settlement of commercial chains and enterprises.

The city was rapidly strung on traditional industrial areas by the middle of the past century, the distance between the industrial areas and the sprawling residential areas gradually disappeared, and as the industrial restructuring and ownership changes occurred, vast “inner” areas became liberated. These areas dispose of appropriate infrastructure, are in close proximity to the residential zone, and their vastness guaranteed the conditions of up-to-date shopping trends (parking on the spot, moving larger quantities of goods, in certain cases, the entertainment, regular and complementary consumption practices can be intertwined).

There is a permanent conflict between the inner city with its merchants and caterers, and it could only be resolved provided that the more favourable evolution of income conditions triggers the emergence of specialised units enabling high quality consumption, to serve as a counterpoint to shopping malls satisfying daily, weekly mass consumption needs. This functional division is to be awaited in Győr as well!

8 The first hypermarket in Győr (Interspar, later on Spar) was opened in the former production hall of a large company of the textile industry in 1990.

9 The Family Center shopping mall was built here at the beginning of the 1990s, which is connected to the Tesco supermarket following the practice of several cities.

Table 2 illustrates the number of units of the major business chains in Győr. We placed special emphasis on hypermarkets since they dispose of an outstandingly wide range of products and are generally the venues of shopping sprees.

Table 2: Units of business chains in Győr (2014)

Name	Type	Nr. of units
Tesco	hypermarket	1
	S-Market	13
Spar	Interspar	2
	Spar	3
Lidl		4
Aldi		3
Penny Market		2
CBA	Príma	2
	Cent	1
	CBA	12
Coop		4
Rossmann		5
Drogerie Markt		5

Source: Webpages of companies.

Table 3 illustrates the number of stores according to the various commercial activities in Győr in four distinct years. It is clearly visible that the number of stores was the highest in 2005, and in the aftermath of the crisis a decreasing trend has been observed. Despite the decline, the number of stores has remained basically unchanged during the past decade.<sup>10</sup>

10 The so-called Chinese stores appeared in Győr as well, interestingly, the largest ones occupied the pedestrian street of the city centre (Baross Street), where they sell their mass products, thereby forming a sharp counter-point to the historical atmosphere and the classic retail trade as well.

Table 3: Number of stores in Győr

	2000	2005	2010	2013
Grocery retail store	640	640	590	594
Miscellaneous manufactured articles	105	253	101	103
Textile store	58	49	33	31
Clothing store	433	438	456	400
Footwear and leather store	89	90	88	85
Paints, hardware, tinkering and building materials shop	173	207	195	185
Electrical home appliance store	82	91	80	82
Furniture, household goods and lighting equipment shop	97	121	121	109
Computers, computer peripheral equipment and software store	54	88	65	52
Telecommunications equipment store		21	44	41
Bookshop	57	51	32	33
Magazines, newspapers and stationary store	18	41	66	65
Sporting equipment store	15	36	68	65
Toy shop	6	14	15	17
Flower, pet and pet supplies shop	75	99	100	110
Clock & jewelry shop	25	46	58	52
Human pharmaceutical products store			12	15
Perfume retail	38	47	56	54
Other	783	1,092	980	943
<b>Total</b>	<b>1,965</b>	<b>2,332</b>	<b>2,180</b>	<b>2,093</b>

Source: KSH STATInfo Information Database. Number of domestic trade units and stores at the end of an examined period, [www.ksh.hu](http://www.ksh.hu).

### *The Cathedrals of Consumption*

Győr Plaza was built as the first shopping mall in 1999, on the area of the former Soviet barracks, occupying 20 thousand m<sup>2</sup>. The complex became a supplementary shopping center for the inhabitants of Adyváros, since they were previously compelled to purchase consumption goods in the Inner City. Győr Plaza is open each day of the week. The main entertainment unit is the Cinema City, which is the unique moving picture theatre of the city. In addition to the abundance of the regular stores and catering units, a peculiar feature is that only a few popular brands are represented as concerns clothing and shoe-shops (GAS, MTB, Krokko), and the number of stores offering cheap clothes is constantly increasing, which mainly target the lower income stratas.



The Duna Center shopping mall was built on the former site of Gardénia Lace Curtain Factory. The investment with the value of 21 million € contained several elements of public benefit, such as the transformation of the transportation network of the area, which enabled good accessibility of the mall both from the city and from external areas as well. 650 free parking places were constructed around the U-shaped building's business premises occupying 6500 m<sup>2</sup>, and altogether 20 shops offer their wide range of services.

Árkád Győr shopping center was opened in 2006 at the former main site of the Wagon Factory. The investment amounting to 100 million € enabled the construction of a 31 thousand m<sup>2</sup> two-level commercial center, where 120 stores offer their products. The shops and the service units together provide jobs for approximately a thousand people. The internal area of the shopping center is regularly the venue of entertainment programmes, which contributes to the augmentation of visitor number. Árkád can be easily accessed from the various neighbourhoods of the city both by means of public transportation and on foot as well, and 1150 free parking places are available. The number of its visitors continues to rise, it has become a major competitor of the pedestrian and shopping streets of the inner city.

ETO Park was built by the Questor Group. In 2007, Rába ETO Stadium built in 1977 was demolished, and a large-scale real estate development programme was realised on its 17-hectare area. A new football stadium with capacities to host 20 thousand, a training center, a five-year football academy and college, and 40 thousand m<sup>2</sup> large experience and entertainment center were built in its framework. In addition to this, the four-star ETO Park Hotel with 103 rooms was built in 2012, whose rooms have a view to the stadium. 491 workplaces were developed in the complex.

#### *Győr Banking and Financial Service Centre*<sup>11</sup>

The opening of the local branches of commercial banks was preceded by the settlement of the region's savings cooperative units in the city. Until the mid-1980s, these units were only permitted to open their branches in villages, and following the elimination of the restriction, the cooperative banks began to move towards cities. Out of the county's 15 savings cooperatives, 10 opened their branches in one of the towns of the county. The opening of branches was coordinated by MESZÖV (Convention of County Consumer Cooperatives), therefore, the city was divided between the savings cooperatives units which moved to Győr. Initially, they were not able to violate each other's territory. Later on, some of the banks began an expansive policy, those of Nyúl increased the number of their branches in Győr to four, and the banks of Tét raised them to three. By the beginning of 1992, six savings cooperatives had already represented themselves with 13 branches in Győr.

Savings cooperatives were followed by commercial banks in several waves from 1987 onwards. With the exception of Budapest Bank, all of the major banks were present in the city already in 1987. In the initial phase of 1987, the number of bank branches in a city was restricted to five. In Győr, MNB Inc., OTP Inc., and MHB Inc. inherited a county directorate, respectively. The Commercial Bank Inc. and BB Inc. opened their branches in Győr

11 On the basis of the compilation of László Kucséber, PhD. student.

during the second half of 1989. After a one-and-a-half year interruption, new branches were opened. Over half of the commercial banks moving to the city opened their units in Győr among their first five provincial branches (General Entrepreneurial Bank Inc., IBUSZ Bank Inc., Realbank Inc., Inter Europe Bank Inc.). Five banks settled down in Győr during the later phase of network building, (amongst them the most striking example was Postabank Inc., whose branch in Győr was the 20th in the line of its bank branches). By 1992, the number of monetary institutions operating in Győr had exceeded 20 (Lados 1991).

The organisational structure of the various banks could differ from each other (centre – directorate – branch). The status of the directorate could either be territorial (OTP Inc., Agrobank Inc., Takarékbank Inc, Ybl Bank, Postabank Inc.) or county (Konzumbank Inc., MNB Inc.). Other monetary institutions maintained only a branch system directly subordinated to the centre (e.g. Commercial Bank Inc., MKB Bank Inc.). The units located in the city were dominantly characterised by a large degree of autonomy, in direct subordination to their Budapest headquarters.

The bulk of the commercial banks settled down in the downtown parts of the city, or its immediate surroundings. Location in the city mattered most for units with high retail client turnover rates (current account, foreign currency/national currency turnover).

The rehabilitation of the Inner City commenced already before the political transition during the 1980s, which was in harmony with the effort of banks to establish their branches in the city. The banks were willing to entirely or partially renovate the buildings they required. Several banks strived to purchase the property from private individuals.

Raiffeisen Bank opened its second branch in Győr in 1993 as its second Hungarian branch. Erste Bank penetrated the Hungarian market in 1997, and soon afterwards, it opened a branch in Győr. During the 2000s, a new branch opening fever was experienced. Citibank opened a new branch in 2000, Sopron Bank, HVB Bank in 2004, MKB Bank in 2006, Oberbank in 2007, Raiffeisen Bank (its second branch in Győr Plaza) in 2007, and finally, Budapest Bank in 2008.

During the years that followed the turn of the millenium, it was difficult to establish a ranking order between the regional banking centres (Debrecen, Győr, Miskolc, Pécs, Szeged), since there are no essential differences between them (Wágner 2004).

Besides the opening of new bank branches, relocations have also occurred within the city: FHB Bank moved its branches to larger business premises in 2007, and Sopron Bank in 2009 (from the Bástya Street to Kisfaludy Street) in the downtown area. Due to the economic crisis which erupted in 2008, some branches had to be closed in the city. Out of its three branches, Raiffeisen Bank closed the one opened in 2006 located in Baross Street. Erste Bank terminated the operation of one of its branches located in Bajcsy-Zsilinszky Street, and currently, Citibank and CIB bank have also dissolved their branches.

By 2014, already 18 banks were at the disposal of the citizens of Győr (OTP Bank, Citibank, Raiffeisen Bank, MKB Bank, K&H Bank, UniCredit Bank, CIB Bank, Erste Bank, Sopron Bank, Budapest Bank, Allianz, Commerzbank, FHB Bank, Sberbank, AXA Bank, Oberbank, HVB Bank, Creditanstalt, Pannon Takarékbank, Duna Takarékbank).

The 18 banks operate a total number of 30 branches in the city. Out of the 18 banks, 10 dispose of multiple offices: OTP Bank operates 5, K&H Bank maintains 3 branches in Győr.

With the exception of some branches of OTP Bank, the unit of Budapest Bank in Kodály Zoltán Street and the branch of Raiffeisen Bank in the Győr Plaza, all of the banks and their branches are located in the downtown area. The opening of Árkád shopping centre in 2006 resulted in the new territorial concentration of the bank branches. CIB Bank, UniCredit Bank, Axa Bank and MKB Bank opened their branches in the shopping mall.

A banking centre is also available in Győr. This is where the headquarters of Duna Takaréknál Zárt Részvénytársaság are located. Duna Takaréknál was converted into a bank in 2013 after 53 years of functioning as a savings cooperative. This monetary institution was founded in 1960 in Halászi. During the regime change, it operated its offices in five settlements of Szigetköz. It opened its first branch in Győr in 1997. In 1998, it purchased the branch of Takaréknál Inc. located in Győr, and opened an agency in Jánossomorja. The major events in the aftermath of the turn of the millennium included the two-fold increase in the share capital, the investments in IT, and their presence on the internet. In 2008, the Duna Savings Cooperative was established through the fusion of the Savings Cooperatives of Halászi and Esztergom, whose headquarters are in Győr. The monetary institution reached a further milestone in 2012, when the decision concerning its continued operation as a bank was made. At this period, the balance sheet total of the monetary institution was 67.31 billion HUF. The Hungarian Financial Supervisory Authority granted permission for its transformation into a bank in 2013. Duna Savings Cooperative operates 28 branches in 2014 from Mosonmagyaróvár, through Győr to Budapest.

Győr hosts the regional headquarters of two banks. The branch of Axa Bank in Győr serves as the regional headquarter at the same time, which is located in Árkád Shopping Mall. The other is the regional headquarters of Pannon Savings Cooperative.

As regards the savings cooperatives, the position of Győr is outstanding even in our present era. In 2014, eight savings cooperatives operated in Győr: Nyúl and Environs Savings Cooperative, Lébény-Kunsziget Savings Cooperative, Pannonhalma and Environs Savings Cooperative, Rábaköz Savings Cooperative, Rajka Savings Cooperative, Little Rába Savings Cooperative, Pilisvörösvár and Environs Savings Cooperative and Tét Savings Cooperative.

The savings cooperatives operate 22 branches in Győr. The heterogeneous business policy and economic potential of the savings cooperatives is illustrated by the fact that the majority of their branches are not located in the Inner City, but have remained in the peripheral districts of the city. The branches are located in various peripheral spots: Pannonhalma and Environs Savings Cooperative in Szabadhegy, Nyúl and Environs Savings Cooperative in Nádorváros, Little Rába Savings Cooperative in the Sziget district, Tét Savings Cooperative in Marcalváros. The headquarters of the savings cooperatives deconcentrated in Győr – as their name indicates – are located in small towns and villages of Győr-Moson-Sopron county. The Headquarters of Pilisvörösvár and Environs Savings Cooperative constitutes an exception which is located in Pilisvörösvár in Pest county.

The territorial distribution of the insurance companies of our current era in Győr, in a similar way to the credit institutions, shows that their branches are located in the inner

city area. The insurance companies are represented by one branch in Győr, respectively, an exception to this rule is constituted by Generali-Providencia Closed Co. Ltd, which has two branches and Allianz Insurance Closed Co. Ltd. with its three branches.

There are also two insurance mediators of Hungarian ownership with their headquarters in Győr: Alimenta (Independent Financial Advisor) Insurance Broker Llc., which was established in 2002. The scope of their activities extends to the entire territory of the country. Nearly 50 firms and over 3000 individuals are present on their reference list. They offer a wide range of services: lending, fully comprehensive insurance, administering accounts, investments, real estate agency operations.

Mobil Insurance Broker Llc. was established in 2000. Its founding members are independent experts with wide professional knowledge in the area of insurance and several years of experience. After the evaluation of the unique demands of their clients, through the competitive tendering of insurance companies, they seek to find the most favourable insurance solutions elaborated in the greatest detail.

In addition to the banks and insurance companies, several financial and economic counselling companies disposing of a national network have established their sites in the city. Locally established organisations are also available, out of which several dispose of regional and partially national networks and agencies.

In Győr, the number of banks, savings cooperatives, insurance companies, counselling organisations showed a continuous increase between the regime change and 2008 in Győr. Győr, with its over a fifty bank branches and savings cooperatives branches, the insurance companies, the banking centre, two regional banking headquarters and several insurance mediators, has become a significant regional banking and financial hub of the country. The potential of the economy of Győr is well illustrated by the fact that the economic crisis of 2008 was unable to decrease the number of monetary institutions to a significant extent, yet the reorganisations of banks related to the foreign currency loans are likely to affect the branch network of the city in the future.

The Hungarian organisation of the international audit company and financial consulting group Pricewaterhouse Coopers Audit Llc. and Pricewaterhouse Coopers Hungary Llc. operate their sole branch office in Győr (2011). The presence of the international consulting group has positively shaped the major stakeholders of the urban economy.

## **The Stakeholders of the New Economy**

The firms of the New Economy are those new businesses which, on the basis of knowledge, demands, or impulses generated by the urban economy and its intellectual assets (university, research and development units, professionals, business linkages) create previously non-existent products, technologies, industrial and business services, and consequently, their presence is not restricted to the local market, but is felt in domestic and/or international relations as well.

It is not a simple task to review the stakeholders of the New Economy in the city, since most of them are not so well-known, are characterised with a relatively short business

history, and the majority are embedded in international relations, with a high degree of specialisation.

What we have been able to find out is that one characteristic group is associated with the vehicle industry, (Meshing Engineering/Meshlin Composites Closed Co. Ltd), their activities ranging from technological development through alternative sprouts (SzEngine, SZEnergy) to the design of vehicles. The other group is partially related to this sector, however, other sectors are also able to produce high quality products, since their activities are focussed on specialised fabrication, unique and small series manufacturing, and they apply outstandingly high standard technologies (QP Closed Co. Ltd., Borsodi Workshop). The firms satisfying the demands and determining the new spheres of consumption constitute our third group (development of fitness equipment - Xbody Hungary Llc., swimming pool technology - Aquacomet Llc., wholesale of led lamps - JCQ Hungary Llc.). And finally, in the fourth block, we have registered the new businesses specialised in various new areas of high quality services (health sector - Kardirex Health Centre, dental services - Solydent, Dentart Klinik, mobile applications - Attrecto Closed Co. Ltd., media - Oxygen Group Llc., Győr +).

## The Model and the Conclusions

The economy of Győr followed a unique and instructive path from the regime change until our present era. We attempted to present the cornerstones of this path in this study. Let us take a look at the individual stages!

The first one is constituted by those firms which had already undergone successful privatisation by the mid-1990s, which were able to renew their organisation and activities and thus they have remained the cornerstones of the city and the urban economy. During our analyses we have been able to register that only a small number of traditional economic units have been able to survive, mostly those whose management recognised the demand and opportunity for the change, or which disposed of such significant industrial capacities whose modernisation served the interests of the national economy. We have experienced each aspect and form of manifestation of privatisation in the case of the city's businesses, therefore, we had to sadly acknowledge the disappearance and liquidation of economic units with great traditions. Assumably, they were lacking the potential necessary for their long-term survival, and the management (regardless of whether it was domestic or foreign) was not sufficiently committed towards continuing their activities, either.

The second element of the model is constituted by the group of the bold and innovative agents. They are closely intertwined with the former group since they acquired their knowledge on this economic base which served as their starting point of departure. Nevertheless, they were able to take risks relying on their own strength, knowledge and assets and embark on a new, different road. Several of the bold and the innovators were able to establish developing enterprises and to ensure their exemplary operation. Some of them were less able to adapt to the changing market environment after a spectacular

boom, and consequently, they experienced failure. This group developed several forward-looking values, such as the accumulation of significant internal forces in the urban economy in the first place, which, - almost as a repetition of history - may provide totally new directions in the operation of the economy and some of its dominant sectors in particular. The second factor is that the city's industrial and economic space, and especially the presence of one or several multinational companies within that may act as a factor of inspiration without, however, being the sole determining condition of development. The third lesson is that these companies are strongly subordinated to the mentality and value judgments of their founders. The generational change has already occurred within the group of the bold and the innovators in Győr, which may set new conditions and frameworks for their functioning in the future.

The next focal point of the 25 year-long development of the economy of Győr is the settlement of the multinational companies constructing the total production system with their comprehensive investments, instruments, knowledge bases, and the dominant impacts they exert on the territorial economy. The successful integration of these large firms may take a longer period, and it has various phases, development periods, yet these may be successfully adapted and accelerated by an open urban economic milieu with a favourable attitude towards modernisation. The large enterprise, as a base sector exerts a pull effect on economic stakeholders, thus attracting its major subcontractors, the firms related to production - as well as the further subcontractors and producers - are created with a varying intensity. And the synergic effects in the city appeared thanks to the creation of the country's first industrial park already at the end of the 1980s involving Austrian capital and the financial contribution of the local municipality (Lados 1991, 1992). It was the base large enterprise which dynamised the industrial park, since in the aftermath of the strategic turn, they were able to offer a sufficiently prepared area for the newcomers.

Location-choosers - constituting a further group and a distinct development period at the same time - are comprised of those stakeholders who exploit the available local and regional resources to attain their business objectives. In their case, integration is rather superficial than slow, its process is more exposed to international or the (mother) large company's internal strategy, which - as is illustrated by examples from Győr - may result in the desertion of the city. We have encountered examples in the economy of Győr where location-choosers have become factors of urban development, and they do not only generate economic processes, but have a positive impact on the functioning of the urban regime, determining a future-oriented direction in certain cases.

The fifth group constitutes the appearance and functioning of enterprises which provide consumer products and various services. Their emergence has been constant and their supply ever increasing since the regime change. In the case of Győr, the new spaces of consumption emerged primarily on the abandoned industrial areas (due to their location and accessibility), which indicates the general trend of the functional change of the urban economy. The financial and business services emerged in parallel with the development of the economy, and are increasingly concentrated in the urban core.

The firms of the new economy have emerged in the past 5-7 years in the city, these are connected to the base industry, conjunctural effects, and exploit the local knowledge, training facilities, research and development results, and the manifestation of the outflow of knowledge from the various enterprises in new organisational forms cannot be excluded as a possibility, either.

The economy of Győr partially reflects to the development processes of metropolitan economies, yet due to its place-specific assets, it has conserved its unique features and specificity. The old traditions and values in the economy and the industry still prevail, which is most evident in the spirit and mentality. At the same time, the economic, organisational and management specifics of the new business developments are also present and become incorporated therein, producing an active and open industrial district in Győr and its surrounding area!

# The Extension of Complex Gravity Zones and Manpower Catchment Areas in North Transdanubia

TAMÁS HARDI – IRÉN SZÖRÉNYINÉ KUKORELLI

**SUMMARY:** One of the subtopics in the research on the Győr Automotive Industrial District is the identification of the Győr impact area by theoretic and empirical researches. The goals of this study are the identification of the centers of gravity of the Northern-Transdanubian cities, including Győr, by using a gravitation model and, based on empirical examination, the definition of manpower catchment areas. Then, we are going to analyze the impact fields determined by two methods and seek explanations for the overlaps and differences of the two delineations, which are also going to be analyzed with the consideration of geographic, social and economic factors. Both examinations were carried out at two dates, covering a timeframe of 10 years.

When identifying the impact field, we based our research on Reilly's gravitation model; however, we used a modified version in our calculations, i. e. we used a calculated (complex) indicator as weight. While Reilly's model delineates the zone of gravity between two points (cities), in our model we determined zones of gravity for 31 settlements in the Northern-Transdanubia, at two different dates. This made it possible for us to compare the changes in the zones of gravity throughout these years.

In the second part of our study, we present the spatial changes of commuting in the Northern-Transdanubia,<sup>1</sup> and we are going to highlight the role of the city and the catchment area of Győr within the Northern-Transdanubian region. To be able to do that, we need to delineate the separate commuting catchment areas of Győr and the other employment centers.

**KEYWORDS:** complex gravity zones, gravitation model, manpower catchment areas

## Gravity Model of the Cities in the Northern-Transdanubia

The aim of using the gravity model is the research of different spatial interactions. By this term we understand different forms of people's movements: mostly commuting, use

1 By Northern-Transdanubia the territories of the following counties are met: Fejér, Győr-Moson-Sopron, Komárom-Esztergom, Veszprém and Vas.



of public services, traveling necessary to reach retail services and connections between touristic destinations and the residence. Many cases have indicated that the gravity model could be used to examine migration processes, movements of information and capital, as well as demand and supply flows necessary for the operation of the economy (Greenwood 2005). Since all these developments are linked to defeating distance, there has to be a demand-supply relation between the interrelated places that can be measured by the distance and the time need based on the state of transport infrastructure, therefore, the application of the gravity model is related -in many aspects- to transport geography and transport planning as well (Erlander – Stewart 1990).

The question is how spaces of gravity can be measured and under what conditions is it possible. The gravity model is based on Newton's law on gravity, i.e. it describes the connection, the attraction between masses in two spatial points and the distance between them. By changing the parameters we can modify the model, and if there is empiric evidence, by the comparison of the model and the empirics and by changing the parameters we could simulate spaces of gravity, but by choosing the appropriate parameters we can forecast spaces of gravity generated by certain processes (Rodrigue 2013).

The research of cities' catchment areas is mainly based on Reilly's gravity model published in 1929, according to which the border line (geometric location) of the gravity zones of two points (settlements) is proportional to the number of inhabitants and inversely proportional to the square of the distance between them. In the 1960ies and 70ies, Hungarian geographers applied this method as well, especially for the delineation of retail catchment areas (Beluszky 1966.). Papp created a complex indicator based on nine indicators and he used it as weight in his work, in which he determined the catchment area of Debrecen (Sikos T. 1984). In the 1990ies the modified version of the Reilly model was used in Győr to examine retail movements (Nagy 1996). The weights of the different districts were provided by the turnover in the first place, secondly the retail surface and thirdly the surface of the district and its population were used. In all three cases, distance was represented by a time function determined by public transport.

In the following experiment, we are going to determine the spaces of gravity of 31 settlements in the Northern-Transdanubia by using the Reilly model. Since the empirical research of the manpower catchment areas is also one of the goals of this study, we choose those cities in the region, where - in contrast to their population, a significant number of workplaces is located and the number of commuters working there is high. We established a complex model. The weight of attraction, instead of the number of the population, is represented by a complex indicator:

$$S_i = F_i * \sum_{k=1}^m \sqrt{\frac{a_{k,i}}{\bar{a}_k}}$$

where

$N_i$  : the number of inhabitants employed in the city

$m$  : variables (number of criteria)

$a_{k,i}$  : value of the number  $k$  criterion of the  $i$  city ( $a_{k,i} \geq 0$ )

$\bar{a}_k$  : average of the criteria number  $k$

Thus, the weight of the city equals the number of people employed there multiplied by sum of the square roots of the single indicators' relative values. It is worth to use square roots of the relative values in the calculations, because, in this way, we can reduce the absorbing impact of cities with extreme weights. It was evident already in the first experiments that if we had used only the relative values of the indicators, the catchment areas of the larger centers, especially Győr, would have become "borderless". Therefore, we decided to change the weight and use the square root of the relative value.

Another novelty, in comparison to the previous gravity models, is that instead of the Reilly model' border line between two cities, we had to calculate cumulative values for 31 cities collectively, at the same time. Entering the geo-coordinates of the cities<sup>2</sup> we determined the borders of the zone of gravity as follows:

$$F_i = \frac{S_i}{\ln(r)} \quad \text{arol } r = \sqrt{(GeoX(i) - x_0)^2 + (GeoY(i) - y_0)^2}$$

where :

$F_i$  represents the attractiveness of i city and a geographic point (x<sub>0</sub>;y<sub>0</sub>) belongs to the zone of gravity of city number i,  $F_i > F_j$  or every  $i \neq j$ .

The variables on the single cities involved in the research, which were used to create the complex indicator, were provided by the Spatial Planning Information System (TeIR) database on the 2002 and 2012 timeframe. Only the last two data form exceptions, since they have data from the decennial population census. The variables used to determine the cities' weights were the following:

- Number of registered businesses
- Total number of the capacity of accommodation establishments
- Overnight stays at accommodation establishments
- Total number of transport vehicles ( with special purpose vehicles)
- Number of total operating hospital beds
- Number of museum visitors
- Number of theatre visitors
- Number of students in secondary vocational schools in full-time education (with vocational training)
- Number of in commuters – data from the 2001 and 2011 censuses<sup>3</sup>
- Number of the employed inhabitants - data from the 2001 and 2011 censuses<sup>4</sup>

Using the above factors, we determined the zones of gravity for 31 cities in the North-ern-Transdanubia, as well as the gravity lines, indicating gravitational force, since the closer they are to the center the stronger they are (Figures 1 and 2). The depictions of

2 [www.futas.net/gps/geo.php](http://www.futas.net/gps/geo.php).

3 Number of in-commuters: number of people commuting from one settlement to another .

4 Number of employees: the ones qualifying as employees from the population of the given city; Number of in-commuters: number of people commuting from one settlement to another

gravity considering both dates (2002 and 2012) do not show much of a difference, the spaces of gravity had barely changed around the cities. Below, we are going to go into details on the reasons of the changes that can be evaluated.

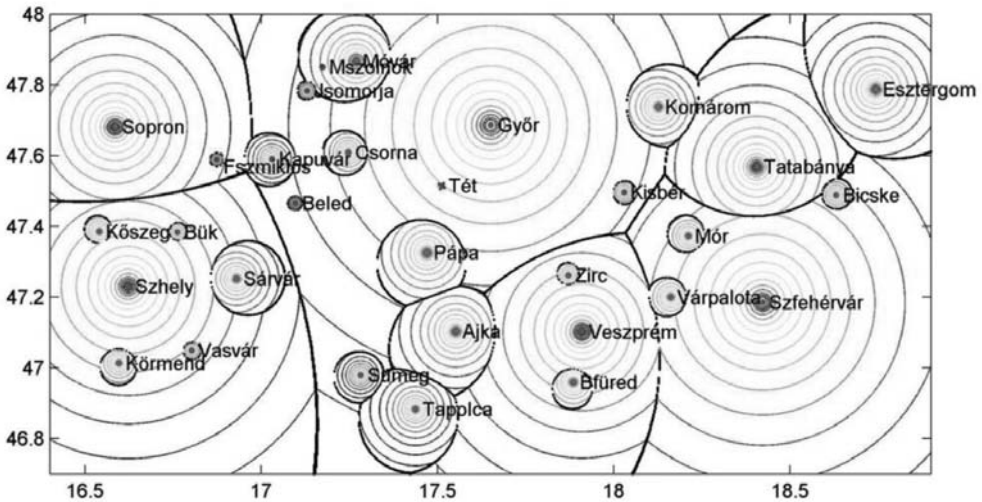
The extension of the spaces of gravity illustrates the magnitude of the cities, so there are no surprises at the first sight: Győr has the largest zone of gravity, followed by Székesfehérvár, Szombathely and Veszprém. The 31 cities can be classified into four groups based on the extension of their zones of gravity.

1. Group 1 is formed by large cities, as Győr, Székesfehérvár, Veszprém, Szombathely, Sopron, Tatabánya and Esztergom. Since cultural and educational features play a role in forming weights the attractiveness of large cities goes beyond their catchment areas. It can be seen that Győr's zone of gravity reaches the Lake Balaton, however, from South-East direction, Veszprém and Székesfehérvár set limits. However, in the direction of Pápa, there are no cities of such significance that they could limit the scope of Győr. When comparing the figures of 2002 and 2012, it is evident that these cities' zone of gravity had barely changed. The weight of Győr, Sopron and Tatabánya increased, while the others' decreased. It is especially noteworthy in case of the weight of Veszprém, since its weight in 2012 was only 89 per cent of the respective value of 2002. By this loss of weight it switched places with Szombathely, whereas this city itself had lost some of its weight. Thus, the ranking in 2012 is the following: Győr, Székesfehérvár, Szombathely, Veszprém, Tatabánya and Esztergom.
2. Group 2: those small and medium sized cities belong to this group whose own zones of gravity are cut out from the zones of gravity of cities belonging to the first group. Members of the group are: Tapolca, Ajka, Pápa, Sárvár, Komárom and Mosonmagyaróvár. Among these cities there are such, whose zones of gravity divert each other, i.e. they collide, just like the zones of gravity of Tapolca, Ajka and Pápa, which cut into the zones of gravity of Győr and Veszprém. There are examples, as Mosonmagyaróvár and Sárvár, which are embedded into larger zones of gravity of large cities. Komárom cuts into the catchment areas of Győr and Tatabánya, seizing a zone of gravity of its own. These medium sized cities –with the exception of Ajka- form a dynamic group<sup>3</sup>, Sárvár, Komárom and Mosonmagyaróvár were able to increase their weights throughout 10 years, thus, they could get further in comparison with their ranking of 2002, while Ajka fell back from position 11 to 13. The zones of gravity of the above three cities have visibly grown throughout 10 years.
3. Group 3: those settlements got into this group, whose zones of gravity are small, they do not divert the gravitational force lines of the large cities encircling them, and they only occupy a small territory within the larger centers. The following cities belong to this group: Kapuvár, Csorna, Kőszeg, Bük, Körmend, Sümeg, Balatonfüred, Zirc, Várpalota, Mór, Kisbér and Bicske. From the group of 12 seven settlements could increase their weights in comparison with 2002, these are the following: Bük, Balatonfüred, Zirc, Várpalota, Mór, Kisbér and Bicske. The change in the value of the weight by itself did not mean any change in the ranking. Both Balatonfüred and Bük, in spite of the fact that they both could increase their weight in comparison to 2002, fell back by

two positions in the ranking by 2012, and similar was the history of Zirc and Várpalota. Just like in case of Sárvár in Group no 2, in the two small cities the indicators of tourism have contributed to the increasing weight value. This, of course, has led to an increase in the number of employees and commuters as well.

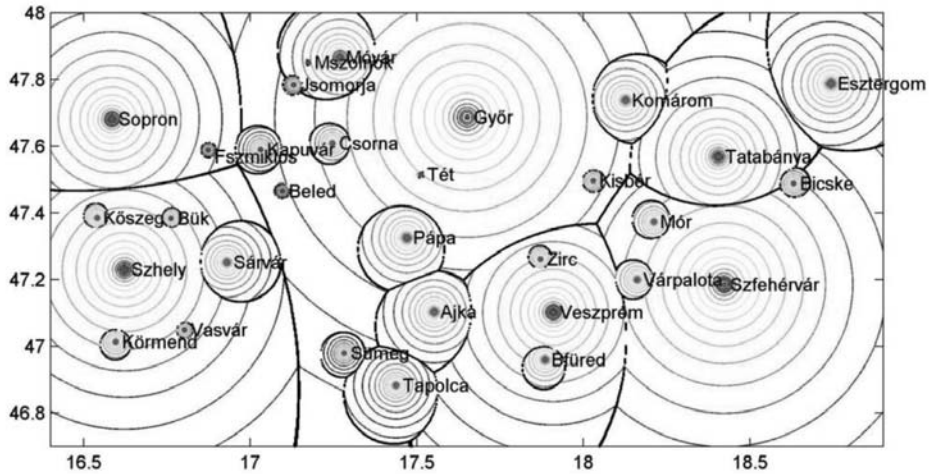
4. Group 4: those settlements belong to this group, whose zones of gravity are point-like, i.e. they cannot be perceived elsewhere. The members of the group are Fertőszentmiklós, Beled, Jánossomorja, Mosonszolnok, Vasvár and Tét. These settlements, with the exception of Vasvár, are new cities, and Mosonszolnok was not even granted the city title. With the exception of Vasvár they are all small, but dynamic industrial centers, with a significant number of employees and commuters. The weight value proportions of this group have grown at a higher rate than the respective values of the settlements in the above groups. From the 31 settlements the weight value proportion of Mosonszolnok is 1.78, the one of Fertőszentmiklós and Jánossomorja is 1.32 and Beled's is 1.27, which figures are unambiguously due to the increase in commuting because of the increasing number of workplaces throughout 10 years. Their spaces of gravity are small, since the values of the indicators composing the weight are small; they do not have any touristic, public service related or cultural attractions.

Figure 1: Scope of complex gravity zones in 2002



Source: Author's own calculation (the calculations were carried out with the software Matlab, with the assistance of Miklós Szörényi).

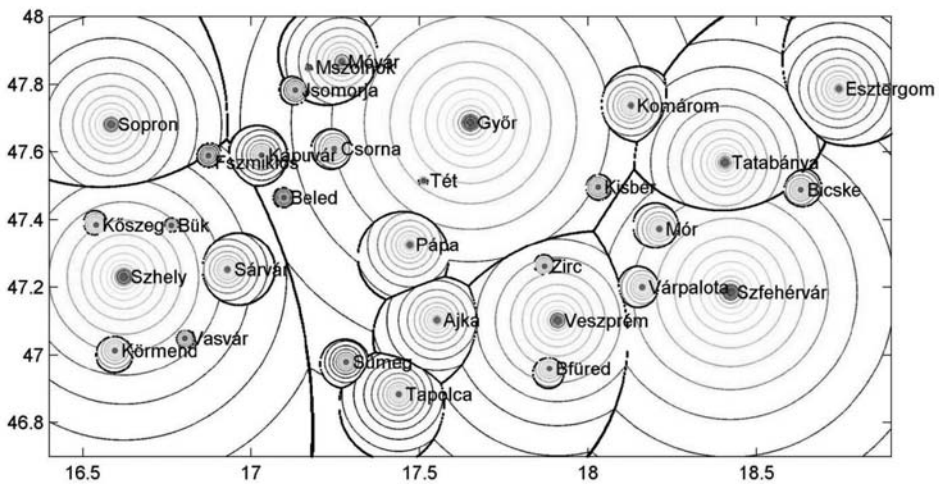
Figure 2: Scope of complex gravity zones in 2012



Source: Author's own calculation (the calculations were carried out with the software Matlab, with the assistance of Miklós Szőrényi).

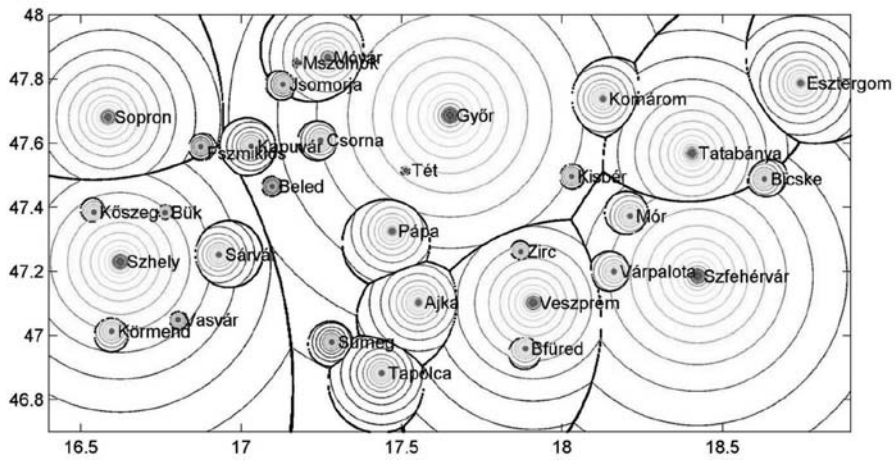
Since the research of the manpower catchment areas is a further goal of this study, after the identification of the complex gravitational force field we simplified the model and used only the indicators related to commuting (registered businesses, number of commuters and employees) to determine the centers' gravity zones considering both dates (Figures 3 and 4).

Figure 3: Gravity zones of labour force in 2002



Source: Author's own calculation (the calculations were carried out with the software Matlab, with the assistance of Miklós Szőrényi).

Figure 4: Gravity zones of labour force in 2012



Source: Author's own calculation (the calculations were carried out with the software Matlab, with the assistance of Miklós Szörényi).

By superimposition of Figures 2 and 3 the changes in the complex and manpower zones can be detectable.

By comparing complex and reduced weights we could classify the researched cities into four groups, according to the changes in their weight vales between the two dates.

Table 1: Changes in weight values between 2002 and 2012

Both complex and reduced weight values increased	Both complex and reduced weight values decreased	Only reduced weight values increased	Only reduced weight values decreased
Pápa	Szombathely	Győr	Zirc
Sopron	Veszprém	Csorna	Sárvar
Mosonmagyaróvár	Székesfehérvár	Kapuvár	Mór
Jánossomorja	Körmen	Esztergom	Várpalota
Mosonszolnok	Tapolca	Ajka	
Fertőszentmiklós	Kőszeg	Vasvár	
Tét	Sümeg		
Komárom			
Kisbér			
Tatabánya			
Bicske			
Balatonfüred			
Bük			
Beled			

Source: Author's own calculation.

It is clear, that there are no significant differences between gravity zone borders of the Reilly gravity models (Figures 2 and 4) prepared by using two calculated weights. This suggests that from among nine variables the number of employees, the number of businesses and the number of commuters are dominant considering the gravitational impact. This dominance is adequately shown by the groups of settlements categorized into four groups (Table 1). In case of those new cities, which have become significant employers, mainly due to industrial employment throughout 10 years, the three indicators used to create the reduced weight value are so determining in case of complex weights as well, that they are able to increase the complex weight as well. Reasons for the decrease of both weight values could be related to the decrease in urban functions and partially in the employer role as well, e.g in the first case the tourism related indicators' values, in the second case the number of commuters or these two phenomena jointly contributed to the reduction of the weight. It is characteristic for the settlements belonging to the fourth group that they have reached their complex weights throughout ten years by strengthening their other urban roles, while their employment indicators had shown decrease.

Looking back at the last decade, the spaces of gravity of the researched cities have only shown a minimal change. The territory of the Northern-Transdanubia falls into the gravity zones of four large cities, which might be diverted by the gravity zones of small cities, or they might tear their own zones out of the gravity zones of the larger ones. Gravity zones of four cities (Tapolca, Sümeg, Ajka and Pápa) even collide, while the other small cities' zones of gravity are located in the determining large cities' zones. In Győr's scope of action fall Mosonmagyaróvár, Jánossomorja, Kapuvár, Csorna, Beled, Tét and Kisbér. Sárvár, Bük, Körmend and Vasvár are located in the Szombathely zone, and they all cut their separate zones out of the large city's area. The distribution of space, which has led to the most significant change of the 10 year timeframe, is obvious when looking at the small cities. The gravity zones of Komárom, Mosonmagyaróvár and Sárvár were significantly extended, while from among the large cities, the gravity zones of Veszprém and Székesfehérvár have decreased-even if only slightly. Győr could somewhat increase its zone of gravity. Manpower gravity zones mean the most significant impact on the extension of the researched cities' gravity zones, i.e. there are a lot of similarities between them.

## Commuting in the Northern-Transdanubia

In our research we are going to analyze and compare the data of the 2001 and 2011 censuses on commuting. The places of residence and work of the respondents are known, thus, based on this data we calculated the number of employees living in the given settlements, as well as the number of people travelling to work in the given city and the number of people travelling

from these cities to work elsewhere.<sup>5</sup> Our single data might differ from the official employment data, since in case of a census only the respondents above 15 years of age might qualify as employees, who were in paid employment at least on one day of the week preceding the interview, or who were only temporarily absent from their regular work (KSH 2014).

The development and continuation of the commuting lifestyle in Hungary date back to the 1960ies and 70ies. This was the industrialization period of the rural cities, thus, these two decades can be considered to be the most determining in Hungarian urbanization's history. The development of human infrastructure could not keep up with the manpower demand of the industrial projects, thus, the lack of housing became the main limitation of moving to the city (Konrád – Szelényi 2000). On the other hand, this period was the time of the Hungarian villages' modernization: the agrarian industry provided a relatively good quality of life for the inhabitants and kept many of them in the villages, those too, who were employed in the industrial facilities or services in the city. Thus, the importance of this duality in the way of life gained space: families, besides the workplaces in the city, kept their residence in the village and obtained secondary incomes from their parallel agrarian activities. Thus, masses of people were concerned in commuting and – considering its character- it was based on the village-city relationship-system. Although the economic crisis at the time of the transition narrowed down the opportunities of commuters, but a significant number of workplaces ceased to exist with the transformation of the collectivized agrarian sector as well, thus, an increasing proportion of the rural population was forced to look for employment in the cities.

The current significance of commuting in Hungary is shown by the data of the 2011 census: approximately 35 per cent of the 4 million employees work in a different settlement, then where they live, and the number of commuters and their proportion referred to the total number of employees have also increased significantly. Where the number of employees increased by 7 per cent on national level between 2001 and 2011, the respective figure in case of commuters was 25 per cent.

The majority (94 per cent) of the commuting employees -approximately 1.4 million people in 2011- live outside Budapest. When considering the commuters by their place of living, the proportion of people living in cities is growing: by now, every second commuter lives in a city/town. However, the majority of the employees living in smaller settlements travel to work elsewhere: the smaller a settlement is, the higher the proportion of commuters to other settlements is (in settlements with less than 2,000 inhabitants this proportion exceeds 60 per cent).

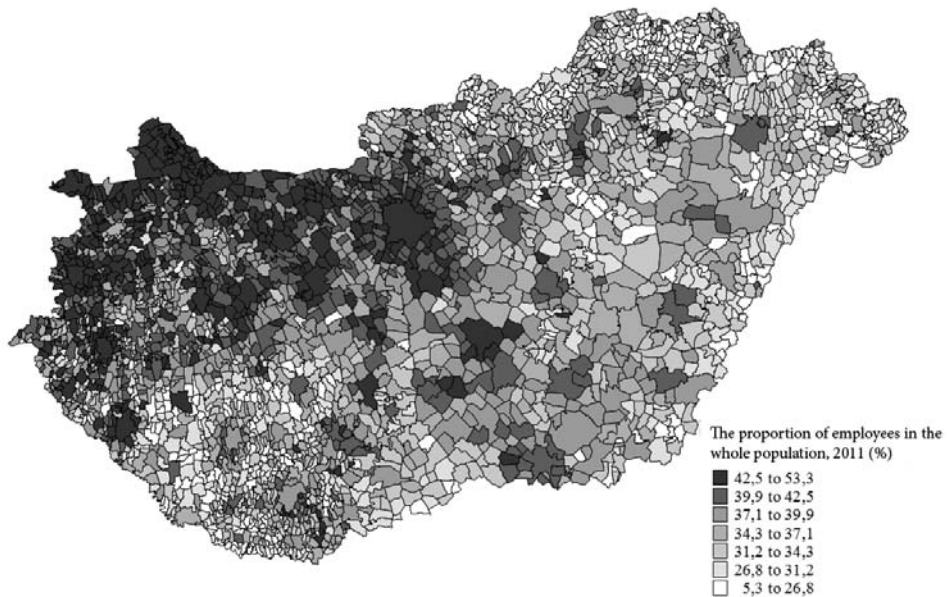
5 We calculated the following variables from the census data:

- Living and working locally: employees working in the same settlement as where they habitually reside.
- Daily commuters are employees who do not work in the same settlement, where they actually live.
- Number of employees: people qualifying as employees from the given settlement's population.
- Number of the locally employed people: the sum of the group of people living and working locally from among the employees living in the given settlement plus the people commuting to the given settlement. For simplicity's sake, at some parts we use "number of workplaces", but the two concepts do not overlap totally, however, it highlights the settlement's capability to provide work.
- Number of outward commutes: the number of peoples travelling from a settlement to another to work.
- Number of inward commuters: number of commuters travelling to a settlement from another.



The Northern-Transdanubia forms Hungary's North-Western quarter; several industrial centers are located here that make this region to the country's largest industrial employer concentration after Budapest. Not counting Budapest, this region is generally known as Hungary's developed Western region to the public. This is why, when examining the proportions of employees by settlements, we can see that the Northern-Transdanubia stands out from the territory of the country, and –not counting the internal peripheries- there are large and complex areas, where the employment relations can be considered good (Figure 5).

Figure 5: Employee- population ratios in Hungarian settlements, 2011 (per cent)



Source: Author's own calculation and edition based on census data.

Not even in the Northern-Transdanubia is the spatial distribution of workplaces balanced. We carried out a dissimilarity research to explore the geographic segregation between employed inhabitants and the locally employed people (i.e. workplaces). This method used to be used to research the spatial segregation of different social groups (Cséfalvay 1994; Kovács 2002). In this research we used this method to examine employees' and workplaces' spatial distribution, as well as their distribution within the settlement hierarchy. Thus, we could see how spatial inequalities between the distribution of employees (residences) and workplaces are, i.e. what percentage of employees or workplaces should be redistributed to territorial units to make the distribution even in the research area. This redistribution is certainly only a theoretic possibility; in practice, we can make conclusions between which categories is commuting the most characteristic.

We calculated the index for the categories of the settlement hierarchy, and, in territorial sense, for districts, counties and for a functional spatial breakdown, in which cumulated values of different agglomerations (Budapest agglomeration, agglomerations of cities above 100,000 inhabitants and smaller agglomerations) and settlements not belonging to agglomerations were presented.

Table 2: Dissimilarity index between employees and locally employed people

	2001	2011
<b>Between levels of the settlement hierarchy</b>	11.1	12.6
<b>Between districts</b>	13.6	15.2
<b>Between counties</b>	4.5	5.2
<b>Agglomerations and settlements not belonging to agglomerations</b>	7.3	8.8

Source: Author's own calculation based on the census data of the Hungarian Central Statistical Office.

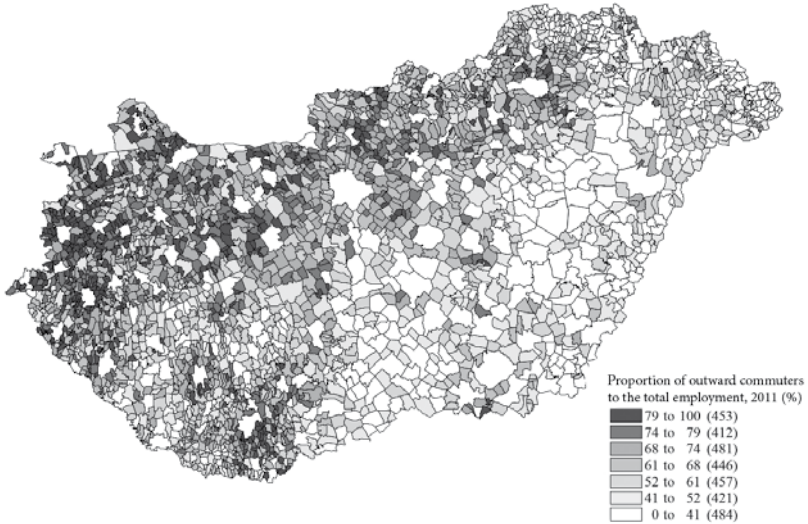
Based on all this, we can say that between the two censuses the territorial inequalities of workplaces and domiciles had increased in all researched dimensions. The most significant “inequalities” can be experienced between the districts and the levels of the settlement hierarchy, while there are significantly slighter differences between the counties. This might mean that the sending and receiving levels are separated (settlements with smaller number of inhabitants are generally senders, while the larger settlements are mostly targets), but the differences are even higher among the districts. This indicates that there are typically sending districts with relatively few workplaces and there are significant employer districts, these latter are mostly the ones with large cities as capitals. Among agglomerations<sup>6</sup> and non agglomeration territories the level of dissimilarity is substantially lower, however, significantly growing. This might indicate that the employer role of agglomerations is getting stronger, but this is mainly due to the center of the agglomeration. At the same time, the value and changes of the inter-county index are significantly lower than the other figures. The most part of the commuting is carried out within the county borders, since on this level is the lowest the territorial difference between the distribution of the employees and workplaces, thus, employed population and workplaces are located in similar number and proportion in the single counties.

Our maps presenting the proportion of people commuting to and from different settlements verify that the Northern-Transdanubia is sticking out from the other rural regions of Hungary, the settlement- related average values are -considering both indicators- higher than in any other parts of the country. Obviously, the level of economic development plays a role in this, however, the above mentioned tradition and the specificities of the settlement network need to be mentioned as well<sup>7</sup> (Figure 6). We can conclude that the Northern-Transdanubia is characterized by a higher level of employment and commuting than the other parts of the country, especially the Great Plain and the South-Eastern territories.

6 This is how the classification of the settlement network calls the Budapest agglomeration, the real agglomerations and so-called agglomerating areas around county seats, Sopron and the Lake Balaton.

7 Hereby we mean that the settlements on the Great Plain are generally larger and more populous, the distance between them is higher, therefore commuting is geographically more difficult there than between little Transdanubian settlements and their nearby centers.

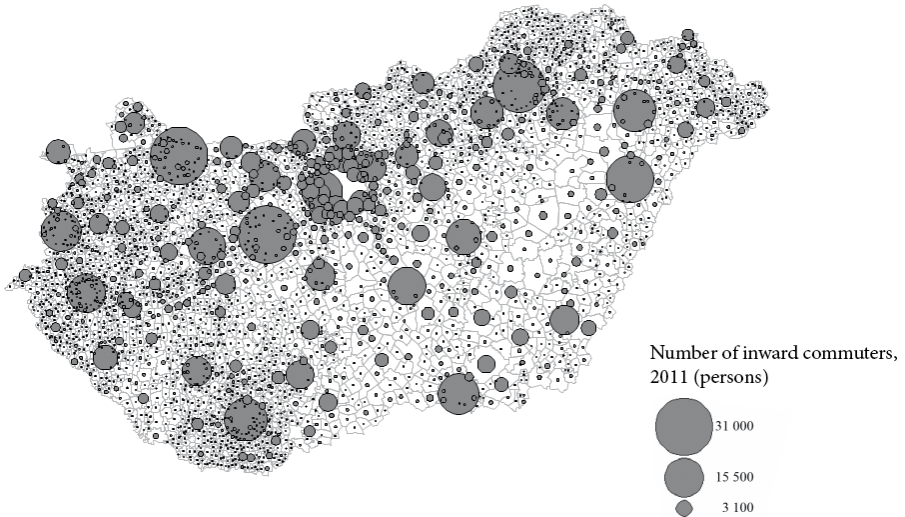
Figure 6: The proportion of outward commuters to the total employment in single Hungarian settlements, 2011



Source: Author's own calculation and edition based on the census data .

Thus, one of the main specificities of the Northern-Transdanubia is that intensive outward commuting was created, and its intensity is getting higher. The strength of outward commuting, as we have seen, is in correlation with the specificities of the system of settlements, therefore, Southern-Transdanubia and Northern-Hungary show significant outward commuting features as well (Figure 7).

Figure 7: Number of inward commuters in single Hungarian settlements, 2011 (persons)

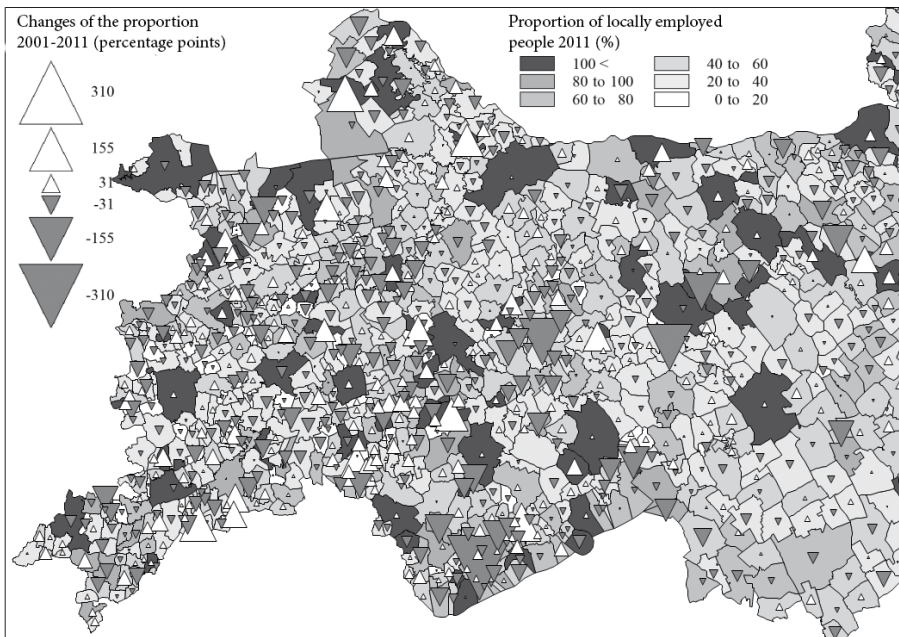


Source: Author's own calculation and edition based on the census data.

It is clear that the spatial structure of employment in the Northern-Transdanubia is based on the network of centers, and these centers do not only provide work for a smaller or larger area, but they can be classified into different hierarchical levels, while they get manpower from one another as well.

Our map (Figure 8) represents the proportion of the locally employed people in light of the employed population. Obviously, in those settlements, where this ratio is above 100 per cent, there are more workplaces than employed inhabitants, thus, the role of inward commuting is significant. A striking specificity is that these centers stand out as islands from their peripheral regions. Our map depicts the changes in proportion in the 2001-2011 timeframe. It can be concluded that around the “islands” are the settlements, which could increase their employment rate, e.g. the South-Eastern and North-Western agglomeration lines of Győr, while the coherent inner peripheries have suffered significant losses throughout 10 years. These inner peripheries are either far away from the Győr agglomeration or it is difficult to approach them. The people living there can mainly approach the smaller centers by daily commuting.

Figure 8: Locally employed people- employed population ratio 2011 ( per cent), and the changes of the proportion compared to 2001 (percentage points)



Source: Author's own calculation and edition based on the census data.

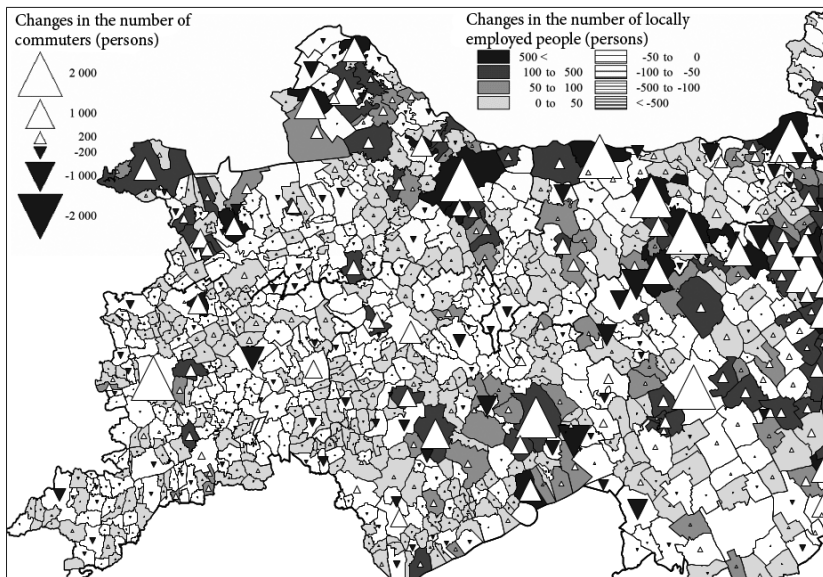
Hence, the number of the smaller centers' inward commuters has grown, even if the number of locally employed people decreased significantly in the small centers within years (Figure 9). Our map gives an even more visual presentation on the development axes, in which employment

and commuting are concentrated. One of these axes is the line of the motorway M1 (Budapest–Győr–Vienna) reaching out from the Budapest agglomeration. Agglomerations and industrial districts were formed along this line, with the centers of Tatabánya, Győr and Mosonmagyaróvár. From among these Győr is the most important. The other axis, along the main road no 8, passes by the Southern parts of the region. Its most significant cities are Dunaújváros, Székesfehérvár, Veszprém and Ajka. Besides Győr, Székesfehérvár is another important commuting center, however, the number of locally employed people had been decreasing in the city itself, but employment has grown in several settlements of its agglomeration.

Besides the two large axes, Sárvár and its region came into view. This is mainly due to its location by the Austrian border and its proximity to the Austrian growth axes.

In the peripheral areas among these axes and districts there are several centers of different size. The common feature of these settlements is that the number of locally employed people had decreased significantly in the 10-year-timeframe. It is an interesting phenomenon, since despite this fact many of them attract still many inward commuters. The explanation is that from among the employees of these centers an ever growing number of people is going to work to larger centers (e.g. Győr) or abroad, and these centers gain manpower from the nearby rural areas, which had lost the most of their workplaces. Typical examples for this are Szombathely and Pápa. Several smaller centers have suffered, however, such a drop back, which did not only lead to the decrease of workplaces, but to a strong decrease in the number of inward commuters as well. These are small cities, which based their industries earlier on commuting manpower (e.g. Sárvár, Mór).

Figure 9: Changes in the number of locally employed people and commuters in the Northern-Transdanubia between 2001 and 2011 (persons)



Source: Author's own calculation and edition based on the census data.

## Centers and Their Manpower Catchment Areas in the Northern-Transdanubia

Among the Northern-Transdanubian centers we can identify commuting catchment areas in a way that the single settlements are associated to the centers where the most commuters travel to. Somewhat completing the earlier methodology (Benini-Naldi 2007; Salamin-Radvánszky-Nagy 2008) and classifying the centers we identified the centers of the Northern Transdanubia and their separate manpower catchment areas (Figure 10). The levels were defined based on the number of the commuters attracted and the extension of the catchment area. We found two centers on regional level: Győr and Székesfehérvár. Both attract approximately 30 thousand commuters on a daily basis, the borders of their catchment areas go well beyond the county borders and concern several counties, moreover, in case Győr it crosses the border over to Slovakia. Besides the two large regional centers, county and district level centers (with 5–10 thousand commuters) as well as small and micro-level centers (with 1–5 thousand commuters) were identified, besides these, we identified the settlements of central position, which are cities without own catchment areas, but the number of the commuters travelling there from the neighboring settlements is significant (Figure 10).

*Figure 10: Commuting centers and their catchment areas in the Northern-Transdanubia in 2001 and 2011 Source: Author's own calculation and edition based on the census data*

If we compare the results calculated from the data of the two censuses, we can conclude that the size of the single centers' catchment areas had not changed significantly.

- 1) Homogenous catchment areas, forming geographically coherent territories, are shaped around the centers determined on the base of the criteria.
- 2) Beyond the coherent area the next center with own catchment area belongs to the catchment area as well. E.g. Komárom has an own catchment area, but for the city itself Győr is the most important commuting destination. Similar connections can be shown in the relationship between e.g. Sárvár and Szombathely as well.
- 3) Relatively low is the proportion of the cross-county border attraction within and outside the researched large region. From among the Northern-Transdanubian centers only Győr and Székesfehérvár cross the borders of their counties, but even these cities do it in a way that they do not attract commuters from their homogeneous catchment areas, but from centers on lower level (Győr from Pápa, while Székesfehérvár from Várpalota). Budapest has a significant extra-regional impact on the settlements of the Northern Transdanubia: the capital city has integrated a larger territory into its catchment at the Eastern borders of the region. On the Western side unidentified Austrian cities are the commuting destinations for several Hungarian cities and villages. From the direction of Zala and Somogy counties the level of mutual attraction is rather low, while Székesfehérvár and Dunaújváros extended their catchment areas towards Tolna County and Dunaújváros's area has been extended towards Bács-Kiskun County as well.

- 4) In case of almost all centers, the phenomenon of outward commuting has been showing an increasing trend, often significantly. This is true for both centers where the number of locally employed people had been increasing and for the ones, where this figure was decreasing.
- 5) The decrease in the number of locally employed people is not followed everywhere by the decrease in the number of commuters. In case of Pápa, beside the slight fall in the number of locally employed people, both outward and inward commuting had gained ground significantly. However, we could see in other, smaller centers as well that besides an increasing outward commuting the other two indicators show strong decrease (e.g. Mór). The lessons these examples teach us are the following: important district centers, like Pápa, have maintained their position as important commuting destinations, while the surrounding settlements are not in the transport geographical situation that would facilitate for the inhabitants to commute towards larger and more distant centers. On the other hand, several smaller employment centers, where mainly commuter manpower based mobile assembly activities are organized, typically in an industrial park, might see a quick decrease too.
- 6) Microcenters, as independent settlements of destination e.g. Bábolna, Jánosháza disappeared.
- 7) Those microcenters, however, got stronger, which did not have any own catchment areas, but they are located in a larger center's agglomeration, e.g. Kunsziget.
- 8) Many centers had lost their "independence", meaning in 2001 in case of several settlements no such destinations were shown, which the inhabitants would commute to in significant numbers, however, by 2011, with a few exceptions, the inhabitants of the centers are connected to centers on higher levels e.g. Pápa–Győr; Mór–Székesfehérvár.
- 9) The significance of commuting abroad has grown as well. While in 2001 Austria was a primary commuting destination only for the inhabitants of Mosonmagyaróvár and Sopron, by today it has become the primary target for several other centers (Jánosomorja, Kapuvár, Fertőd, Kőszeg, Szombathely, Szentgotthárd) as well. Moreover, several settlements in the proximity of the border got out of the Hungarian catchment area calculations, since Austria, and in case of Rajka Bratislava, have become the primary destinations.<sup>8</sup>

8 The municipality of Rajka is located by the Slovak-Hungarian border, in the direct vicinity of the Slovakian capital city. In the decade of our research, the migration of Slovak citizens started from Bratislava, thus, due to the suburbanization of the Slovak capital; – according to some calculations- their proportion exceeds the half of the population.

## Győr and Its Catchment Area

The features of the Győr urban area's transport system are good on national level. Well-performing transport networks cross the city, e.g. the railroad and motorway connecting Vienna to Budapest, which provide good approachability for the whole area. These roads/tracks can be used only marginally for transport purposes within the agglomeration. The secondary roads and railroads form a Győr centered radial transit network. The secondary roads leading out of the city pass through the most settlements of the agglomeration, the majority of the population concerned and the vast majority of the commuters live here. Thus, the agglomeration traffic is mainly performed on these secondary roads, the horizontal directions are underdeveloped, and traffic sub centers do not yet exist.

The following can be said to characterize the changes of population:

- Deconcentration of the population can be perceived within the area. It suggests the development of a typical suburban process: the concentration of the population is decreasing in the center, whereas it is growing in the surrounding communities. This is a natural process of urban development, suggesting that the city and its area belong together.
- This area is a destination area for a concentration process on national level, i.e. while (due to the declining population) the population density is decreasing in Hungary it is increasing in the research area, especially in its central zone, in the vicinity of Győr. It can be generally perceived that the population flows from peripheral territories towards the central regions (mainly Budapest and its agglomeration), thus, a very strong concentration process is taking place.

The dominance of the central city, Győr is obvious in the region's settlement network. With its 129 thousand inhabitants Győr concentrates 62.4 per cent of the region's population. Two further cities of the research area, Tét and Pannonhalma are small cities; the population of Tét and Pannonhalma are 4,143 and 3,861 respectively.

Among the villages we can distinguish settlements, which are located in the direct proximity of a city and typically they can be considered to be large agglomeration settlements. Their population approximates or exceeds the respective data of the region's small cities. The majority of the central functions are unambiguously provided by Győr for this region. Thus, the majority of the relations are Győr dominated, the most work, commercial, education and health care relations are directed towards Győr.

When considering the number of inward commuters, this city is the third most significant in the country, right after Budapest and Székesfehérvár. The number of commuters attracted by Győr is very close to the respective figure of Székesfehérvár, thus, the two industrial cities attract a similar number of commuters (*Table 3*).



Table 3: Main data of the three main commuting destinations

City	Entire population (persons)		Resident population (persons)		Employed inhabitants (persons)	
	2001	2011	2001	2011	2001	2011
Budapest	1,712,677	1,589,231	1,777,921	1,729,040	746,018	777,544
Székesfehérvár	103,070	96,320	106,346	100,570	48,493	45,242
Győr	124,556	121,042	129,412	129,527	56,874	57,120
City	Locally employed (persons)		Outward commuters (persons)		Inward commuters (persons)	
	2001	2011	2001	2011	2001	2011
Budapest	854,620	917,026	66,673	86,036	175,275	225,518
Székesfehérvár	71,530	68,731	5,203	7,340	28,240	30,829
Győr	78,223	79,807	4,690	7,594	26,039	30,281

Source: Author's calculations based on Hungarian Central Statistical Office, *Census 2001; 2011*.

We need to take in consideration, that in contrast to Székesfehérvár, Győr has a cross-border labor catchment area, but we do not know exact data about this. The Hungarian census-by definition- does not examine it, while the Slovak census does not ask questions on Hungarian commuting destinations. Thus, we can only estimate the number of commuters travelling to Győr from the Southern- Slovakian districts with Hungarian majority. In 2011 this figure could have reached several thousands, thus, Győr overtook the position of Székesfehérvár. In this study, however, we only rely on census data; therefore, we cannot take cross-border commuters into consideration, though certainly, we are going refer to them.

If we consider the differences of the main indicators at the dates of the censuses (Table 4), we can conclude that the population of the cities had decreased, in case of both permanent and resident population. In case of Győr the number of resident population had slightly grown, however, based on its degree it should rather be called stagnation. This change was mainly duo to the residential suburbanization, which occurred in every larger city throughout the research period. This phenomenon might be responsible for a significant part of the growth in the number of the inward commuters. Particularly, since it was observed that the number of locally employed people had grown significantly more than the number of employed inhabitants. This can be explained by the fact that in the residential suburbanization process mainly the employed population of active age moves to the agglomeration and -by keeping their workplaces- they become inward commuters (Table 4).

Table 4: Changes of the main indicators in the three main commuting destinations between 2001 and 2011

City	Permanent population (persons)	Resident population	Employed inhabitants	Locally employed people	Outward commuters	Inward commuters
	%					
Budapest	-7.2	-2.7	4.2	7.3	29.0	28.7
Székesfehérvár	-6.5	-5.4	-6.7	-3.9	41.1	9.2
Győr	-2.8	0.1	0.4	2.0	61.9	16.3

Source: Author's calculations based on Hungarian Central Statistical Office. Census, 2001; 2011.

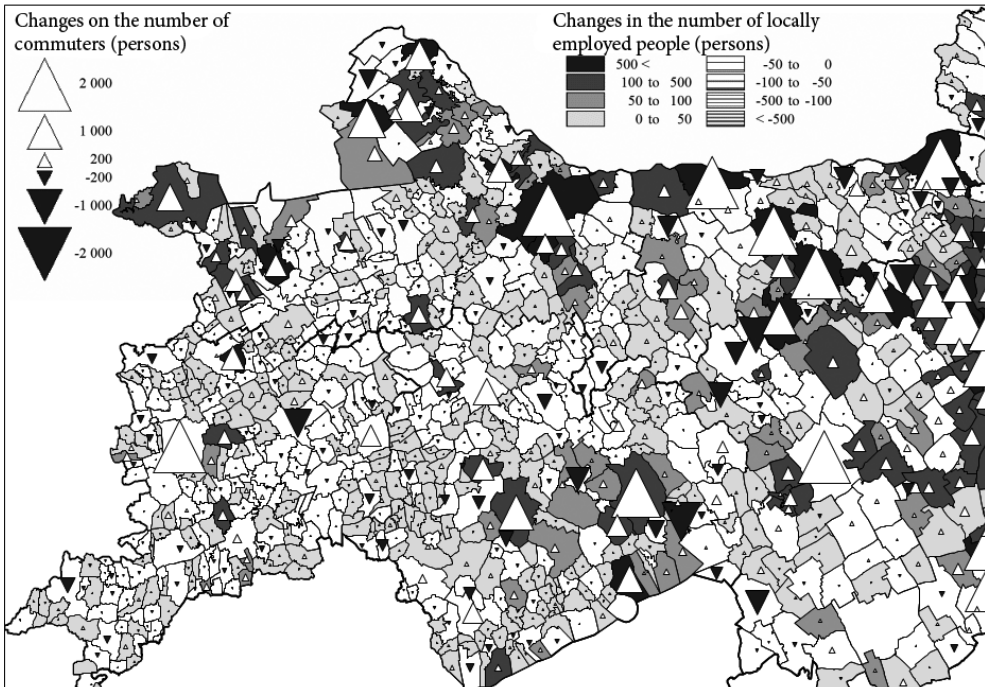
At the same time, it is clear that both values declined (employed inhabitants and locally employed people) in Székesfehérvár, in spite of the increase in the number of inward commuters. Obviously, here too, the impacts of residential suburbanization can be traced.

The significantly increasing number of outward commuters can be seen as well. The suburbanization of workplaces in the Budapest agglomeration lies behind this fact as well. In case of Győr this phenomenon is intensified by the increase in the number of people travelling to work abroad, while in case of Székesfehérvár the commuting towards Budapest and the Budapest agglomeration is gaining space.

From the aspect of commuting to work there is a separate circle of inner settlements, from which the majority of the employees –generally more than 60 per cent - and two-thirds of the outward commuters travel to their Győr based workplaces on a daily basis. These settlements of real agglomeration character can be considered to have the widest network of relationships with Győr. Scarcely, high proportions of Győr directed commuters can be found elsewhere too. This, in certain cases, is justified by the small size of population of the given settlement. In these cases, due to the transport opportunities, the direction of commuting is determined and other settlements do not even come into question. The proportion of people commuting to Győr is high in remote settlements, where local job opportunities or other, well-approachable employment centers became significantly scarce.

If we visualize the changes in the number of people commuting to Győr, the results underline the above conclusions (Figure 10).

Figure 10: Changes in the population and the number of commuters to Győr 2001–2011

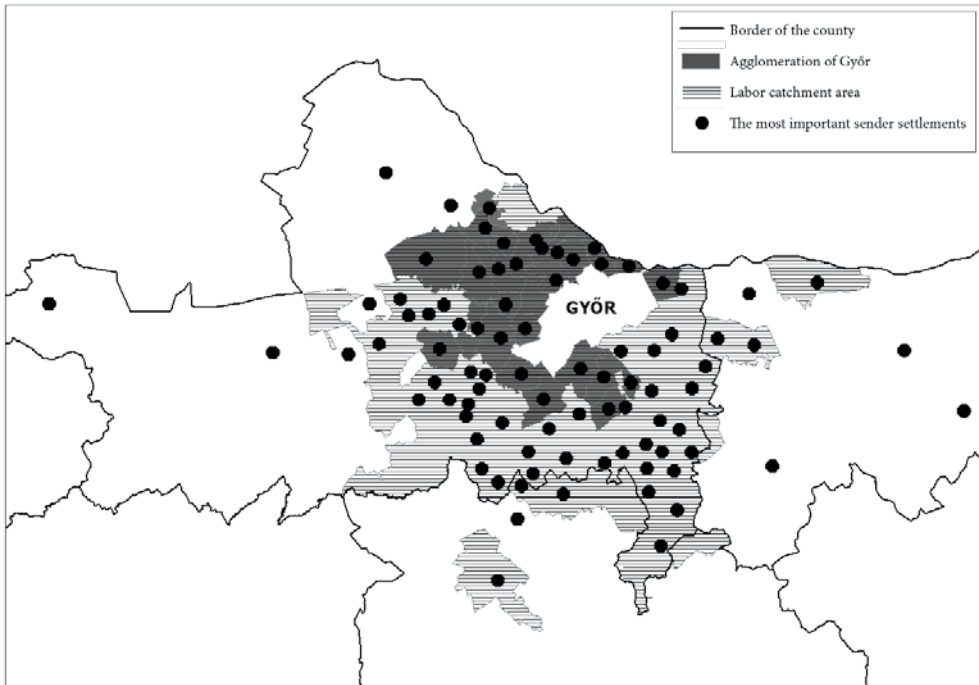


Source: Author's calculations based on Hungarian Central Statistical Office (HCSO) Census 2001; 2011.

It is clear that the significant increase in the number of inward commuters occurred in those settlements, in which a significant growth of the population was to be seen. This was unambiguously a consequence of the suburbanization. Besides, the number of the people commuting to Győr decreased in those settlements of the agglomeration where on the one hand the scope of local employment was increasing, on the other hand, other centers attracted the commuters. Increasing commuting from the peripheries of declining population can be also seen clearly.

Based on different criteria, we delineated the commuting areas around Győr. There are of course overlaps, but their borders differ significantly (Figure 11).

Figure 11: Commuting areas around Győr



Source: Author's own edition.

We delineated the following spaces, which we are going to call collectively “intensive commuting areas”. There are significant overlaps among the different types of areas:

By *county* we mean Győr-Ménfőcsanak County, in sense of the county territory valid in 2011. The calculated values do not include Győr.

*Agglomeration* stands for the aggregate values of the settlements defined as the Győr agglomeration by the Hungarian Central Statistical Office, without Győr.

Those settlements belong to the category of *most significant sending settlements*, from which at the time of at least one of the censuses at least 100 persons and/or 50 per cent of the outward commuters commuted to Győr.

By *calculated separate labor catchment area* we mean the territory, which was identified in this study.

Data of different intensive commuting territories can be aggregated as follows (Table 5).

Table 5: Data of the intensive catchment area surrounding Győr

	Resident population (persons)		Employees (persons)		Outward commuters (persons)	
	2001	2011	2001	2011	2001	2011
<b>Győr</b>	129,412	129,527	56,874	57,120	4,690	7,594
<b>County</b>	309,361	318,458	127,515	141,186	59,574	77,615
<b>Agglomeration</b>	51,865	57,722	21,891	26,043	15,917	19,554
<b>Largest sender</b>	383,825	385,392	158,104	169,800	55,945	71,883
<b>Separate catchment area</b>	178,103	178,957	72,347	77,716	36,579	44,240

	Commuting to Győr (persons)		Percentage of the commuters to Győr (%)		Percentage of the commuters to Győr from the outward commuters (%)		Percentage of the commuters to Győr from the employees (%)	
	2001	2011	2001	2011	2001	2011	2001	2011
<b>County</b>	309,361	318,458	127,515	141,186	59,574	77,615	17.1	17.7
<b>Agglomeration</b>	51,865	57,722	21,891	26,043	15,917	19,554	53.6	50.6
<b>Largest sender</b>	383,825	385,392	158,104	169,800	55,945	71,883	14.7	15.3
<b>Separate catchment area</b>	178,103	178,957	72,347	77,716	36,579	44,240	30.3	31.6

Source: Author's calculations based on Hungarian Central Statistical Office, Census 2001; 2011.

It can be seen clearly that the city's labor catchment area in geographic sense is spreading out; the proportion of commuters to Győr had decreased in nearly all aspects beside the numerical growth. The proportion of Győr increased in two segments: from the county and from the calculated separate labor catchment area, from among the employees larger proportions travel to Győr to work in 2011 than in 2001. This is due to the fact that these are the territorial categories, which incorporate smaller settlements as well, thus, the increase in the number of employees was not as rapid there as the increase in the number of the people commuting to Győr.

Since the proportion of Győr commuters decreased considering every type of the intensive commuting territories, it is clear that the proportion of the ones coming from outside increased. 94.7 per cent of the people commuting to Győr were coming from the intensive territories in 2001, which figure was 92.3 per cent in 2011. Thus, the proportion of the people coming from outside the territory grew from 5.3 per cent to 7.7 per cent. Since the intensive territory itself grew geographically between the two dates as well (e.g. Pápa entering), it can be justified that the increase in the geographic extension of the Győr catchment area is significant, just like the increase of the relative weight of the peripheries beyond the intensive catchment areas. We can conclude that while some kind of concentration can be perceived from the direction of the peripheries towards the more developed regions, in the intensive commuting space of Győr a relative deconcentration can be traced.

## Summary

By using two complex indicators, we identified the gravity zones of 31 settlements in the Northern-Transdanubia by the Reilly gravity model for two dates. While the gravity zone -associated to the complex weight values composed of 9 variables- is mainly linked to the urban roles, the second gravity model was linked to commuting and employment. The difference between the gravity zones determined by the two weight values is very small, and there are no significant differences between the two dates either. In the Northern-Transdanubia, considering both dates and both weight values, the largest spaces of gravity are the ones of Győr, Székesfehérvár and Szombathely. Besides them, the gravity zones of Sopron, Veszprém and Tatabánya are also significant. The other 25 cities' gravity zones are either squeezed into the zones of the above large cities or they are in their buffer zones.

We examined consequences of the main data on commuting of the censuses carried out in 2001 and 2011 by the Hungarian Central Statistical Office (number of commuting employees by single sending settlements and destinations) and the differences between the two censuses. Beyond nation-wide surveys we concentrated on the Northern-Transdanubia in detail and we explored its system of centers, while the specificities of Győr and its area were examined even more to the detail. Of course it is obvious that the model and the delineation of the catchment area based on empirical data cannot overlap, there are connections between the labor focused gravity model and the catchment area determined by the analysis of statistical data, which support each other, however, there are some, which do not. Our main conclusions are the following:

- The research of the complex gravity force field and the manpower zones between the two dates suggests that the former one increased mainly in case of less populous settlements.
- The above conclusions support the assumption that the significance of daily commuting had grown in the Hungarian economy between the two dates. The number of employees, as well as the proportion of commuters among the employees had grown. This increase was present in every researched segment (urban-rural, single levels of the settlement hierarchy etc).

- The importance of those middle sized settlements had grown as well, which receive 5-10 thousand commuters. Both the number of inward commuters and the proportion of the settlement category had increased.
- The relative weight of larger cities (e.g. Győr) had, however, decreased. Although the number of inward commuters had been significantly increasing between the two dates, the share of the center still decreased. This latter phenomenon is due to the fact that the significant proportion of the inward commuters is coming from the agglomeration or agglomerating space located around large centers and important commuting destinations have been formed in these spaces throughout the past years. Therefore, we can speak of a relative deconcentration here.
- In parallel, absolute deconcentration is present also, since from the population of the larger centers a growing number of people commute to other cities or abroad. This is supported by the zone of gravity of manpower flows around Mosonmagyaróvár, which cuts out a significant section from Győr's gravity zone.
- Generally, we can see from the experiences of the Northern-Transdanubia that employment centers have developed in the direct vicinity of several large centers, which factor just supported the deconcentration. This is underlined by the figures showing the zones of gravity: Szombathely's area has four satellite gravity zones and from the large zone of Győr the cities of Pápa, Csorna and Kapuvár, moreover, the above mentioned Mosonmagyaróvár too, cut out their own growing zones.
- Outside the catchment areas of the large centers, however, a certain concentration is taking place. Instead of the disappearing or weakening micro and small centers, the employees started commuting towards large centers in ever growing numbers. Depending on transport opportunities, hierarchical relations might be established as well: the employees of the weakening local centers commute to the centers on the higher levels of the hierarchy in ever increasing numbers and proportion, while among the people working in the local center the proportion of the commuters travelling from the surrounding settlements is getting higher. However, the small centers, which act as employment centers in the shadows of large centers, could increase the scope of their gravity zones throughout 10 years.
- In case of Győr it is clear that the city's commuter catchment area is growing in space. While the dominant, intensive zones of commuting have not changed much, their relative weight has decreased, and the role of more remote sending settlements and districts became dominant.

In sum, the role of economically more developed territories is getting more important in the employment of rural spaces. This applies not only to the agglomeration and the immediate environment, but to more distant territories as well. The gravity zone calculations of Győr with complex and reduced weights suggest this, since in both cases the city dominated the central part of the Northern Transdanubia from the North to the South, there are no centers that could set limits to its area towards the Western basin of the Lake Balaton, they only cut out smaller sections from it. The small and medium sized centers offer an alternative for employment, maintenance of life quality, thus, their role is significant in conserving the local population. The gravity model proved to be a good experiment: we can even forecast the future of the empirically delineated catchment areas by changing the parameters of the model.

# The Spatial Structure of Higher Education in North Transdanubia

LÁSZLÓ TAMÁNDL – ZSOLT KOVÁCS – SZABOLCS RÁMHÁP –  
DÁVID NAGY

**SUMMARY:** The different spatial functions of Győr, the most dynamically developing Hungarian city, have formed diverse formal relationships (stemming from the practice of functions) and informal linkages operated by individuals and the institutional system. These relationships appear markedly in secondary and higher education, public services and the programs of cultural institutions. The current investigation has three main objectives. On one hand we attempt to detect the catchment area of the city and the social network of services. On the other hand, we will focus on spatial units with insufficient service provision and shortage situations. In addition, our third objective is to find a more efficient division of tasks in the institutional base, and to name those interventions and developments which facilitate the optimization of the organization of tasks.

Our research presents the spatial economic structure related to education. Data from the institutions and Central Statistics Office help to analyse the structure of training, the evolution of research and lecturer jobs and the impact of the respective stakeholders on the region. We investigated the current trends and institutional competitiveness using the most recent higher education enrollment data of the Ministry of Human Resources. Furthermore, we present the results of the residential survey of the Győr Automotive Industrial District research and highlight the most important interrelationships in context of higher education.

**KEYWORDS:** regional development, higher educational institutions, knowledge based economy, socio- economic factors, competitiveness, competitiveness factors of universities



## Introduction

It may seem to be a cliché to state that knowledge has become a resource of strategic importance in the 21st century. At the same time, the most important institutes of the knowledge based society have become the institutions occupied with the production, distribution and reproduction of knowledge (Tamándl 2008). This role is more intensively fulfilled by educational institutes in our present days, more precisely by higher education. The research carried out in the last ten years clearly proves that the human resource management of enterprises largely relies on education (Bencsik-Lőre-Sólyom 2011). The ongoing changes in society and economy have a crucial impact on higher education, which transforms the relationship between the different institutions and their respective regions. It is difficult to find a solution to the problems of the globalized and highly competitive knowledge based economy in the lack of cooperation. In order to mobilise and exploit their resources, to accelerate their growth, improve their competitiveness and maintain their existing investments, regions require an adequately qualified workforce. The regional actors contribute to the non-material advantages of the region in diverse forms, and the collaboration helps to improve the regional knowledge, skills, culture and the institutional density.

Universities have a central role in the reproduction and adaptation of human resources, as well as in the production of social capital, thus they have an increasing importance among the regional actors. Education is a key strategic resource in the knowledge based economy in the attainment of economic success through human capital. Therefore, there is an ever increasing pressure on regions to become communities that are capable of learning and producing knowledge, and to focus on constant development, the creation of novel ideas, organizational learning and knowledge transfer, thereby supporting regional development and welfare. This means that universities, as centres of knowledge, have to be assigned a more prominent role in the reinforcement of economic growth, not only at a national but also at a regional level.

In our study, we shall give a presentation of the two regions related to the Industrial District of Győr, namely Western - and Central Transdanubia, which shall be uniformly defined as the North Transdanubian region. First, we shall discuss its general geographic, demographic and economic features at a county level, then we shall present the most significant public higher educational institutions based on statistical and enrollment data. In the second part of the study, we seek to analyze, in the light of the latest entrance examination statistics, the current position of the Széchenyi István University, the University of West Hungary and the University of Pannonia, and we shall also deal with the catchment area of the respective institutes. The third part of the research will provide an overview on the basis of the Győr Industrial District residential questionnaire survey of the people's educational features and their attitude towards higher education and their opinion concerning the universities of Győr. Besides, with the help of cluster analysis, we shall classify the population in terms of their attitude towards the respective institutes.

## The North Transdanubian region and its higher educational institutes

### *The main specifics of the region*

The physical geography of the North Transdanubian region shows a very diverse picture, several great plains occupy its area, for example the Little Hungarian Plain, the Lower Alps, as well as the Transdanubian hills and the Transdanubian Mid-Mountains. The territory is rich in streams and still waters, the main river of the region is the River Danube, but several other rivers can be found as well, such as the river Raba, Rabca, Marcal and Zala. Lake Fertő and Lake Velence are situated in North Transdanubia, and the Northern coast of Lake Balaton also belongs here.

The region borders the territories of the four neighbouring countries – Croatia, Slovenia, Austria and Slovakia –, which enhances its chances of participation in the Euroregional Cooperation. The northern part of the region, mainly Győr-Moson-Sopron county and Vas county to a small extent, actively takes part in the circulation of Europe and the world market due to its geographical situation, however, several marginalized territories can be found in the Southern and Eastern parts of the region.

The region is constituted by six counties – Győr-Moson-Sopron, Vas, Zala, Fejér, Komárom-Esztergom and Veszprém –, its territory covers 20.44 per cent of the country's territory, and this region is inhabited by 20.8 per cent of the population (Table 1).

Table 1: The settlement structure of the North Transdanubian region (2012)

<b>Territorial unit</b>	<b>Area (km<sup>2</sup>)</b>	<b>Population (thousand persons)</b>
<b>Győr-Moson-Sopron</b>	4,208	446.6
Vas	3,336	255.7
Zala	3,784	282.4
Veszprém	4,993	352.3
Fejér	421	421.1
Komárom-Esztergom	2,264	302.4
<b>Total area</b>	<b>19,006</b>	<b>2,060.7</b>

Sources: Own compilation based on KSH data.

The population density of the county seats is quite high in almost every county of the region. The leading role of the county seats in economic growth and dynamic development has undoubtedly been enhanced by the education and qualification level of human resources exceeding the average, the stable and large-scale labour market, as well as the favourable infrastructural assets and its central role. The northern part of the North Transdanubian region contains settlements with a relatively higher number of population, over 2,000 persons, whereas Vas and Zala counties have smaller settlements. The terrain and topographical specificities largely contributed to the development of a fragmented settlement structure. Besides the regions of Győr, Mosonmagyaróvár and Sopron, the growth of the urban agglomeration can also be detected in the area of Székesfehérvár and Veszprém, and is also present in the territory of Komárom and Tatabánya. Besides the larger cities of the region, we can find medium-sized cities (e.g. Csorna, Pápa, Ajka), and there are also subregions that definitely lack cities (e.g. Órség-Göcsej), which hinders the adequate provision of public services. We can observe the lack of urban functions, a small village dominated settlement structure and desertification in the whole area of Vas and Zala counties, as well as in the Southern part of Győr-Moson-Sopron county. One of the aspects of the societal changes in the region is the increasing appearance of patchwork families, which group is characterized by special consumer decision-making mechanisms and conflicts (Eisingerné 2014).

Post-regime change, its border situation previously constituting an obstacle, has become an advantage for the region. As the consequence of the opening of the border, tourism was launched and the investment climate has also become more favourable. The dynamically developing branches primarily settled to the northern part of the region, which was due primarily to the geographical situation, since the Western-Transdanubian territory was bordering the European Union, furthermore, the main Eastern-Western arteries also cross this territory. The region hosts the country's most developed agricultural and food industry territory, but the leading role is clearly assigned to industry, which fostered the dynamic growth and development from the second half of the 1990's. Today, the comparative advantage of the region is also constituted by industry (mainly machine and vehicle industries), which was recognized in time and also exploited by multinational enterprises. The region far exceeds the national average in terms of GDP per capita. After the change of regime, former industrial centres like Ajka, Veszprém and its region have slowly started to decline and only those settlements could experience economic growth which fulfilled a county seat function and could be accessed easily, which was the case of Székesfehérvár due to the impact of the electronical industry. However, the economic crisis also affected these regions, and consequently, the unemployment rate has increased similarly to the national rates, whereas the activity rate and the related rates have shown a decreasing tendency. This is still the case nowadays, albeit the territory of the Győr Industrial District is in a favourable situation. Foreign capital inflow resulted in prosperity, which further enhanced the growth of GDP per capita, large-scale job creation, the multiplier effect

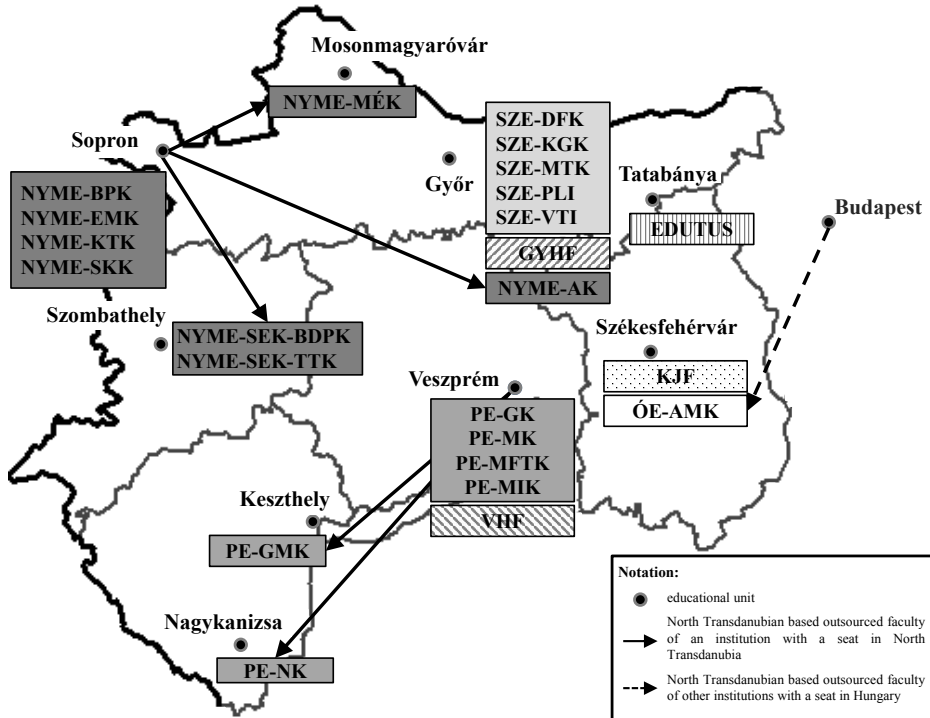
of wages, the reinforcement of know-how transfer and R&D cooperations, as well as the augmentation of the local business tax. In addition, a high rate of the manufacturing industry and a low rate of the service sector, the low level of development of small - and medium-sized enterprises, a low rate of R&D input and the presence of internal regional disparities as well as a high rate of disparities between micro regions are all characteristic of the region (Filep 2014).

#### *Higher education in the region*

At the period of the change of regime, Hungarian higher education still functioned as a relatively closed higher educational system relying on elite formation, still largely combining the elements of the central management of socialism with the traditions and privileges preserved from the first half of the 20th century. During the twenty years post regime change, similarly to other European countries, Hungarian higher education has undergone a number of changes, and consequently the structure of the system, the educational programmes and the number and composition of participants have also significantly changed. This transformation was largely due to the fact that Hungary, in order to attain economic development and international capital investments, was primarily occupied with the transformation into a knowledge-based economy and society. The changes in higher education in the last two decades have also influenced the regional and spatial structure of the institutes. In the majority of cases, the regions, counties and settlements have always played a role in attracting, maintaining and modernizing the higher educational institutes, and the institutes, in return, have tried to repay this by the scientific development of the centres and the economic milieu.

In the present chapter, we shall focus on the state higher educational institutes of high importance relevant to the Győr Automotive Industrial District, among which we can find the Széchenyi István University, University of West Hungary and University of Pannonia. Concerning the headquarter, there are two institutes (Széchenyi István University, University of West Hungary) with their main seats in Győr-Moson-Sopron county and another one in Veszprém county (University of Pannonia). Besides these institutes, there are plenty of institutes maintaining faculties, institutes or formation centres that have their headquarters outside the region in the three counties, due to which a diverse training structure is ensured in the region (Kovács 2011) (Figure 1).

Figure 1: The faculties operating in the North Transdanubian higher educational institutes and the North Transdanubian faculties relevant from the viewpoint of the Győr Automotive Industrial District (2014)



Source: Own compilation.

As far as the number of students is concerned, the largest institute of the region is the American-type, campus type Széchenyi István University counting more than 11,000 students, with its headquarter in Győr, which was established in 2002 as the legal successor of the Institute of Transportation and Telecommunication and the Széchenyi István College with two faculties (Faculty of Law and Economic Sciences and Faculty of Engineering Studies). However, since 2007, the institute has operated with three faculties (Deák Ferenc Faculty of Law and Political Sciences, Kautz Gyula Faculty of Economic Sciences and Faculty of Technical Sciences) and two institutes (Petz Lajos Institute of Health and Social Studies and Varga Tibor Institute of Musical Art).

The second largest university of the region is the University of West Hungary, which has nine faculties and operates faculties in Sopron (Benedek Elek Faculty of Pedagogy, Forestry, the Simonyi Károly Faculty of Engineering, Wood Sciences and Arts and Economic Sciences), in Győr (Apáczai Csere János Faculty), in Szombathely in the Savaria University Centre (Faculty of Natural Sciences and Berzsenyi Dániel Teacher Training College), and in Mosonmagyaróvár (Faculty of Agriculture and Food Sciences).

The University of Pannonia is a dominant higher educational institute in the Central Transdanubian Region, and its headquarter is in Veszprém. The institute disposes of five faculties, among which one can be found in Keszthely, but is also present in the region in several other locations (Nagykanizsa, Pápa) and outsourced formation sites (Székesfehérvár). The formation scope includes agricultural sciences, Humanities, economic sciences, technical information sciences, pedagogy, social sciences and natural sciences.

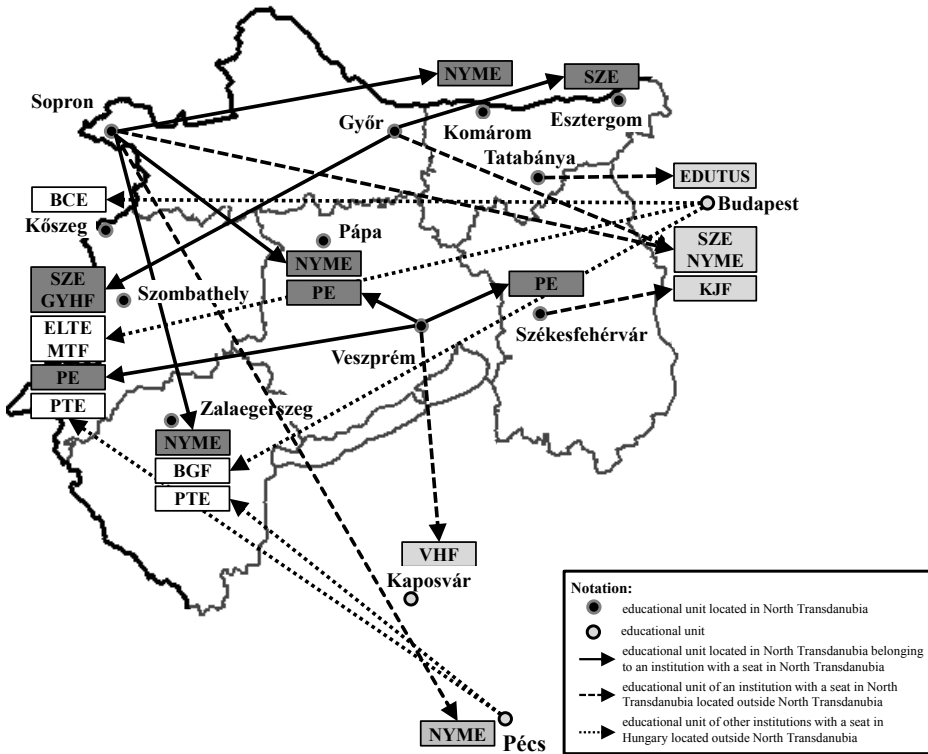
Table 1: The main data concerning the higher educational institutes with North Transdanubian headquarters (2013)

Higher educational institute	Higher vocational	College level	University level	Bachelor	Master	Undivided	Vocatioanl training	PhD, DLA	Total (person)	Number of tutors (person)
	Number of students participating in formation (person)									
University of West Hungary	962	2	23	6,852	1,213	311	578	159	10,100	887
Pannon University	589	30	83	5,180	1,133	15	201	142	7,335	360
Széchenyi István University	380	94	41	7,918	1,035	1,005	34	150	10,657	563
Total	1,931	126	147	19,950	3,381	1,332	813	451	28,092	1,810

Source: Own compilation based on EMMI data.

The higher educational institutes based in the region are also present with their programmes outside North Transdanubia. Outsourced formation is provided in Budapest by the University of West Hungary, the Széchenyi István University, the Edutus College and the Kodolányi János College, in Pécs by the University of West Hungary, and in Kaposvár by the Veszprém Theological College. Naturally, several other institutions based outside the region are also present with their formations in North Transdanubia, which is illustrated by Figure 2.

Figure 2: The formation centres inside and outside the region based in North Transdanubia, and the formation centres operated by the institutes disposing of external base (2014)<sup>1</sup>



Source: Own compilation.

The reputation and success of universities are best reflected in which part of the country their students come from and where their catchment area is. Furthermore, economic aspects (travelling and housing costs) also have an influence on the choice of institutes (Rechnitzer-Hardi 2003). The universities based in the region typically have a regional catchment area, therefore, a significant part of graduate students come from the North Transdanubian region. As far as settlements are concerned, the majority of students come from Győr and Budapest to these institutes.

The type of institutes and the specialisation of the formation have a great influence on the prevailing of territorial impacts and the establishment and transformation of catchment areas. The general faculties (economics, teacher and law) mobilizing great crowds dispose of clearly delimited catchment areas, which, as already mentioned before, extends to the North-West Hungarian region. According to Rechnitzer-Smahó, it can be

1 Széchenyi István University (SZE), University of West Hungary (NYME), University of Pécs (PTE), Pannon University of Pannonia (PE), Budapest Business School (BGF), Hungarian Dance Academy (MTF), Eötvös Lóránd University (ELTE), Budapest University of Technology and Economics (BME), Corvinus University of Budapest (BCE), Kodolányi János University of Applied Sciences (KJF), Theological College of Győr (GYHF), Archbishopal Theological College of Veszprém (VHF)

experienced that the institutional catchment areas have densified in the first half of the 2000's into 80-100 kilometre districts and the catchment areas of the respective faculties cannot be divided by a sharp line as there is a constant overlap and interoperability. In the case of the special, unique academic formations (forest engineering, wood engineering, performing arts, teacher-music teacher, special engineering – mechatronics, vehicle engineering, logistic engineering), the regional effects are not present. These faculties display traditional features, which results in the fact that students are enrolled from all parts of the country. The third phenomenon is attraction outside the national border, due to which Slovakian Hungarians show an increasing interest towards the formation provided by the institutes (Rechnitzer-Smahó 2007; Reisinger 2010; Tamándl 2014).

Taking a closer look at the higher educational institutions of the region, we can find that the nearly 28,000 students of the universities and colleges have been instructed by almost 1 400 lecturers. At the same time, the tutorial posts indicate the scientific and professional activities as well as the age composition and the presumable career. The academic teachers instructing in the region constitute 10 per cent of the total number of teachers. “According to the information beyond those related to higher education, the rate of academics does not reach 4 per cent of the national value, and regarding the doctors of science, there is a similar 3-4 per cent proportion” (Rechnitzer-Smahó 2007). The category related to scientific qualifications, namely that of associate professors and the college teachers, constitutes 37.6 per cent altogether. The assistant professors and college teachers constitute 286 persons. The number of assistants is 232, representing 16.6 per cent of the teaching staff, which is worth taking into consideration, as this group serves as the supply of the educators’ society (Lados-Rechnitzer 2007).

Table 3: The tutors of the insitutions of the North Transdanubian region according to their position (2013)

Tutorial position	NYME (person)	PE (person)	SZE (person)	Total (person)
<b>Professor</b>	66	50	32	148
<b>Associate professor</b>	207	144	138	489
<b>Assistant professor</b>	106	81	63	250
<b>Assistant</b>	-	61	83	144
<b>College teacher</b>	26	0	7	33
<b>College professor</b>	70	0	16	86
<b>College lecturer</b>	15	0	7	22
<b>College assistant</b>	86	0	2	88
<b>Language teacher</b>	-	-	11	11
<b>PE teacher</b>	-	-	8	8
<b>Other teacher</b>	49	24	34	107
<b>Total</b>	<b>625</b>	<b>360</b>	<b>401</b>	<b>1,386</b>

Source: Own compilation based on EMMI data



Besides education, the research-development potential of the universities is another major field, furthermore, it is one of the most important elements of economic development. The research and development activity of the region is considerably smaller compared to its economic situation, and is not significant at a national level, either. At the same time, the research and development potential is accompanied with marked disparities within the region, as well as with the resource – and performance concentration of Győr-Moson-Sopron county. The most outstanding elements of the region's R&D potential are the higher educational institutes, which also reinforce the balance in Győr-Moson-Sopron county, since two out of the three universities have their bases here (Lados-Rechnitzer 2007).

The above statements are perfectly reflected by the concentration of research centres, as well as by the number of R&D employees, HAS members and those with a scientific grade (Table 4). The table also demonstrates the less advantageous parameters of the region, the region incorporating the two planning territorial statistic regions constitutes 15 per cent of the national indices in terms of research centres and 12 per cent in terms of employees. We can find similar rates in the case of the HAS members and those with scientific qualifications, which constitutes 9 per cent of the national data.

Table 4: The main data concerning R&D of the North Transdanubian region (2012)

Territorial unit	Győr-Moson-Sopron	Vas	Zala	Fejér	Komárom-Esztergom	Veszprém	Hungary
<b>Number of research centres (piece)</b>	157	38	44	81	55	81	3,090
<b>Actual number of R&amp;D in total (person)</b>	1,964	462	449	1,330	826	1,856	56,486
<b>Members of HAS, and the number of persons with an academic degree or title (person)</b>	460	153	99	287	77	293	14,770

Source: Own compilation based on KSH statistics.

By and large we can state that the region has a minimal R&D activity compared to the country values, and needs urgent development, in which higher educational institutions play a great role.

## **The analysis of regional higher educational institutes**

The study of the relevant higher educational institutes of the region is based on three pillars. On the one hand, we have observed the catchment areas of the institutes and their situation compared to one another relying on the higher educational entrance exam data. On the second hand, we have studied the competitiveness of the region's institutes based on the competitiveness model of higher educational institutes. Thirdly, we have conducted research on the data of the Győr Automotive Industrial District residential survey, analyzing the relevant issues regarding the institutes and education in order to evaluate the regional embeddedness of education and the respective institutes.

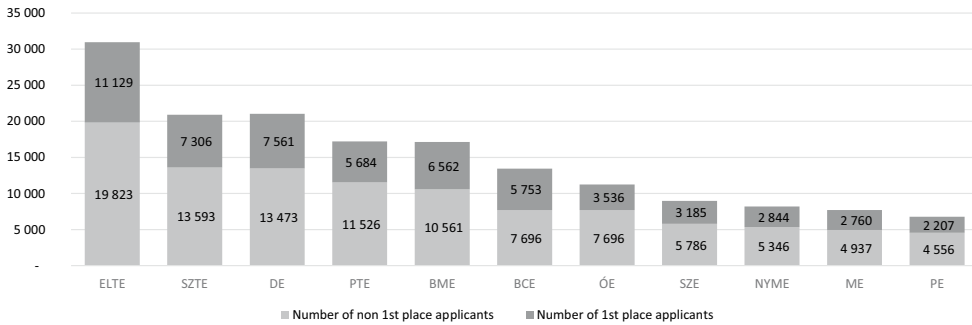
### *The results of the 2013 higher educational procedure in the region's institutes*

The higher educational institutions can be best evaluated with the help of market demands, namely the evolution of the number of students applying to the respective institutions. Ever since the civilian society has replaced the feudal society, the different types of advantages in life can be attained through education. Children may hope to see better work conditions, higher salary and related social esteem through better education. The level of education to be reached is in the majority of cases defined by the parents' aspirations, while the parents wish to provide a social status for their children similar to or better than the one they are in. Through education, parents wish to provide better life chances for their children so that they can reach a higher rank in the social hierarchy (Halász 2001). Career choice means a great opportunity for the growing generation to express their own needs and pursuits, which eventually represents the content frame of the self-realization notions of each young person. Viewing this from the individual's aspect, this presupposes the optimal use of values hidden in their personalities, and from a societal viewpoint, it requires the effective and active integration into the division of labour, as well as the appropriate adaptation to the work environment (personal and objective conditions) (Zakar A. 1988).

In order to study the absorption capacities of the region from this approach, we have relied on the data of the latest enrollment process, as this can be regarded as the most up-to-date survey concerning the attractiveness of the institutions as this shows the current intersection, whereas in the case of the data regarding the current students, the trends of the past 3-5 years mingle.

Figure 3 shows the number of higher educational applications in Summer 2013 to the most significant higher educational institutes. It is clearly demonstrated that the institutes of the region only come after the traditional institutes of the rural big university cities or the prominent institutes of the capital in terms of the number of the applicants. This does not presume a remarkably expanded attraction at a country level.

Figure 3: The number of enrollment per institute (2013)

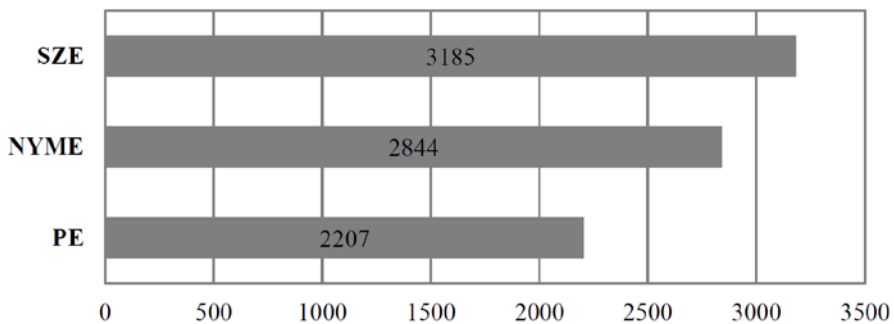


Source: Own compilation based on EMMI data

In the following, and based on the above line of thought, we shall take the 1st place applications as our basis, as this element shows which institute is the primary desired objective of further education, even though the 2nd and 3rd place applications may also result in a significant number of students. This, however, is not that pertinent, as the admittance from a spare place shows less the primary attractiveness of the institute.

The distribution of the 1st place application among the regional institutes is represented in Table 4. Out of the three great regional institutes, Széchenyi István University is the most popular among the 1st place applicants, the University of West Hungary lags somewhat behind, whereas the number of applicants of the University of Pannonia is lower with one magnitude (with almost one-third).

Figure 4: The number of first place applicants in the region's higher educational institutes (2013)



Source: Own compilation based on EMMI data

In order to determine the attractive capacity and the territorial catchment areas of the respective institutes, it is preferable to study the allocation of first place applicants in terms of their residence, which is illustrated in Table 5 in county division.

Table 5: The distribution of first-place applicants to higher educational institutes of the region by counties (2013)

Institute	NYME (person)	PE (person)	SZE (person)
Bács-Kiskun county	28	27	45
Baranya county	35	60	29
Békés county	8	5	26
Borsod-Abaúj-Zemplén county	31	9	36
Csongrád county	25	10	15
Fejér county	159	303	191
Győr-Moson-Sopron county	768	93	1,022
Hajdú-Bihar county	21	10	36
Heves county	15	8	22
Jász-Nagykun-Szolnok county	27	18	30
Komárom-Esztergom county	177	59	394
Nógrád county	15	7	26
Pest county	189	147	265
Somogy county	41	172	55
Szabolcs-Szatmár-Bereg county	27	5	20
Tolna county	24	81	30
Vas county	651	153	349
Veszprém county	291	709	351
Zala county	250	323	141
<b>Total</b>	<b>2,782</b>	<b>2,199</b>	<b>3,083</b>

Source: Own compilation based on EMMI data

We have analyzed the entrance exam data in territorial comparison, and in the case of the majority of the formation centres, we can state that they primarily dispose of regional catchment areas, and only a few formation centres, for example the technical and IT, have a national scope attractive force.

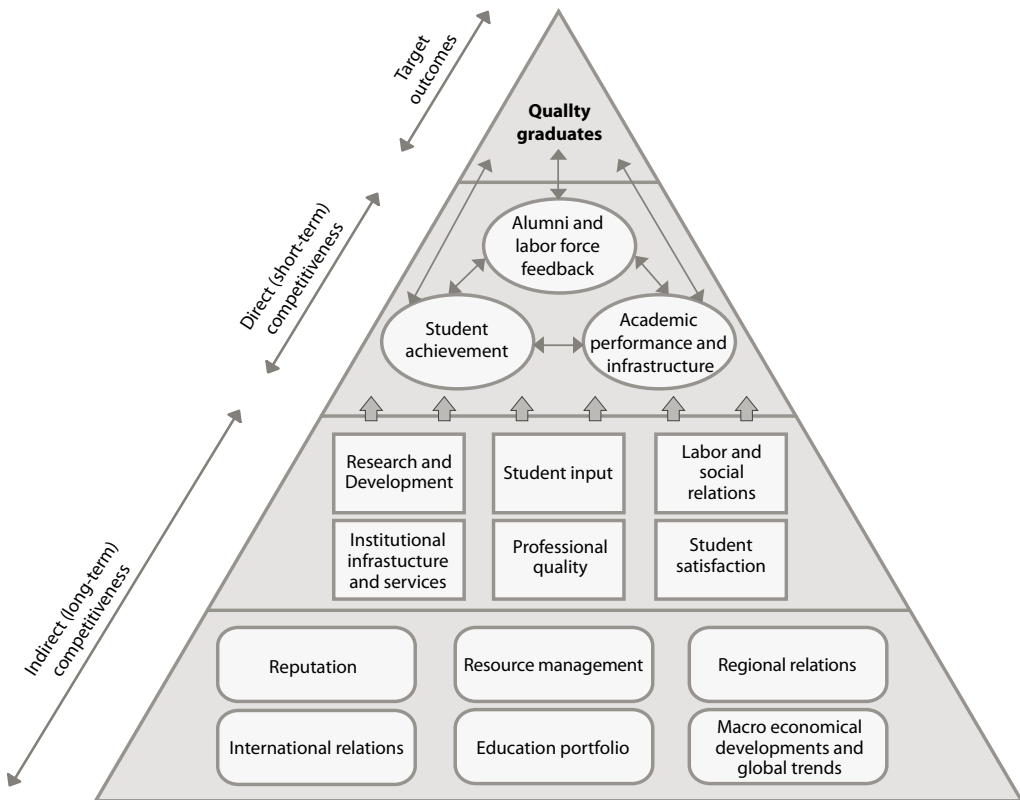
*The competitiveness of the region's institutes*

Several examples show that today, the question of competitiveness is also present in higher education besides enterprises and nations. There is competition for students, teachers, and the material resources for R&D&I work and the training. As part of the research, we

have utilized a specific methodology, namely the Lengyel competitiveness pyramid (2010), in order to analyze the competitiveness factors of the region's institutes. In our survey, we have relied basically on the text reports of EMMI, Educatio Nonprofit Ltd., OTDT, TEMPUS Foundation, OH, FTT,<sup>2</sup> Reuters-Thomson - ISI Web of Science and the higher educational institutes.

Similarly to the regional competitiveness model, the higher educational competitiveness model also attempts to classify the means, the factors and the indicators, furthermore, it serves as a reference point indicating which territories and values provide development opportunities for the sake of future development (Figure 5).

Figure 5: The competitiveness model of higher educational institutes



Source: Filep – Kovács – Tamándl 2010.

According to our approach, the central and long-term objective of higher educational institutes are the success and satisfaction of graduates. The model takes the institutional output as its centre. This interpretation means that the fundamental duty of the institutions is to transfer knowledge in an exploitable form.

2 EMMI – Ministry of Human Resources, OTDT – National Scientific Student Council, OH – Educational Office, FTT – Higher Education and Scientific Council.

Due to methodological reasons, we have compared the model in such a way that it is based on an economic theory and consistent from a mathematical-statistical point of view, too. From a technological viewpoint, we have considered transparency, comprehensiveness, authenticity, functionality (informal and research) and proportionality as important aspects. As already seen above, we have arranged the 44 different indicators into 8 categories (3 basic categories, 5 basic factors). The study has been conducted in the case of three selected institutes. The three basic categories and five basic factors have been characterized by several indicators. We have added and calculated the average of standardized indicators (transformed to a 0-1 scale) belonging to the same basic category (more precisely main factors). The measurement of the final static competitiveness was realized by taking into consideration the methodologically defined weights of indicators of the basic categories and basic factors, then the final result was realized through transforming the obtained values between 0-100. The weighing of the higher educational competitiveness model developed as follows (Table 6).

Table 6: The indicator categories of the higher educational competitiveness model and their weight values

Categories of indicators		Weight
<b>Basic categories</b>	Student performance	10%
	Quality of tutors	10%
	Alumni - and labour market satisfaction	15%
<b>Basic factors</b>	Quality of admitted students	15%
	Research, development	20%
	Institutional services	10%
	Institutional infrastructure	10%
	Institutional resources	10%

Source: own compilation

Basic categories: indicators enabling the measurement of competitiveness.

- Student performance: The category includes the performance of active students, which is characterized by the results achieved at the National Scientific Student competitions, the republican scholarships, as well as the number of persons having obtained a degree and a PhD/DLA grade.
- Tutorial performance: The factor forming indicators include qualification (the number of students per qualified teachers, and the proportion of qualified tutors compared to full-time job teachers), the number of candidates and academics, as well as the student-teacher rate.
- Alumni- and labour market satisfaction: Satisfaction can be measured in the most objective way on the basis of graduate follow-up survey, which shows the average employment time, professional employment, wage, and promotion in career.

- Direct factors: In the short run, the following factors influence the components of the basic categories:
- The quality of admitted students: The factor incorporates the indicators that define most the quality of the admitted students, namely, the first place candidates, oversubscription, the presence of foreign students, as well as the number of students achieving ranks at high school competitions and possessing a state-approved language exam certificate.
- Research, development and innovation (R&D&I): The indicators mainly defining the category of R&D&I are the number of researchers and PhD/DLA students, the magnitude of the university's influence, as well as the size of revenue from R&D.
- Institutional services: Among the indicators detailing the services provided by the higher educational institution, we can find the open hours of service offices and centres, the size of student hostel fee and the rate of students benefiting from foreign scholarships and foreign language formations.
- Institutional infrastructure: The category sums up the tool-, student hostel-, library- and sports capacities.
- Institutional resources: The indicators belonging to this category show the quality of institutional resources, as well as their utility and efficiency. Such indicators are the colleague (HR indicators), the infrastructural and capacity- utilization indicators (sums spent on investments, income issuing from lease agreement, square metre of educational territory, capacity and number of classrooms), the management indicators (e.g. rate of personal income within the budget, innovational expenses) and tender indicators (income from accorded funds).

By summing up the indicators within the categories figuring in the table, the basic categories and basic factors have been established, which are illustrated in Table 7.

Table 7: The comparison of indicators belonging to the competitiveness category in terms of weighed values

Denomination		NYME	PE	SZE
<b>Basic categories</b>	Student performance	3.826	3.776	3.005
	Quality of tutors	2.745	3.215	2.898
	Alumni - and labour market satisfaction	4.293	4.442	5.945
<b>Basic factors</b>	Quality of admitted students	5.268	6.303	6.338
	Research, development	2.062	3.800	3.631
	Institutional services	5.627	5.481	5.717
	Institutional infrastructure	3.547	3.548	3.251
	Institutional resources	4.097	6.185	7.115

Source: own compilation

In the case of the indicators of basic categories, regional institutes show varied success in the different categories. Concerning the indicators of student performance, the best result was attributed to NYME (University of West Hungary), concerning the tutorial quality, to the University of Pannonia (PE), whereas concerning the category of alumni – and labour market satisfaction, to SZE. The most outstanding results worth mentioning among the indicators are as follows:

- Regarding the number of students, the greatest amount of degrees have been delivered at the NYME (University of West Hungary) (2712 pieces; 26.86 per cent).
- In terms of the number of participants in the doctoral formation, the greatest number of degrees have been obtained at PE (32 pieces; 22.54 per cent).
- Concerning academics, PE (14.42 per cent) disposes of the highest value.
- The rate of alumni students disposing of leading positions (top or middle manager) is the highest in the case of SZE graduates (26.57 per cent).

Out of the five competitiveness basic factor- categories, SZE has the highest values in the case of three categories (quality of admitted students, institutional services, institutional resources). In the two following categories (research-development, institutional infrastructure), PE had the best performance. In the case of the categories, the most highlighted indicators are the above:

- The rate of R&D&I incomes relative to the institutional own revenue is the highest in the case of SZE (62.54 per cent).
- The most favourable student hostel fee is provided for students by SZE (8100 HUF).
- The greatest percentage of students can be placed in student hostels by University of Pannonia (PE) (28.36 per cent).
- SZE disposes of the most sports facilities as well as with sport attractions and sport opportunities.
- As far as projects benefiting from support from the framework of ÚMFT and ÚSZT until the second half of 2012 are concerned, the tender support per student and teacher is the highest in the case of SZE (1,214 and 38,326,000 HUF).

The aggregated results of competitiveness indicators of the three relevant universities are presented in Table 8 and Figure 6.

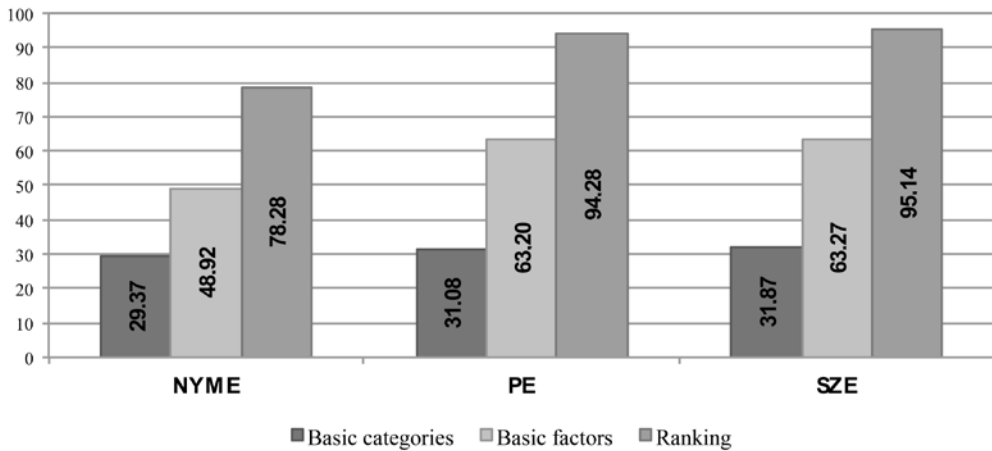
Table 8: The results obtained after the weighing of basic categories and basic factors

Denomination		Weight	NYME	PE	SZE
<b>Basic categories</b>	Student performance	10%	10.00	9.87	7.85
	Quality of tutors	10%	8.54	10.00	9.01
	Alumni - and labour market satisfaction	15%	10.83	11.21	15.00
<b>Basic factors</b>	Quality of admitted students	15%	12.47	14.92	15.00
	Research, development	20%	10.85	20.00	19.11
	Institutional services	10%	9.84	9.59	10.00
	Institutional infrastructure	10%	10.00	10.00	9.16
	Institutional resources	10%	5.76	8.69	10.00
<b>WEIGHED RESULTS</b>			78.28	94.28	95.14

Source: own compilation



Figure 6: The hierarchy of higher educational institutes based on the competitiveness model



Source: own compilation

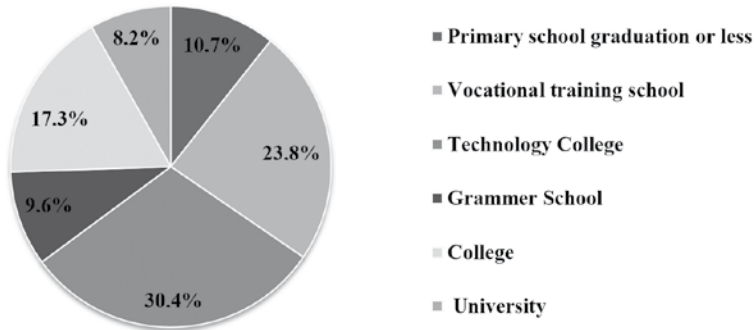
#### *The higher educational dimension of the Győr Automotive Industry District survey*

Within the framework of the Győr Automotive Industry District survey, a representative survey has been conducted among the population. One part of the survey inquired about the educational attainment, the education and the universities present in the city besides the demographic and social specifics of the citizens of Győr. The sub-sample, which contains the answers relative to higher education, regroups 1,013 persons. The present chapter presents the results of the questionnaire survey, focussing on the institutes of Győr (Széchenyi István University, University of West Hungary), their role and the quality of education.

#### *The general specifics of the sample*

The division of respondents in terms of qualification is as follows: one-tenth (10.7 per cent) disposes of 8 elementary or less, the rate of persons with vocational qualification is 23.8 per cent, representing a high rate in this sample. The persons with a secondary education figure in the highest number, 30.4 per cent of them have finished vocational schools / polytechnics, 9.6 per cent of them finished secondary school. The number of candidates with higher education is also significant, those possessing a college degree constitute 17.3 per cent, whereas those with university degree, represent 8.2 per cent. Owing to this fact, individuals with higher qualifications constitute more than one-fourth of the sample (Figure 7).

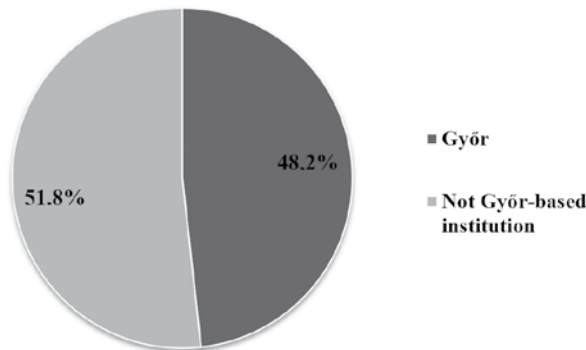
Figure 7: The division of respondents in terms of qualification



Source: Győr Automotive Industrial District survey - Population survey

Approximately fifty-fifty per cent of the responding graduates have attained their certificates in Győr (48.2 per cent) and in other settlements (51.8 per cent). Among the graduate respondents, 30.6 per cent have obtained their higher qualifications at the Széchenyi István University (Figure 8).

Figure 8: The location of the obtainment of the degree among the responding graduate students



Source: Győr Automotive Industrial District survey - Population survey

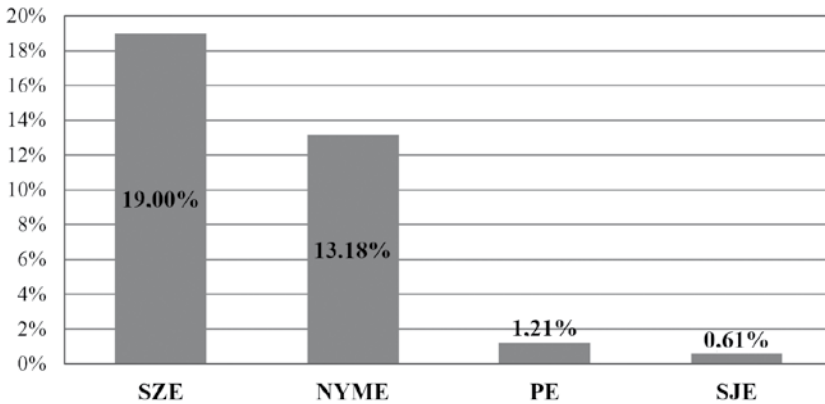
In the course of the research, we have analyzed the attitude of the population of Győr towards the universities located in the region, how they attach to them and at what level they find the city's higher educational institutes and how they relate to their presence.

By attachment to the higher educational institutes, we seek to inquire if the respondents or their close kinships have or had direct relation with the university (studies / studied there or works / worked there).

The survey shows that the greatest rate of attachment (19 per cent) can be witnessed in the case of Széchenyi István University, which is followed by the 13.18 per cent of University of West Hungary. They have minimal relation (below 2 per cent) with the other listed institutes (University of Pannonia, Selye János University). This can be explained by the fact that the majority of the responding graduates have obtained their qualifications in Győr. Concerning the open question relative to the location of their graduation, the main university cities of the country (Budapest, Pécs, Szeged) were represented in the

greatest number besides Győr. The location of the degree attainment also has an effect on the institutional attachment. A significantly weak bond has been observed in the case of the Széchenyi University (level of significance: 0.00; Cramer V = 0.25), whereas 56 per cent of the students graduated in Győr keep contact with the alma mater. The same statistical correlation does not apply to the NYME (University of West Hungary), because only 27 per cent of the students having attained their degrees in Győr are attached to the institute. The reason for this is that the major part of the respondents have graduated from Széchenyi University (Figure 9).

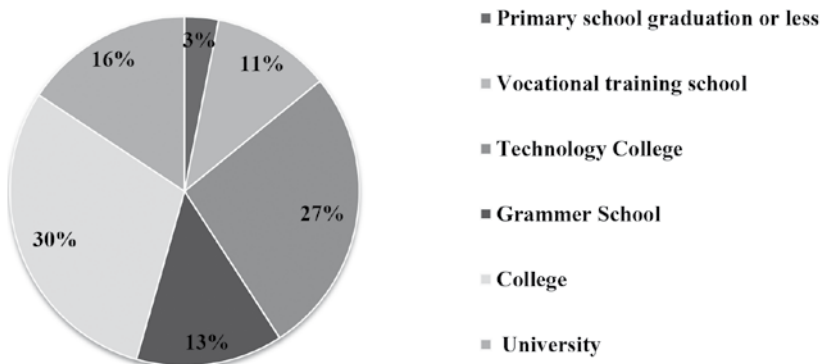
Figure 9: Attachment to the respective institutes of the region



Source: Győr Automotive Industrial District survey – Population survey

A significant correlation has been demonstrated relatively to the qualification and the attachment to the institutes of SZE and NYME, according to which qualification may influence whether one has a relation with a university. As far as Széchenyi István University and qualification are concerned, the 0.00 level of significance points to a weak (Cramer V = 0.27) relationship. The majority of those being attached to a university are graduate students (46 per cent), but those with a secondary qualification also have contact with the institute (Figure 10).

Figure 10: The distribution of students attached to Széchenyi István University in terms of qualification



Source: Győr Automotive Industrial District survey – Population survey

In the case of the NYME and qualification, we have also found a weak (Cramer V = 0.21) relationship besides a 0.00 value level of significance. The rates were formed in a similar way in this case, too, the majority of those attached to the institute (altogether 49 per cent) is constituted by graduate students.

The survey also focused on how the citizens of Győr view the presence of higher educational institutes, what kind of benefits and drawbacks they observe due to their operation or the presence of the students. Almost all of the respondents gave a positive response. Concerning the question as to whether the universities have any negative effect on the city, they replied with a unanimous no (94.6 per cent).

Table 9: Opinions related to universities

Statement	Average
The higher educational institutions reinforce the city image.	3.57
The great number of students are significant consumers in the city (rent, restaurant, other services).	3.56
The higher educational institutions contribute to the successful scientific life of Győr.	3.51
The cultural and leisure events of higher educational institutions make the cultural life of the city more colourful.	3.49
The presence of students rejuvenates the city.	3.48
The higher educational institutions are important employers with a remarkable number of employees.	3.42
The investments of the higher educational institutes enrich the city as well.	3.41
The higher educational institutions provide useful services to the city's population, too, e.g. library	3.38
The higher educational institutions offer work opportunities for several local companies as a contracting party.	3.32
The higher educational institutions have a considerable role in the sporting life of the city.	3.27
The higher educational institutions provide a qualification matching the demands of the labour market of Győr.	3.20
The presence of students disturbs the tranquility of the city.	1.87

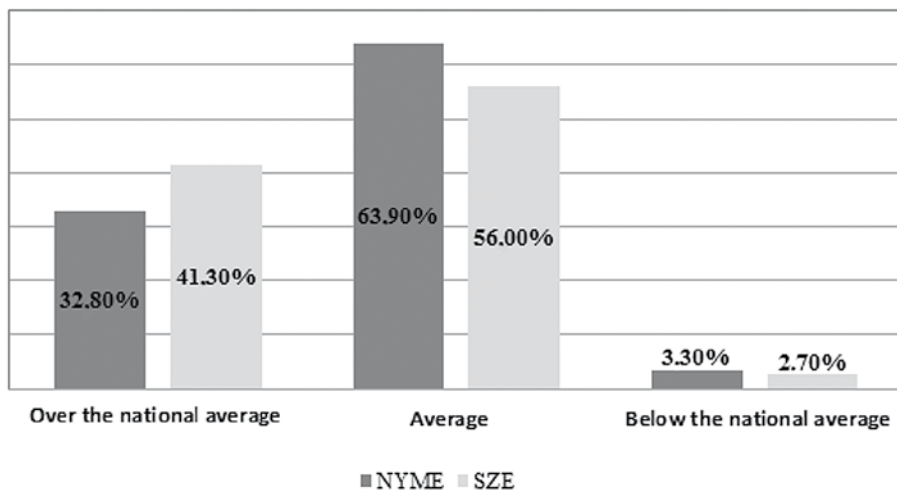
Source: Győr Automotive Industrial District survey - Population survey

Table 9 contains the averages of the evaluations given to the respective statements. The majority of respondents agree with the positive statements, as all of them have reached an average over 3.2 out of the 4. Only small part of the respondents agree with the negative statement according to which the students disturb the tranquility of the city, which represents an average value below 2. The results can be regarded as favourable, and

we can state that the majority of the citizens of Győr consider the presence of the higher educational institutes to be very useful. The highest average value has been associated with the reinforcement of the city image as well as the students as large-scale consumers.

As regards the evaluation of the quality of higher education in Győr, we can state that according to the majority of respondents, the institutes are in compliance with the level of the country average. More than one-third of them declared that the level of higher education is above the average in Győr. The number of those evaluating it below the average was minimal. The evaluation of the two institutions is slightly different. The level of Széchenyi University is estimated to be above the average by more than 8.5 per cent than that of the University of West Hungary. In total, the evaluation counts as good, the citizens of Győr are satisfied with the institutional and educational level (Figure 11).

Figure 11: The evaluation of the level of education of the higher educational institutes of Győr



Source: Győr Automotive Industrial District survey - Population survey

We have generated less variables with the help of factor analysis from the statements relative to the evaluation of the universities in order to be able to characterize the attitudes of the citizens of Győr towards higher educational institutes. The factor analysis is a well applicable method to the sample, the value of the KMO indicator is high (0.865) and the Bartlett test is also significant (0.00). The factors formed in this way explain 55.47 per cent of the variance of the sample, which means a large-scale loss of data. In the rotated factor matrix we can see which statements can be condensed into which dimensions. The respective statement is included in the factor within which it takes the highest factor value in absolute value. We have found the formation of three factors justified, the first has been denominated as “reputation and services”, because the specifics found in this group refer to the fact that the university reinforces the image and scientific life of Győr and provides diverse services, for example library and cultural programmes (Table 10).

Table 10: Rotated factor matrix

Statements	Factors		
	Reputation and services	Sport and material advantages	Presence of students
The higher educational institutions provide useful services to the city's population, too, e.g. library	.701	.251	.186
The higher educational institutions contribute to the successful scientific life of Győr.	.700	.290	-.089
The higher educational institutions reinforce the city image.	.695	.184	.103
The presence of the students rejuvenates the city.	.653	-.014	.436
The cultural and leisure events of the higher educational institutions make the cultural life of the city more colourful.	.616	.371	.008
The higher educational institutions have a considerable role in the sporting life of the city.	.033	.723	.263
The higher educational institutions have a considerable role in the sporting life of the city.	.276	.699	-.016
The higher educational institutions offer work opportunities for several local companies as a contracting party.	.213	.690	.227
The higher educational institutions provide a qualification matching the demands of the labour market of Győr.	.332	.620	-.157
The investments of higher educational institutes enrich the city as well.	.397	.547	.342
The presence of students disturbs the tranquility of the city.	.030	-.068	-.785
The great number of students are significant consumers in the city (rent, restaurant, other services).	.321	.198	.485

Source: Győr Automotive Industrial District survey - Population survey

The second factor has been denominated as “sporting and material advantages” because it includes the university as an employer, investor and contractor party, and it shows the reinforcement of the sporting life of the city. The third factor is the “presence of the students” because this dimension incorporates the indicators relating to the students (they disturb the tranquility, they are consumers in the city).

Owing to the fact that factor analysis causes a large-scale loss of data, we have performed the hierarchical cluster analysis departing from the variables utilizing the Ward procedure. We have found the establishment of four clusters justified, because in this case the volume of the number of elements belonging to the respective clusters was similar. The first cluster includes 102 persons, the second 115 persons, the third 313 persons, and the fourth 137 persons.

On the basis of the cluster analysis, the below groups can be distinguished on the basis of their attitude towards the presence of higher educational institutions. The clusters vary mainly on the basis of two viewpoints, namely, the student as a tranquility disturbing factor, and the rate of the evaluation of the positive effects of the universities in total. In the denomination of the clusters, we have followed the former ones, whereas in the case of the students, we have applied positive (the evaluation of the disturbance of tranquility is below the average value of 2) and negative (above the average value of 2) markers. In the case of the evaluation of the beneficial effects of the institutions, we have utilized the strong (above the average value 3.6) or weak (below 3.6) criteria. The denomination „weak” does not mean that respondents do not agree with the statement, but rather indicates the intensity of agreement, as the answers approaching the value of 4 refer to the highest level.

*cluster 1:* Students negative, institutes strong. According to them, the presence of students disturb the tranquility of the city in a higher proportion (3.00). The higher educational institutions play a great role in the settlement through their services and the improvement of the city image, and they have also highlighted the provision of material advantages (investments, significant employer, contractor party of companies). Most of the statements are above 3.6 (with the exception of sport: – 3.25), which shows that they have a very favourable evaluation concerning the presence of the university both from the point of view of reputation and services and from material aspects. The members of the group are less attached to the institutes. The greater majority of the members of the group live in warrens (32 per cent) and detached residential areas (25 per cent). Compared to the other clusters, the rate of the inhabitants of the manufacturing town (Gyárváros) and Szabadhegy is also higher. In terms of revenue, we can find that this group is mainly constituted by those with an average income because in the case of the categories with the lowest and highest values this cluster has the fewest members.

*cluster 2:* Students negative, institutes weak. The students as disturbing elements of the tranquility is also perceived at a higher rate (2.74). Primarily, the presence of institutions is regarded as beneficial from the viewpoint of city image and the provided services, and students are also recognized as having a role in consumption. However, the positive evaluations do not exceed the average value of 3.37, the average agreement scores are between 2.63 and 3.37, which shows that they find the presence of institutes useful, but not at an extremely high rate. The weak index of the institution in the denomination of the cluster rather indicates the evaluation proportional to the other clusters, meaning that the advantages are less evaluated with high scores. They perceive less the economic benefit and material advantages of the institutions.

The members of the group are less attached to the institutions. Most of them live in warrens (36 per cent) and detached residential areas (22 per cent). The rate of the inhabitants of warrens is the highest here. In terms of distribution per income, the members of the cluster constitute the most heterogeneous and balanced group, all categories are represented here and none of them are exceedingly overrepresented. *cluster 3: Students positive, institutes strong.* They are the least disturbed by students (1.34 average). The category of students as consumers is very strong (3.85), and besides this, they like the presence of the university because of the city image (3.81) and the supply of cultural programmes as well as the reputation of scientific life (3.79). The statements have been evaluated at least to an average of 3.6, which can be regarded as sufficiently strong on a four-grade scale. They consider the institutions to be outstanding, because according to them, they contribute to the city's success, as well as to the growth of income and living standards. This cluster has the largest number of elements, therefore it can be stated that most of them evaluate the local higher education as beneficial. The members of the group are attached in a significantly greater proportion to Széchenyi István University (32 per cent) and NYME (14 per cent). In terms of qualification, those with a higher qualification represent a greater number. Compared with the other clusters, the rate of downtown inhabitants is the highest in this group (9 per cent). There is also a large number of inhabitants of detached residential areas (30 per cent) and warrens (29 per cent). The proportion of individuals with a high income (150 – 200,000 HUF household income per capita) is high (14 per cent), and only 20 per cent of the members of the group belong to the lower income categories (below 75,000 HUF).

*cluster 4: Students positive, institutes weak.* There is only a very low number of respondents who are disturbed by students (1.32 average). We can highlight the improvement of the city image (3.4) and the presence of students as consumers. They accord less importance to sports and the provided services and cultural programmes. The members of the group are attached in a significantly greater proportion to Széchenyi István University (21 per cent) and NYME (11 per cent). The number of graduates is also higher in this group. The inhabitants of warrens (31 per cent) and detached residential areas (27 per cent) are overrepresented in this group, too. Compared to the others, the number of inhabitants of the interior residential area (19 per cent) is outstanding, and there is a greater proportion of respondents from the Újváros-Sziget city zone (11 per cent) belonging here. The rate of individuals with a very high income is also the highest in this cluster compared to the others (14 per cent). The number of pensioners is the lowest here among all the clusters (23 per cent), whereas in the others it is between 27-32 per cent.

We have performed a variance analysis in order to find out if the degree attainment in the institutions of Győr provides any labour market advantage. We have compared in what average proportion the graduates of Széchenyi István University, those of University of West Hungary and other respondents agree with certain attitude statements which relate to success, qualification, creativity and reputation. The respondents could express their opinions on a 1-4 scale. The variance analysis proved to be applicable method in the case of the italicized statements included in the table, and the result also counted as statistically significant, however, we also found it important to present the distribution of answers provided to the rest of the questions (Table 11).



Table 11: Variance Analysis

Statements	Degree attainment institution		Other respondents
	SZE	NYME-AK	
<i>Do I make good use of my qualification and knowledge during the work I perform / performed last time?</i>	3.56	3.69	3.16
The work I perform / last performed required higher qualification and more knowledge than I actually dispose of.	1.87	1.69	2.02
<i>I find it important to expand my knowledge continuously (lifelong learning).</i>	3.38	3.83	3.06
I find myself creative.	3.43	3.61	3.26
I love and easily accept innovations.	3.22	3.61	3.05
<i>I often initiate innovations and give advice at my workplace.</i>	2.84	2.88	2.64
<i>My ideas are appreciated and acknowledged at my workplace morally.</i>	2.90	3.13	2.66
My ideas are appreciated and acknowledged at my workplace financially.	2.53	2.47	2.36
<i>During my work, I find cooperation between colleagues useful, and I take part in it with pleasure.</i>	3.52	3.80	3.28
<i>I can easily transfer new ideas and innovations at my workplace.</i>	3.03	3.46	2.63

Source: Győr Automotive Industrial District survey – Population survey

The analysis proves that from the viewpoint of labour market competitiveness, it is worth attaining a degree also in the institutions of Győr, because, as compared to the other respondents (who do not possess higher qualifications or did not attain it in Győr), they gave higher average values in terms of workplace success and acknowledgement.

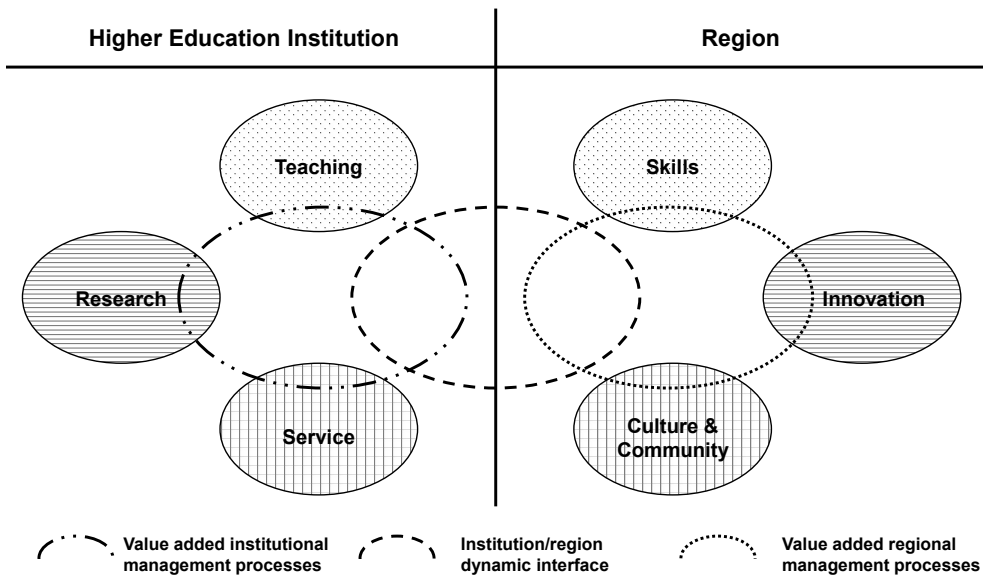
Lifelong learning is of outstanding importance for the graduates of University of West Hungary. The graduates in Győr are on average more creative and innovative than the rest of the respondents. They can easily transfer their ideas which are acknowledged both financially and morally, furthermore, they also consider the cooperation between the colleagues to be outstandingly important.

In sum, we can state that the higher educational institutions of Győr transfer useful knowledge in practice, and the students graduating there are creative and innovative, and their work is esteemed and acknowledged by their employers, too.

## The interrelatedness of spatial development and the development of higher education

The processes occurring in the Győr Automotive Industrial District, the institutional, economic and social system of relationships provides almost a school example of the model of the regionally engaged university of Goddard and Chatterton. In the model, the major contribution of universities to regional development is manifest in their ability to integrate the processes on a regional and territorial scale. In the model of the higher educational institution and the region's interface (Figure 12) these are represented by two virtual circles and the dynamic interface relation between them. A fertile and synergic relationship is formed between the three basic functions within the university, and the region reveals the presence of a mutually strengthening relationship between innovation, society and the available knowledge stock. In case the functioning of the interface relationship is efficient between the two circles, (an appropriate management mechanism is elaborated for their operation), then both circles may mutually strengthen each other, which the university and the region may also exploit (Goddard-Chatterton 2003).

Figure 12: The closed model of the higher educational institution and the region's interface



Source: Goddard-Chatterton 2003, p. 25.

Beyond their regional role, higher educational institutions also play a major role in the integration of national policies with the regional level, since their functioning is predominantly embedded in a national system. Sectoral policies strongly limit the regional engagement opportunities of universities. Since sectoral policies provide a significant part of the financial resources of higher educational institutions, they may support universities in becoming powerful regional stakeholders. On the other hand, the role of universities in national policy necessitates the involvement of additional (national) funds, through which institutions may increase their regional capacities as well. In an even wider sense, the integrative function of universities may play a significant role as concerns international dimensions as well. Through the joint capacity of the university and its area to attract external investors, they may also influence the investment policy of the national government. The acquisition of foreign investments may trigger supplementary public investments in the given settlement/region, which may even be more significant than foreign capital investments, and together they may induce economic development in a more efficient way (Arbo-Benneworth cited by Mezei 2008).

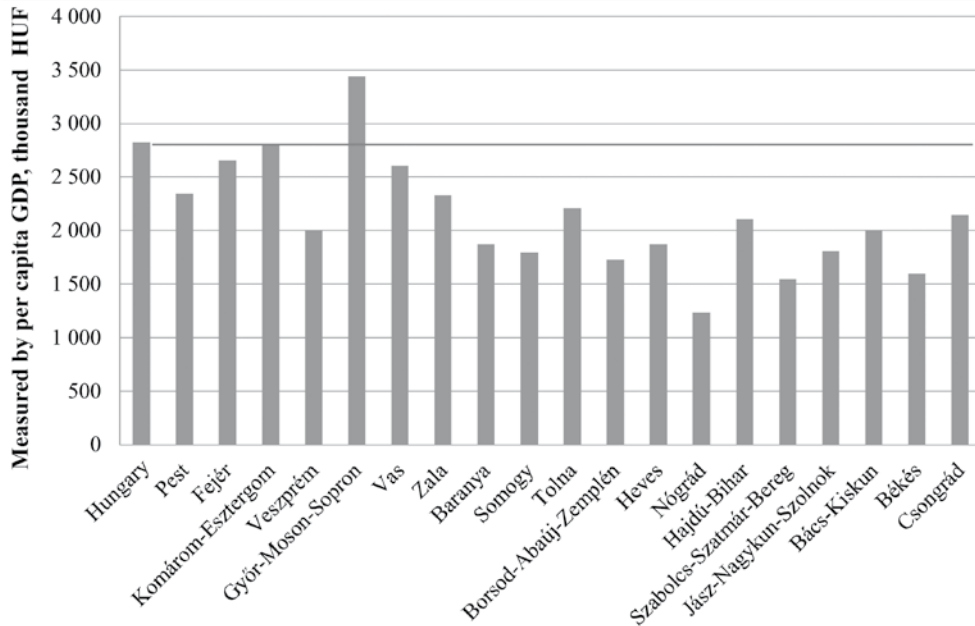
Finally, the interface between the higher educational institute and the region is also influenced by the presence of global competition (Mezei, 2008). The emergence of institutions in the international arena, the attraction of foreign students, creating and improving the related personnel and material conditions have both a direct and indirect impact on the area's development. For knowledge-based local investments undertaken in the region, the global activities of higher education provide an opportunity for those local firms to enter the global arena whose objective is to function in the global arena and to attract and also to keep the most creative professionals in their local community coming from all over the world.

The importance of the integration of national development policies mentioned in the above model is also highlighted in the background document for the elaboration of the smart specialisation strategy of Győr-Moson-Sopron county, whose main ideas foster the strengthening of interactions indicated on the previous figure:

“The innovative performance of the county can be called high on a national scale, (Table 13), however, this is mostly due to the low values characterising the rest of the counties, while it is significantly lagging behind its European competitors in terms of R&D activities. The RDI activity of local SMEs is rather low, and enhancing R&D activity in the higher educational sector is also required in order to sustain the county's rate of economic growth in synergy with a nationally outstanding corporate R&D expenditure.

The county will only be able to maintain its prominent position in the national ranking list in terms of per capita GDP values if it continues to improve its R&D&I activities and to upgrade the required higher educational base. In addition, the development of local SMEs in multiple areas is also needed (cooperation, management, innovative potential, export capacity, etc.), and, in parallel, the attraction of additional international firms into the region would also be important, and amongst them, the main targets should be those which locate their RDI oriented activities in the county. The presence of these companies would provide development opportunities for domestic firms in multiple areas, however, it necessitates active cooperation, being connected to the activities of these enterprises, and their deeper integration into the county's economy.” (Background document..., 2014)

Figure 13: Comparison of the economic development of the counties, measured by per capita GDP, in 2012<sup>3</sup>



Source: National Smart Specialisation Strategy, NIH, 2014

At the national scale, on the basis of the specialisation areas designated through EDP (Entrepreneurial Discovery Process), 6+2 (six sectoral and two horizontal) national research priorities and a limited number of local smart specialisation sectors/technologies were designed in order to achieve the objectives and vision realised along smart specialisation. Vehicle and machine industry also feature among the priorities (Table 12) as target areas, where Győr-Moson-Sopron county, the economic stakeholders and higher educational institutes of the West Transdanubian Region (primarily Széchenyi István University specialised in this training and scientific discipline, and to a lesser extent, University of Pannonia) are directly involved.

3 Remark: Budapest was not contained in the figure due to its outstandingly high values, yet it is included in the national average. The counties are indicated in the figure according to their regional belonging.

Table 12: National and horizontal priorities

National priorities	Horizontal priorities
Healthy society and wellbeing: understanding diseases, early diagnosis, advanced medical and instrumental therapies, clinical methods, pharmaceutical research and development, innovative health industry and health tourism solutions	ICT (info-communication technologies) & Services: info-communication technologies, other info-communication technologies and services supporting sectoral priorities
Advanced technologies in the vehicle and other machine industries: RDI in machine industry, advanced production technology systems, modern materials and advanced technologies (materials technology, nanotechnology, mechatronics, electronics)	Inclusive and sustainable society, viable environment: education and training, awareness-raising, support of entrepreneurial competences, establishing cooperation, networking, organisational and management development, social innovation, access to local and regional development programmes, spatial development, tourism
Clean and renewable energies: green energy – renewable and bioenergy, nuclear energy, energy efficiency	
Sustainable environment: advanced environmental protection technologies	
Healthy local foods: food processing, locally produced and processed food of high added value Agricultural innovation: agriculture, forestry, hunting, aquaculture and water management, horticultural technologies, agricultural biotechnology	

Source: National Smart Specialisation Strategy, NIH, 2014

The strategy defines instruments for the attainment of objectives as well, amongst which there are a couple of concrete pilot projects, which are the following:

*“Open lab” pilot:* The meaning of an “open lab” is that a laboratory or a research infrastructure or a related research service in a public research organisation or a large enterprise is open to everybody, i.e. from private persons through individual entrepreneurs to SMEs. Access will be thus granted to such equipment that can help everybody develop a new technology, product or service. A laboratory would be established by opening an already existing research infrastructure during the “pilot”. The “open laboratory” promotes the networking and partnering between higher educational institutions,

academic research organisations, public non-profit research organisations, other public research organisations, research and technological centres, large enterprises and micro-, small- and medium-sized enterprises (NIH, 2014).

*Higher Education and Industrial Cooperation Centre (hereinafter referred to as “FIEK”)* pilot: In the framework of FIEK, a broad cooperation between the industry and higher education sectors will be established along the national priorities formulated in the smart specialisation strategy. The aim of the FIEK is to develop sectoral training and R&D&I activities in a co-ordinated way, which is aligned with economic interests. Based on the “quadruple helix” model, several higher educational institutions, research institutes, sectoral large enterprises and small- and medium-sized enterprises participate in the cooperation. The participants in FIEK aim to jointly develop the curricula and education methods of subjects that meet the technological needs of the sector, to harmonize their accreditation activities, to develop the common structure and content of the practice-oriented (so-called dual) education. It is to be expected that the the cooperation will promote the strengthening of the Hungarian industry in the field of European R&D&I. The participants in FIEK build a strong relationship with state institutions, professional organisations, in order to facilitate the development of the sector and to ensure to meet economic interests in the best way possible. It is also the aim that participants in FIEK should jointly take part in European Union tenders, reinforcing each other to have a higher chance of winning (NIH, 2014). The first planned venue of FIEK was established at the Széchenyi István University of Győr in light of the Governmental Decree No. 1540/2014. (IX.24.) based on the cooperation between SZU, AUDI Hungaria Motor Kft., and Győr city with county rights.

*PcP pilot:* One type of procurement processes supporting innovation is pre-commercial procurement (PcP), which is a method and tool strengthening innovation from the demand-side, reducing costs for the public sector and enhancing efficiency. Through public-private partnerships, the procurement process based on shared risks and benefits facilitates the development of new technologies, products and services that provide a modern solution to the problems of public institutions. PcP facilitates the development of (at least two) solutions from institutions bound to public procurement during its four-stage process (tendering of ideas – feasibility study – prototype – testing before commercialisation). The end result of PcP should be a product, which satisfies “mass demand” (and it is not only a solution to individual needs) and can be bought by anybody (NIH 2014).

## Summary

The North Transdanubian region disposes of outstanding assets in higher education at a national scale as well, which are based on the dynamism of the local economy, its international linkages and the cooperation between firms and institutions. It can be stated that the primary catchment area of the universities of the area is mostly limited to the region, however, some outstanding faculties (e.g. engineering training in Győr and the training of wood industry engineers in Sopron) are nationally renown. In addition to their educational activities, universities fulfil research & development functions as well within specialised organisations (such as the Automotive Industrial Research Centre).

As regards student numbers, thanks to the growth occurring during recent years, Széchenyi István University demonstrates the most outstanding results, which are further strengthened by the significant improvement of the scientific qualification of the professors.

During the investigation of competitiveness, the balance inclines towards Széchenyi István University, while out of the three examined institutions, the University of West Hungary disposes of the weakest indicators both in terms of basic categories and basic factors. Széchenyi István University and University of Pannonia are characterised by and large the same competitiveness level in terms of basic categories, thus the competitive advantage of SZE is visible in the indicators of basic categories.

The inhabitants of Győr are generally satisfied with the higher education institutions of the city, evaluating their standard to be high and a low proportion of the inhabitants are disturbed by the presence of students. Besides providing professional knowledge and useful qualifications, the institutions render the city's economic, cultural and sport life more colourful through their services and events.

The economic growth of an area and the amelioration of its competitiveness are largely determined by the region's higher educational system. In our changing world where knowledge has increasingly become the driving force of development, universities are granted a dominant role, thus, in addition to providing high standard training, fostering corporate relationships and joint research projects is also highly prioritised in order to enable the region to better cope with present and future challenges. Current measures targeting the development of higher education also justify this, whose main priority is the further development of the knowledge base of higher education, increasing the higher education sector's R&D&I activity, and maintaining an active relationship with the economic region. During recent years, there has been progressing in this area as well, and out of the region's institutions, Széchenyi István University was the main contributor.

# The Public Sector in Győr

TAMÁS DUSEK – BÁLINT FILEP

One of the most spectacular social scientific paradigm shifts of the past two decades is the disappearance of the dominance of national-scale socioeconomic analyses. On the one hand, this process, typical of empirical and analytical studies, was further aggravated by the intensification of globalisation and the increasing influence of the international arena on national economies, which resulted in the prioritisation of international analyses to the detriment of the national level. On the other hand, the increasing role of the local level occurred as the result of the combined effects of several factors, among which, theoretically, the most crucial are the reemergence of regional economics, the recognition of the importance of local knowledge in the production process, the treatment of enterprises, -formerly regarded as entities isolated from their environment – on the basis of local resources and relying on knowledge networks, in their embeddedness in local economy, and the reinforcement of the ideologies of regionalism and federalism. Owing to all these changes, cities and city regions are now more commonly considered as the founding pillars and the engines of global economy. Terms referring to local economic phenomena, such as clusters, industrial districts, local comparative advantages, regional competitiveness, local networks, local knowledge base, agglomerative advantages, city region, creative region, have become quite fashionable, and these terms highlighting the significance of local factors could be further enriched with diverse variants.

In harmony with international tendencies, several local level studies were conducted in the frame of the research entitled “Győr Automotive Industrial District as a new direction and instrument of regional development”. The aim of this short paper is to give an overview of some important or interesting result of this research, concerning the public sector of Győr, Hungary’s most dynamically developing regional metropolis. The city has a population of about 130 000 inhabitants, which makes it the sixth largest city in Hungary. The city’s territory has been populated for several thousand years, inhabited and serving as a fortress already during the Celtic and Roman eras. In the medieval times, Győr was one of the most significant provincial cities and episcopal seats of Hungary. In the 16th and 17th centuries, the town was among Europe’s most significant fortresses, fulfilling an extremely crucial strategic role in the defense battles against the Ottomans as the last large fortress before Vienna. After the 300-year Hungarian-Ottoman war, since the end of the 17th century, Győr, losing its military functions, flourished into a prosperous civil city. Its favourable geographical setting is often cited as one of the reasons for its success: it lies half-way between Budapest and Vienna (120 kilometers from both cities), and 1-hour drive from Bratislava, the capital of Slovakia. The knowledge of German language is traditionally widespread, which facilitated the settlement of Austrian and



German enterprises. The city has hosted an industrial park since 1992, in which more than 100 enterprises from 13 countries are engaged in production activities. One of the most significant enterprises and the largest employers is Audi Hungarian Motor Ltd., which will be further discussed in our study. The city has two universities which ensure the supply of highly qualified professionals on a local basis for the enterprises. The Széchenyi István University offers technical, economic, legal and musical training. The Apáczai Csere János Faculty of the University of West Hungary offers training in humanities disciplines. The workforce is highly qualified and disciplined, but in some professions we can trace a lack of skilled workers.

In the following, the study will focus on the principal details of the analysis of the public sector in Győr performed within the framework of the large-scale research project entitled “Győr Automotive Industrial District as a new direction and instrument of regional development”. Two major surveys by questionnaire were conducted in Győr and its agglomeration starting from the summer of 2013. One of them is a survey conducted among the population which still serves as a real goldmine for sociologists aiming to analyse local societies. The target group of the other survey consisted of local enterprises. The results of this research enable us to gain an insight into the deeper layers of the local economy transcending the bare statistics. Due to thematic reasons, during the analysis of the public sphere, these two surveys will be of minor importance as compared with research performed in other areas and the additional sources. These sources consist of databases established from enterprise-level data (balance sheets and reports) with laborious work, interviews made with leaders of certain institutions, and the documents of the city and different urban institutions, such as the budget, General Assembly Decree, development plan, yearbooks, publications and tenders. The primary research background materials used during the research are multicolored and of unique richness.

The analyses focus on the city of Győr. Since the functioning of the city is not isolated from its environment, the city region appears explicitly in the main part of the research. However, the demarcation of the city region cannot be unified, its extension is determined by the spatial linkages of the examined phenomenon. For example, in case of the analysis of the hospital of Győr, the North-Transdanubian Healthcare Macro region is the largest relevant examination unit, but the rest of the hospitals of Győr-Moson-Sopron county are also of special interest. Higher education is organised centrally, in hubs, at the location of higher educational institutions, while the residences of students applying to higher education institutions are scattered throughout the country and other Hungarian-inhabited territories of the Carpathian Basin. Thus, a part of the analysis of higher education extends to the entire country. The designation of the relevant examination district of the city regional public transport was based on a schedule. Hence, the diversity of territorial demarcations is not a conceptional mistake, on the contrary, due to the different spatial organisation of the diverse phenomena, analyses squeezed into the strait jacket of a unique district type would have been inadequate.

The methodology of analyses could not be unified either, since, just like in the case of all well-grounded investigations, it has to be determined by the objective of the analysis and the nature of the empirical sources utilised. The review of professional literature

was necessary in the general sections and the grounding of the studies or in comparative analyses. Apart from these, local governmental and institutional documents, questionnaire surveys, expert interviews and numerous statistical methods constitute the major methodological tools which enabled researchers, with the use of their creative, reflective skills, to attach meaning, significance and causal relationship to the bare facts.

## **Local Taxes, Tax Competition and the Role of the Audi Investment**

The traditional investigation unit of theoretical and applied macroeconomy is the country. Besides, we can also find examples of groups of countries, for example in case of the currency unions (Switzerland-Lichtenstein, Italy-San Marino, countries using euro). The demarcation of the country as an examination unit is unequivocal, and the range of statistical data is the widest on this level, too. In case of an empirical macro model, which contains variables such as the change of the price level, money supply, interest rate, size of export and import, unemployment rate and number, activity rate, and other similar indices that can often be interpreted only at the macro level, it is natural and unquestionable in the majority of the cases that one specific country becomes the object of study, the boundary of which is unequivocally fixed. Even though it seems natural for regional economics that regions within the country may constitute macro-level analytical units, the scope of available macro data and the reliability of the accessible data involve serious and hardly surmountable constraints of empirical analyses. Besides, specific demarcational problems would emerge, since administrative boundaries between regions do not constitute such a definitive line in a legal or regulatory sense, nor do they serve as a constraint against inter-territorial flows in a way that national borders do.

Similarly to intra-national regions, the study of cities and city regions is involved in the problem of defining the analytical unit. This does not only arise as a theoretical problem of selecting the adequate unit of investigation, but also in the examination of practical questions concerning taxation. Within this area, at a global level, in case of the multi-site enterprises, the division of the sites charged with minimal tax obligation (countries, regions and settlements) appears to be a priority issue, attached to the problematic of international tax havens and income-hiding. At a local level, the interesting research question is the impact of local business tax on enterprises, which is relevant in the case of single and multi-site enterprises, especially in case of spatially mobile productive factors. In terms of taxation, the world is divided into a variegated web of countries, regions, counties and local governments, where different countries have different local taxation competences. In Hungary, the most significant decentralised element of taxation is the local business tax, the size of which is fixed by more than 3 000 local governments. From the viewpoint of local taxation, tax competition resulted in the establishment of miniature local tax havens, which attract mobile activities to the settlements in question, often only in an administrative, and not a real sense.

Research conducted on theoretical and practical impacts of territorial tax competition is highly represented in international literature. These questions cannot be examined within country borders either, with respect to any tax type. The excellent study of Valéria Limpók abounding in data covers certain local, territorial aspects of these questions from fiscal point of view. Through the example of Audi, the study demonstrates that large international companies do not only exploit the heterogeneous local taxation rules through tax optimization, but also attempt to form those actively in pursuit of tax optimization. The company is considered as one of the largest groups in the country in all aspects (employment number, capital, profit and turnover). The number of employees exceeds 10,000 as a result of gradual expansion. Until the end of 2013, more than 25 million engines had been produced in the factory. The diverse tax benefits granted from the very beginning also form a part of the favourable economic environment of Audi Hungarian Motor Ltd. Even the location choice of the company in 1992 was affected by the current favourable tax policy, which the company did not only exploit, but also influenced later on. Audi Hungária Motor Ltd became the most significant taxpayer in Győr in 2007, before which year it enjoyed exemption from the business tax throughout 15 years.

## **The 2017 European Youth Olympic Festival**

Valéria Limpók's study mentions a significant local event to be held in the future in Győr, namely, the 2017 European Youth Olympic Festival, in such a context that the event could mean a potential threat to a sustainable local budget. The financial background and economic effects and the profit of the necessary investments of the mega event are not known yet. Other studies also discuss the event due to its significance from a city marketing aspect, and not so much from an economic viewpoint. The literature primarily highlights the positive effects of megaevents such as positive image-building, increasing international reputation, the modernisation of infrastructure, the growth of business and leisure tourism, but the improvement of the population's environmental awareness and the rise of the city's liveability level are also mentioned as positive effects. The reinforcement of the openness and receptivity of the inhabitants of the settlement is a significant effect. The 2013 European Youth Olympics in Utrecht is instructive from the viewpoint that due to lack of marketing, people outside the city were not aware at all of the fact that Olympic Games were held in Utrecht with the participation of 2,300 young sportsmen. The notoriety and judgment of the Youth Olympic Games among the population of Győr were also examined through interviews and questionnaires. In 2012, the reputation of the Olympic Games was rather low, less than a quarter of the respondents had heard of it by then. However, supportive opinions were in majority concerning the organisation of the event, and the evaluation of effects was also positive.

## **Public Services**

The territorial scope and organisational form of the provision of public utility services may have an impact on the efficiency, level and cost of services. The question of organisational efficiency in Győr is especially interesting because the organisational integration of heat supply, communal provider and real estate management units previously operating separately was accomplished in 2010, which made possible the empirical analysis of the effect of this change. One of the main reasons behind the integration was tax optimisation: previously, heat supply produced a huge profit, but the communal provider met heavy losses due to the nature of its activities. Albeit post-integration, the profit of the heat supply section decreased, and this way the tax optimisation factor was no longer relevant, the positive effects manifest in other areas of the integration prevail permanently. Among these we can mention the reduced costs of public procurement, the cost saving resulting from the unification of park maintenance, as well as the unified customer service system, which is advantageous for the population, too.

Győr also fulfils a central role in health care service provision in the Western part of Hungary. Aladár Petz County Teaching Hospital has served patients for more than 250 years. Nowadays, the institution counts nearly 2 100 employees, which makes it one of the biggest and most significant employers of Győr and its region. As a regional central hospital, it provides for the patients in 53 inpatient professions (42 active, and 11 chronic professions operate in the institution). At the highest progressivity level, it provides professional services in 23 active professions, in the case of nine of these, its regional provision obligation covers the whole region. Among the chronic professions, it ranks as a unique provider in the area of child and youth psychiatric care in the region. The hospital's capacity for chronic patients is currently 402 beds.

There have been recent organisational changes in the area of medical services realised within the framework of the centrally directed Semmelweis plan, through the creation of the North Transdanubian Health Care Macroregion. The macroregion comprising four entire counties does not dispose of a Medical Faculty, the regional centre role is divided between several institutions (besides Aladár Petz County Teaching Hospital of Győr, the hospitals of Szombathely, Veszprém and Zalaegerszeg). The hospital of Győr provides professional service in 9 professions, the other three institutions together in eight professions cover the entire region. These proportions also reveal the dominant status of the Győr hospital within the region, which was already manifest before the health care reforms in 2012, and later on it also increased unceasingly due to the takeover of other hospitals' duties that were previously operating and were closed due to the reforms.

## **Education, Vocational Training**

Universities play a central role in the reproduction and adaption of human resources, as well as the production of social capital. Hence, they have an increasing significance among regional stakeholders. Due to human capital, education has become a key

strategic resource in the knowledge economy in the pursuit of economic success. Therefore, there is an ever-increasing pressure on regions to become learning and knowledge-producing communities which focus on continuous development, organisational learning and knowledge transfer, and produce new ideas, thereby supporting regional development and welfare. Higher education institutions play a key role in this process. In their study, László Tamándl et al., present the higher education institutions in the North Transdanubian region, and also compare the three most significant universities of the region through the utilisation of the most recent entrance statistics (Széchenyi István University of Győr, University of West Hungary, which has departments in several cities, amongst them in Győr, and the University of Pannonia of Veszprém). In the case of the three universities, among the applicants, the rate of students living in their own counties is the highest, but enrollment occurs from the entire territory of the country. In the case of Győr, the number of students from Hungarian-inhabited territories of South Slovakia is also remarkable. Out of the three institutions, University of Pannonia is the strongest in Veszprém, Fejér and Zala counties and also in the South-Transdanubian region, University of West Hungary in Vas county, and Széchenyi István University in the remaining counties and in Budapest.

The population has an unquestionably positive attitude towards the presence of the Széchenyi István University and the University of West Hungary, Apáczai Csere János Faculty in Győr. According to the questionnaire survey, the highest score was given to the statement according to which higher education institutions reinforce the city image, suggesting that the majority of the respondents agreed. But there was also consensus in other statements with a positive content, whereas the majority disagrees with the negative statement according to which the presence of students disturbs the tranquility of the city. The different statements could be easily categorised with the help of factor analysis into three major units, namely, reputation and services, sports and material advantages, and the effect of students' presence in the city. The majority of respondents also found the educational level of the institutions good or adequate, estimating the standard of Széchenyi István University to be significantly higher than that of Apáczai Csere János Faculty.

Secondary education and vocational training also count as a significant factor of competitiveness. The changes effectuated in secondary education in the last two decades were very similar in Győr and in other parts of the country since the demographic changes in their background were also almost identical throughout the country. Namely, Győr also had to face the challenges resulting from the ever-decreasing number of students in the past few years. By the year 2000, the birth rate in Hungary decreased to 98 000 compared to 143 000 in 1981. In the following years, this decline continued more slowly. Opposing and slightly augmenting trends can only be observed in minor settlements or in parts of settlements, which is counterbalanced by the scope of settlements and parts of settlements declining at a higher rate than the average. Besides, the changes in the labour market also affect all the counties. The questionnaire survey contained a question on confidence in the education system of Győr and satisfaction with its operation. The responses reveal interesting and remarkable territorial disparities within the city.

The relation between vocational training and economic actors, the expectations of economic actors regarding vocational training also constitute an important research

domain at a local level, too. According to the results, the guidelines defined by market stakeholders and the harmonisation of the professional funding of education policy is regarded as one of the major tasks of the near future. Cooperation between market stakeholders, higher education institutions and state institutions was examined in a corporate questionnaire survey conducted in order to help freshly graduated students find a job. Assistants are employed by several enterprises, this is one of the most frequent contribution of enterprises to developing employees' competences, too. A number of enterprises maintain a relationship with Széchenyi István University and various secondary education institutions.

In analysing the factors of the recruitment of career-beginners, the study also included the measurement of professional competences and those beyond profession. For the majority of enterprises, factors such as high quality work, productivity (efficient execution of tasks), and responsibility in autonomous task execution and decisions were among the most important competences. Competences related to social skills and capacities such as ability to work in a team, problem solving skills, autonomous work and good intelligence were also decisive factors. The presence of computer science skills and professional practical experience came only after these factors. The requirement of autonomous work was not in the frontline, enterprises initially intend to form fresh graduates and career-beginners according to their needs, and autonomous work gains scope only later on. The greatest shortcoming is manifest in soft skills on the basis of the measurement of career-beginners' competences, that is to say, enterprises experience deficiencies in the case of these young people which do not indicate a lack of professional knowledge but concern time management, communicative or organisational skills for instance. In terms of computer science skills, young professionals are believed to dispose of these at a high level.

## **Vision and Culture**

The city's vision can be reviewed by analysing the city's various innovative and strategic concepts. Among the major elements of the "Integrated City Development Strategy" elaborated in 2008, we can highlight the great volume augmentation of the city's population due to an increasing number of jobs, an objective which has been abandoned by the strategy makers in harmony with the development of demographic trends. The city's programme offering an outstanding living -, entrepreneurial -, and cultural milieu both at the national and Central European scale, and the programme of the monument and social urban rehabilitation are integrated into the Integrated Settlement Development Strategy and the Settlement Development Concept currently in the process of elaboration. Besides, sports economy may also play a remarkable role in the city's life due to the infrastructural investments related to the European Youth Olympic Festival. Győr and its region place a special emphasis on the harmonisation of the planning of various regional functions and sectors and the establishment of an organisation for this objective. The improvement of the relationship between the business organisations of the vehicle indus-

try and the local communities, and the creation of conditions of becoming a supplier are of high priority. The concept of growth zone is favourable for Győr. The harmonised planning of Széchenyi István University, the city of Győr and its enterprises may be the key to the efficient and successful obtainment of the sources of the 2014-20 European Structural and Investment Funds and the realisation of the plans and continued urban development.

Nowadays, the concepts of creative city, culture and creativity as the promoters of development appear more frequently in settlement development and marketing plans of cities. With the prioritisation of these factors, cultural life, cultural institutions fulfilling these demands play an ever increasing role in the life of the city and its population. In the past decades, there have been significant changes in the field of cultural services and cultural consumption habits. Culture consumption has become a less and less social, and an increasingly more individual activity. Due to the spread of the Internet, the satisfaction of individual cultural needs has become possible, and the rate and structure of cultural consumers have also changed. According to some beliefs, market economy and the competition for cultural consumers force the supply side to keep in mind economic aspects at the expense of uniqueness and artistic values, which is judged as a negative phenomenon by the critics of the process. However, this is not a new idea, even before the appearance of the Internet, certain intellectuals sharply criticized the products of mass culture due to their alleged destructive nature. Due to the new means of propagating culture, the greatest challenge for cultural institutions besides obtaining and supplementing financial resources is entering into contact with visitors and attracting them to the sites of culture consumption. Based on 24 structured interviews, we can gain a picture of the role and future of the institutions of Győr and its surrounding area, as well as the self-evaluation of the institutions. The results show that the main resources of institutions are procured from municipal and project funding, which are almost completely spent on the day-to-day operation, thus neither time, nor financial resources will be left for marketing and the establishment of a visitor-centred approach. Despite this fact, the majority of the institutions in Győr and all those operating in the settlements of the catchment area shape their offer in compliance with the demands of visitors year after year, within which light and amusing programmes gain a more and more important role. In order to realise these, cooperation between the institutions, non-governmental organisations and the population becomes more and more intensive and efficient. Interesting disparities can be observed in the conduct and interpretation of culture in the institutions of the city and its agglomeration. The institutions in Győr interpret culture in a narrower sense, whereas those in the surrounding areas in a wider sense. The institutions of Győr's agglomeration did not primarily name Győr, but TV and Internet as their rivals, which contribute to decreasing their attendance.

The analysis of local culture, urban society, local values and traditions, emotions and collective identity constitutes an important part of the research project. However, these topics would lead us into the realm of urban sociology.

# **Economies of scale, the spatial and organizational efficiency of public services and their integration in Győr**

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**SUMMARY:** The questions concerning the efficient functioning of the public sector, the efforts to find spatial competences and organisational solutions which reduce the running costs or ameliorate the quality of services, is of primary practical significance. The study outlines the theoretical foundations of the topic, providing a constructive critical approach to Samuelson's definition of public goods, and the influential theory of Tiebout on the large number of small local governments in competition with each other. The empirical section summarises the Hungarian results of the economies of scale in various communal services. In addition to lessons of various further studies, and the economic and efficiency effects of the organisational integration realised in Győr in 2010 are going to be presented, which involved the merger between heat supply, communal service and real estate asset management units.

**KEYWORDS:** economies of scale, local communal services, integration, Győr, Hungary

## **Introduction**

The questions concerning the efficient functioning of the public sector, the efforts to find spatial competences and organisational solutions which reduce the running costs or ameliorate the quality of services, is of primary practical significance. These, in addition to being encountered during the performance of practical activities and operation, belong to the realm of various scientific disciplines. A substantial theoretical and empirical literature has evolved on the various types of organisational integrations and in general, the benefits and drawbacks of various organisational forms in organisation science, public administration science, strategic management, corporate finances, public choice theory, the new institutionalist school, agency theory, the economics of transaction costs, accounting and in overall, in professional literature focusing on bureaucratic, administrative questions. According to the theory, even a minor modification in the organisational form may trigger substantial operational changes, a source of advantages and disadvantages. Therefore, integration in itself may contribute to raising efficiency. The mainstream, neoclassical economic theory



does not pay attention to real-life organisational problematics, organisations are characterised by a production function or a set of production opportunities in mainstream theory, where inputs are automatically transformed into outputs inside a black box.

Community services are generally those types of services in the provision of which the state promotes the prevalence of factors beyond competition for the interest of consumers. The terms “consumer interests” and “factors beyond competition” would require further clarification, however, we shall not discuss these in this study. Even though no unified range and classification of these services exists, communal services such as drinking water supply, wastewater management, public transportation, waste collection, district heating supply and human services (education, health care, community culture), public security and social care belong to this category. A profit-oriented version provided by market stakeholders exists in the case of almost all of these services.

The spatial scope and organisational efficiency of the provision of such services may exert an influence on the efficiency, standard and cost of these benefits. The question of spatial efficiency relates to the size of a spatial unit where the provision of an individual service can be regarded as optimal. To put it in a different way, does a spatial optimum exist or does the spatial scope have no effect whatsoever on the quality and costs of the service? In the latter case, efficiency factors are irrelevant in determining the spatial scope. The domestic relevance of the question is indicated by the transfer of long-distance bus services from the county to the regional level, the territorial reorganisation of water suppliers, the augmentation of their average size and the creation of health care regions. The reason behind each of the three spatial organisational changes is cost saving, derived from economies of scale. Calculations which would justify the economies of scale are not known, but at least there will be a chance to compare the former Volán companies with the current regional situation, and the management of previous water works of a smaller average size with the current utilities integrated into larger units. In case no economies of scale can be detected or other benefits derived from the spatial reorganisation, the reorganisation will not be justifiable and the costs of the reorganisation will not be recovered.

As regards to the organisational efficiency, the object of our study is to find out which organisational frameworks are the most suitable for the provision of several and diverse services in the same area: the provision of each service by a separate supplier, the provision of diverse services by a unique integrated supplier or a midway solution between the two extreme scenarios with a certain degree of integration between the partially independent organisations.

We have investigated the theoretical and empirical aspects of both questions in the framework of the research titled the “Automotive Industrial District of Győr”. In addition to the main empirical results a more in-depth discussion of the theoretical questions in our current study is going to be provided. First, the questions of scale efficiency in their particular relation to settlement size are going to be outlined. The second section provides a critical review of the aspatial theory of public goods and the Tiebout model. In the third part, the economies of scale in various communal services shall be explored through the utilisation of empirical data from Hungary. The fourth section analyses the economic and efficiency effects of the organisational integration achieved in Győr in 2010 which involved the merger between heat supply, communal service and real estate asset management units.

## Settlement Size and Economies of Scale

In the case of scale-efficient activities or those with economies of scale, increasing output leads to a fall in per-unit costs. Economies of scale can be derived from various sources according to the type of activity. These are mostly explained by technical or organisational factors: mechanisation, automatisisation, specialisation, division of labour, more efficient time management, the vertical and horizontal integration of activities. On a conceptual level, the term economies of scale is a simple concept, yet in its practical measurement, several obstacles must be conquered. This is due to the difficulty of determining the volume of output and expenses. In an ideal situation, if a single economic unit produces only one single product of homogeneous quality, economies of scale would be realised in a relatively simple way by comparing the cost structure of the units of heterogeneous size and production capacities. The economic entities, however, do not produce one single output of homogeneous quality. Determining the output involves further difficulties in administrative and service activities, then in schools, hospitals or public administrative entities, the inclusion of aspects of quality would further complicate the situation. The calculation of production costs might be rendered more difficult by taking non-financial costs into account, and further problems are encountered if we regard or disregard the expenses on the consumers' side (delivery costs, waiting time, quality of service provision). Nevertheless, an empirical analysis cannot evade these problems, it has to select a measurement procedure.

The difficulties inherent in the calculation of costs and outputs listed so far are further multiplied during the investigation of the settlement. The actual state of settlements and settlement network is not a result of the allocation of resources based on atemporal, economies of scale or other optimization and rational criteria, and according to a centralised plan, but as a result of a long historical process consisting of several spontaneous elements and random events. Naturally, a settlement does not have a cost and a product in the way that an enterprise does. Its outputs are unique: the local policy, the arena of local opinions, service provision and the maintenance of institutions, the administrative local unit of central or meso-level governance, the local regulatory, taxation and economic functions are all characteristic of settlements. Theoretically, economies of scale, with the exception of from the local political arena, can be examined in the case of all these functions. But before we arrive at this point, even the definition of the examination unit, the "settlement" and its operationalisation for the sake of functional analyses may be effectuated in diverse ways.

Defining settlements involves a specific demarcational problem. One can approach it from a territorial and a legal aspect as well. From a the territorial aspect, settlements are condensation points, junctions, permanently constructed areas of human residences. Settlements are separated from each other by uninhabited regions. This definition causes a lot of problems in practice: what may be regarded as the smallest settlement and continuity, what counts as the smallest necessary distance for the separation of townships, how shall we approach the temporarily inhabited settlements and isolated districts and farms. Along the outgoing roads of the metropolises, we can find

constructed residential areas, industrial districts and commercial and entertainment units in diverse frequency and of a tentacular pattern, which often lead to another urban core in an uninterrupted way. These zones can be attached to two urban cores in the same extent simultaneously. For this reason, settlements are not discrete units disposing of definite borderlines.

According to the legal definition of the settlements, the boundaries of local governments designate the settlements. This produces a clear definition from a conceptual aspect, but raises the same problems in terms of content which we identified in the case of the territorial aspect. Nevertheless, these problems often remain latent for the analyses relying on the territory-based definition.

The problem encountered in determining the optimal settlement size is already present during the definition of the settlement, or its absence: we often do not know whether the optimum refers to the size of population groups viewed from a territorial aspect, or to the optimum viewed from a legal aspect, more precisely, to the optimal size of local governments. Besides the difficulties of defining the settlement on conceptual and operative grounds, we also have to face a number of specific questions while studying the relation between settlement size and economies of scale. It is an unquestionably important, posing a theoretical and empirical, as well as a practical question at the same time whether the average cost of any services as percentage of the population (e.g. communal services, administration, health care services, police, fire-fighters) may be a function of the settlement size. Certain services can be studied as isolated objects, although it is not easy to identify qualitative differences, outputs and costs manifest in several dimensions, and to handle the service solutions belonging to different sizes. The average cost of each service as percentage of the population may vary depending on location and time.

The collective study of services, however, raises further conceptual difficulties. The range of services, their structure, the weight of the different services may vary radically in function of the settlement size. One of the most spectacular differences can be observed in the organisation of local public transport. Furthermore, the organisational solutions for service provision and their institutions may fundamentally differ. It would be illusoric and resemble a consulting firm-type mentality to declare that there is a unique best organisational solution or a sole optimal settlement size.

The fundamental difference between businesses and settlements can be resumed in the following way: businesses change their sites and size within certain limits, whereas the size of settlements is an external condition in a given time. The size of settlements changes only in the long run and slowly, but in the long run all circumstances change which may be related to the economies of scale of settlement services. It is also for this reason that it would be difficult to regard settlement size as an objective of optimisation.

Nonetheless, we can find numerous different speculations related to this issue. By speculative assertions we mean statements which are neither grounded on analytical deductions relying on empirical bases, nor on empirical observations. These statements may be pronounced by policy makers, media economists, consultants, but can also appear in a kind of scientific forum (in written form or speech), and in the latter case, they appear to be scientific

for the laymen, and for the previously mentioned group, they may provide munition in order to confirm their statements. We consider theoretical deductions not relying on empirical bases to be speculative, for example when certain models depart from the perfect divisibility of resources, their cost-free spatial movement, homogeneous and/or one-dimensional space, workers possessing the urban land in the same proportion, settlements with zero number of inhabitants and infinite utility, a sole product, the same cost curve for all businesses, perfect information, representative consumers solving differential equations containing variables that are unmeasurable in profit maximization and other similar absurdities. But the major part of these speculative statements simply rely on intuitions or the generalization of unique, selective observations that are far from possessing a general scope

We can demonstrate the nature of these statements with the help of some general examples: “small local governments are not cost efficient and professional”; “cooperation between the small local governments is a necessity”; “local government associations are not efficient, they lead to unnecessary task duplication”; “the change from the county level to regional increases efficiency, reduces administrative costs”. Among the above, the second and third statements are in contradiction. In reality, in a given context, both can be true in the execution of certain tasks, but they are far from having a general scope. The summary evaluation of Swianiewicz supporting the idea of territorial consolidation (establishment of larger size local governments) is as follows: “There is economy of scale, which makes it possible to provide services more cheaply (or more effectively) in the larger local government units. The most straightforward evidence of this rule has been presented in the context of municipal administration expenditure.” (Swianiewicz, 2010, 185.) The American document entitled Committee for Economic Development focusing on the modernisation of local governance justified the augmentation of the size of local governments as follows: “The most pressing problem of local government in metropolitan areas may be stated quite simply. The bewildering multiplicity of small, piecemeal, duplicative, overlapping local jurisdictions cannot cope with the staggering difficulties encountered in managing modern urban affairs. The fiscal effects of duplicative suburban separatism create great difficulty in provision of costly central city services benefitting the whole urbanized area. If local governments are to function effectively in metropolitan areas, they must have sufficient size and authority to plan, administer, and provide significant financial support for solutions to areawide problems.” (cites Hutcheson – Prather, 1979, 166.). The English White Book preparing the municipal reform contains the following: “many [existing] authorities are too small ... to discharge their responsibilities effectively” (cites King – Ma, 2000, 256.) Another official paper argued that “with functions such as education and the personal social services ... there is considerable advantage in having units of population sufficiently large to provide a base for their effective organisation and a high quality of service. The government accepts the view that the units appropriate for the provision of these services should have populations broadly within the range 250,000 to 1,000,000” (cites King – Ma, 2000, 256.). In the background of these statements, also phrased as common truth, we can find the hypothesis of scale-efficiency, according to which larger administrative units can operate with smaller unit costs per total population. This, however, is a mere speculation. The summary of Swianiewicz is virtually not

speculative, because it refers to empirical observations. However, these observations are misinterpreted, because he does not distinguish settlement size from the size of administrative units: even if it is true that a larger settlement size involves smaller administrative unit costs, this does not suggest that the organisation of settlements, previously spatially and organically distinct from one another, into larger local governments would entail lower administrative unit costs. This problem is perfectly demonstrated by those researches which also contain population density besides settlement size (Drew et al, 2014; Holcombe – Williams, 2009).

Examples taken from all larger countries of the world could be enumerated endlessly. The limit of generalising the relationship between settlement size and economies of scale is indicated by the extreme spatial and organisational diversity of the settlement system and the scope and executional method of communal tasks. This is the reason why the different case studies cannot be simply categorised into the larger classes of general cases. This classifiability would be the condition of determining the general relationship between settlement size and economies of scale. In its absence, there is no other alternative beyond always performing concrete analyses, which is valid only if applied to a given location (region, country), a specific period and all kinds of other special circumstances. A much detailed analysis of these questions can be found in Dusek (2014).

## **The Criticism of the Aspatial Theory of Public Goods**

The role of the state in public service provision is theoretically justified by the theory of public goods and deficiencies of the market due to natural monopolies. In respect of the theory of public goods, the influential definition and theory of Samuelson (1954) was formulated within the framework of the one-point economy, that is to say, it is lacking a spatial dimension. Samuelson divides goods into two categories: private goods and public goods, in original terms, private consumption goods and collective consumption goods (Samuelson 1954, 387). In the case of private consumption goods, exclusion and rivalry prevail in the process of consumption, the consumption of the good decreases others' consumption opportunities. As regards collective consumption goods, consumption cannot be excluded, or the exclusion of consumption would be disproportionately expensive, an individual's consumption does not decrease others' consumption opportunities. Due to the lack of exclusion, however, no one would be willing to pay for the collective consumption goods, therefore, these goods need to be provided by the state, their production needs to be covered from taxes. Otherwise, the supply of collective goods would be too low, it would not be of a "Pareto-efficient" quantity (whatever the practical meaning of "Pareto efficiency" may be).

Why do we still refer to the precise, but erroneous and confusing subdivision of a 1954 study which is not applicable in the real world? The reason is because it is a definition that

has been incorporated into the common textbook knowledge,<sup>1</sup> and has been accepted until the present day, and the theories based upon shape the ideas on the role of the state and the method of the provision of local public services. No product in the real world fits the criteria of collective consumption goods according to Samuelson's definition, if not through the senseless expansion of the concept of "goods" beyond all limits of reason.

Home defense and police, as frequent examples of collective goods, do not have a sole possible supply. The different resources that can be spent on home defense and police are rather scarce, their alternative use has a varying effect on the defense capacities and public security of various regions of a given country. The private armies and private security services still operating today, which are often significantly more efficient than the State army and the police, demonstrate that the State is not the only organ which can maintain security and public order. Another frequent example is that the benefit of a lighthouse concentrates only on a restricted area, whereas the service could be provided by profit-oriented private companies, too.<sup>2</sup>

There are no such collective consumption goods that can be evenly distributed in space. The restricted territorial use applies to almost all collective goods cited as an example in the textbooks (e.g. dams, public lighting, public order, roads, bridges, hospitals, fire fighting force). In fact, what matches the concept of collective goods in Samuelson's sense is not a good at all in reality, but the general environmental condition of the economy that cannot be expropriated by anyone.

*The Tiebout Model: Competition between a Large Number of Small Local Governments Ensures Efficient Local Public Service Provision*

Realising the restrictedness of the spatial scope of the services of local governments, Tiebout discussed the question of the efficient provision of local public services in his classical 1956 study. The schematic description of the Tiebout model is justified because it is often referred to without knowing its content and conditionality in details in the form presented by Tiebout ... – and concerning what follows its presentation, its interpretation would require a familiarity with the objective and conditionality of his model. Tiebout's methodology is not identical with that of Samuelson: Samuelson sets up antirealistic hypotheses, he conducts his model on the basis of his hypotheses, then formulates polit-

- 1 See for example the microeconomics textbooks almost literally based on Samuelson's 1954 study: Ahl-ersten (2008, 128.); Mas-Colell et al. (1995, 359.); Depken (2006, 247.); Malinvaud (1985, 230.); Pindyck, Rubinfeld (1995, 648-649.). The initial dual division is mainly followed by the more in-depth subdivision of collective consumption goods (into triple and quadruple groups), and the more detailed analyses further refine the categorisation, distinguishing the categories (not exempt of overlaps) of pure collective goods, mixed collective goods, club goods, global collective goods, international (transnational) collective goods, national collective goods, imperfect collective goods and impure collective goods. Many of these categories owe their existence to spatiality.
- 2 See also: Sechrest (2004) and Coase (2004), listing the examples of the goods previously mainly considered as public goods, but in reality produced and offered as private goods ; on the criticism of Coase's approach, see Van Zandt (1993) and Bertrand (2006), and for the possibilities of efficient service provision by private companies, see the studies of Block, Barnett (2009).

ico-economic proposals related to the real world relying on his unrealistic model. Tiebout, on the contrary, deals with the effects of his unrealistic hypotheses, an important aspect which is lacking in Samuelson's case.

Tiebout acknowledges that even though his definitions may be arbitrary, Samuelson still interprets consumption in a much wider perspective than usual in the formulation of the theory of collective consumption goods. Samuelson not only enables the expansion of consumption arbitrarily, but also the change of consumption forms: for example, according to his definition, the consumption of a municipal tenement flat construction programme is manifest not only in the case of the inhabitants of the tenement houses, but also in the case of all of the inhabitants of the settlement, due to external economic effects related to the elimination of the poor districts. Instead of Samuelson's definition of the collective consumption goods, Tiebout would rather opt for a less "elegant" definition, according to which the collective consumption goods refer to all those goods and services in the case of which there is no effective way for consumers to pay for their consumptions (Tiebout 1956, 416-417).

In Tiebout's model, the free movement of persons, their perfect local knowledge and the decentralisation of communal tasks altogether lead to an optimal division of resources and the optimal level of collective consumption goods, similarly to the (more or less) optimal division of private consumption goods through market processes. The hypotheses of Tiebout's model are as follows (Tiebout 1956, 419.):

1. Consumer-voters are fully mobile and will move to that community where their preferences patterns, which are set, are best satisfied.
2. Consumer-voters are assumed to have full knowledge of differences among revenue and expenditure patterns and to react to these differences.
3. There are a large number of communities in which the consumer-voters may choose to live.
4. Restrictions due to employment opportunities are not considered. It may be assumed that all persons are living on dividend income.
5. The public services supplied exhibit no external economies or diseconomies between communities.
6. For every pattern of community services set by, say, a city manager who follows the preferences of the older residents of the community, there is an optimal size (This hypothesis includes a number of complicated details, which we shall not present here.).
7. The communities below the optimum size seek to attract new residents to lower average costs. Those above optimum size do just the opposite. Those at an optimum try to keep their population constant.

On the basis of the above statements, the model has several critical points, for example the change of residence is costless, the employment opportunities are ignored, perfect information flow, and the ignorance of social, linguistic and cultural factors. A part of these are even mentioned by Tiebout. There is a vast literature describing these factors and the considered and neglected aspects, as well as the empirical study of the conclusions of the theory, of which I do not intend to give an overview, and the cataloging of the numerous subsequent model variants also transcends the scope of our study.

Tiebout also acknowledges the fact that his model would only be applicable if every individual could establish his own municipal government: *“There is no reason why the number of communities will not be equal to the population, since each voter can find the one that exactly fits his preferences. Unless some sociological variable is introduced, this reduce the solution of the problem of allocating public goods to the trite one of making each person his municipal government. Hence this model is not even a first approximation of reality. It is presented to show the assumptions needed in a model of local government expenditures, which yields the same optimal allocation that a private market would.”* (Tiebout 1956, 421.) It is worth citing Tiebout’s evaluation of his own theory because this context is mostly forgotten both by the critics of the theory, and by those who cite his theory in a positive sense as a possible approach of reality. According to Tiebout, there is a conceptual solution for problems of allocation mentioned by Samuelson in the case of a significant part of the collective goods, which is imperfect due to the inflexibility of institutions (Tiebout 1956, 424.).

Obviously, besides local taxes and services, there are several other aspects which may have an influence on how people choose their places of residence. Tiebout was aware of this fact, too: *“Consumer-voters do not have perfect knowledge and set preferences, nor are they perfectly mobile. The question is how do people actually react in choosing a community. There has been very little empirical study of the motivations of people in choosing a community”* (Tiebout 1956, 423.). The situation has changed since then, several surveys have been made to detect motivation, but these rarely pose directly the question of how services and local governments’ taxation influence people’s choice of residence. In a questionnaire survey related to England, one of the questions has been raised as follows: has the respondent ever considered to move to the territory of another municipality for reasons of higher quality services, or, in another question, due to lower local taxes. Furthermore, has anyone moved to another community due to these motivations. The great majority of the respondents (93 per cent in case of higher quality services, and 97 per cent in case of the lower local taxes) has never considered this question, 6 per cent considered it in connection with the better services, 3 per cent because of the smaller local taxes. Altogether 1 per cent of the respondents has moved to another due to better services or lower local taxes (Miller et al. 2000, 75.).

These empirical results are not in harmony with the first hypothesis of Tiebout’s theory: in reality, the factors on the threshold of measurability only play a minor role in the change of residence which are nonetheless presented in Tiebout’s model as the sole causes of moving. Further surveys prove that only a small fragment of people are aware of the taxing practice and services of local governments (Dowding et al. 1994). It is possible to interpret these results in a stricter sense: in case of imbalance, the deliberation of a very small share of people to move to another community and their actual departure may be sufficient to influence the behaviour of local governments.

According to another American survey, the level of schools and local taxes is a crucial criterion for a significantly greater proportion of people in the case of the choice of residence (51 per cent, more precisely, 35 per cent deemed these criteria important in the survey) (Dowding et al. 1994, 785.). This result is much more in harmony with Tiebout’s mobility hypothesis than the previous one, on the other hand, it also highlights the



importance of the questioning itself in case of the questionnaire surveys: one can better imagine the estimation of a concrete service than communal services in general, which are not represented in people's mind on the basis of the researchers' categorisations. Another survey has also revealed that people attached to certain services are more willing to move to a territory that provides better quality services (Bickers – Stein 1998).

The final result of the Tiebout model states that people vote for their residences with their feet by choosing the settlement providing them the most favourable services as their places of residence, and this mechanism stimulates the local governments to become efficient: *“The consumer-voter may be viewed as picking that community which best satisfies his preference pattern for public goods”* (Tiebout 1956, 418.). There are certain people who prefer higher local taxes and the numerous local community services, while others rather prefer lower taxes and demand only a minimal number of public services. In case the majority of a community desires a swimming pool built on their territory, those who disagree, may move to a settlement where having a swimming pool is not considered to be important. In the Tiebout model, the mobility of individuals serves as a solution to the speculative problem raised by Samuelson in his theory of collective consumption goods. In Samuelson's view, in case of the lack of a market mechanism, the supply of collective goods will be inferior to the Pareto efficient supply.

Therefore, in the model of Tiebout, the optimal supply of public goods is ensured or at least stimulated by several minor local governments rivalling with each other for their inhabitants. Thus, the model has been utilised as a justifying argument for the existence of small local governments, the fusion of local governments, and opposing the system comprising of a small number of large local governments in the last few decades. Besides the afore-mentioned arguments, the defenders of the small local governments against their larger counterparts, mention the bureaucratization and the officials' empire building tendencies as negative factors along with several other aspects. However, in case of the argumentation in favour of a small number of larger local governments, the factors of scale-efficiency, professionalism, territorial equity, a better harmonisation of tasks and territorial externalities are the most frequently referred to. The advocates of small local governments justify their arguments related to scale-efficiency by declaring that provided some services are scale-efficient, these can be supplied on the level of municipality alliances rather than on the municipality level. Larger municipalities may be efficient by themselves in providing activities producing economies of scale, but in those cases where economies of scale is not present, they are less efficient on the level of the sub-levels of the municipality compared to autonomous municipalities.

## **Economies of Scale in Local Communal Services in Hungary**

### *An overview of the literature*

In the previous, introductory part we have already mentioned the uncertainties surrounding the relationship between the size of settlements and their scale-efficiency. In this part, besides providing a further theoretical and literature overview, we shall present our own empirical analysis in this topic. The size of settlements may in theory be linked with scale- efficiency and scale-inefficiency, too. Larger cities have an opportunity to distribute the administrative and management costs among a larger population and also reduce the part of similar costs per inhabitants. Besides, larger cities have a much more complex, diversified public sector comprising of more tasks, some of which may exceed the optimal size. According to another frequent argument, smaller municipalities function in a less bureaucratic way and compete better with each other, which lead to higher efficiency and lower operational costs. Due to the inconsistency of theoretical predictions, practical analyses are necessary at all events.

There is an important practical difference between private enterprises of industries and services and the communal services of the public sector. Due to the prevalence of competition, there is a permanent pressure on private enterprises to take advantage of the potential economies of scale and to avoid diseconomies of scale. This is one motivation of mergers and disintegration or outsourcing. Public communal enterprises have three constraints of achieving optimal size of organization: regulation, the fixed size of settlements and the fixed location as an external condition. The third constraint is the most severe. The regulation can facilitate the exploitation of economies of scale. Joint services are a feasible opportunity in many cases, which can tackle the constraints of settlement size.

In Hungary, few empirical studies have examined the potential scale-efficiency manifest in the domains of local communal services, public services and local administration, despite the fact that it is an argument frequently presented in political discourse, in theory. This applies both to settlement level and territorial meso-level (counties and regions). The fragmented spatial structure comprising of many autonomous settlements on a territorial level has long been mentioned as the obstacle of efficient operation (Verebélyi 1993). Nevertheless, studies concentrating on the general administrative operation, as well as certain local public services such as nurseries and primary schools, demonstrate that even though the average cost may be somewhat different in the size categories of the respective settlements, the discrepancy cannot be interpreted as scale-efficiency. Villages with more than 500 inhabitants reveal the lowest administrative average costs, the highest values occur in Budapest, whereas no difference can be observed between cities and villages. The discrepancies themselves are not too significant (Fekete et al. 2003, p. 59.). As far as nurseries and primary schools are concerned, no scale-efficiency can be traced (Fekete et al. 2003).

Scale-efficiency is manifest in case of solid waste and sewage system management, but these studies did not take into account the change of delivery costs (Hermann et al. 1998; Kerekes 2002). According to Bálint Koós and Mihály Lados, as far as the size and number of settlement municipalities are concerned, the problem is not related to the high number of local governments, but the wide scope of duties transferred to the municipalities and the lack of municipality alliances. The latter are capable of providing certain services more cost-effectively (Koós – Lados 2008). On the basis of György Budaházy's study on the size efficiency of land offices, the size of the counties is directly proportional to the cost of land offices. In case of a double size county, the costs will be also duplicated, an eventual regional reorganisation would not be justified by scale-efficiency (Budaházy 2013).

The literature dealing with this question is extremely vast: the empirical studies date back to a long time, approximately to at least 70 years, which relate to a number of countries and actions. Therefore, it is only interesting to pay attention to the inconsistency of the results, as the cataloging and more in-depth presentation would require a full book discussing the theme. It is worth noting that the statements that are not grounded on general, theoretical or empirical bases can primarily be found in the proposals of different advisory boards, but certain myths have been incorporated into scientific folklore. For example, the fusion or "consolidation" of educational districts in the United States has been motivated by the dogmatic type belief in size efficiency since the 1930s: "Although the validity of this assumption was never tested, 'Bigger is Cheaper' became the mantra of the profession as future generations of administrators were taught to believe" (Robertson 2007, 620.).

Although economicpolitics and regulatory policy often assume the size efficiency of community services, the different empirical studies can hardly demonstrate size efficiency. In his avantgarde work, Hirsch could only find size efficiency related to water supply and sewage disposal until a certain size, above which no further efficiency growth can be achieved. In case of the majority of urban services (constituting about 80-85 per cent of the total expenditure), there is no manifest relation between size and unit cost (Hirsch 1959). Based on the studies of Gabler (1971) and Hutcheson – Pater (1979) related to American cities, scale inefficiency and decreasing marginal profits can be observed in case of expenditures per inhabitant, whereas in case of larger cities, the cost per inhabitant increases due to the systematical augmentation of the complexity of services. The in-depth analysis of Sancton (2000) related to the Canadian settlement municipalities could not demonstrate scale-efficiency either. According to Sancton's conclusion, local governments have no functionally optimal size, since the various municipal activities involve quite heterogeneous territorial scope (Sancton, 2000, p. 74.). Andrews and Boyne (2009) have obtained the opposite results during their examination of English local governments: the relation between population size and administrative costs per capita is negative, cost savings can be achieved through merging smaller municipalities.

The interpretation of these and further other, not detailed results is not easy because almost every local municipality services have qualitative dimensions. In case of local waste collection for example, the temporal frequency, method, quietness, cleanness, and the attentiveness of the staff are all important qualitative viewpoints. The analysis of scale efficiency in the case of water supply and sewage removal is encumbered by the

remarkable differences of the natural environment. Besides, larger size units are located at a larger average distance from the service consumers, and higher spatial relational costs. As Gabler (1971) emphasizes, the effect of the population size on average costs can only be examined with the assumption of homogenous quality services. For example, the augmentation of the size of schools may lead to the diminution of personality and to the lower motivational level of teachers, parents and students. School violence also increases in proportion with the size of schools, which is often not necessarily taken into account by decision makers assuming it to be an external cost (Ferris – West 2004).

Bradbury and Stephenson (2003) demonstrate, by analysing the relationship between the size of 159 county municipal councils in the state of Georgia and the community expenditures per inhabitant, instead of the population size, that the larger a municipal council is, the higher the cost per inhabitant is. This applies to all expenditure types, except for the expenditure on main roads, the amount of which is independent from the size of the municipal council.

As regards the various types of communal service providers (water, sewage removal and waste collection), we can find numerous examples for the increasing number of inhabitants, as well as for the definition of decreasing, increasing and constant average cost. In their literature review related to water supply and sewage removal, Saal et al. (2013), after reviewing more than twenty different studies, conclude that scale-efficiency is present until a certain optimum level, above which scale-inefficiency can be observed. This optimum, however, is significantly different in the different countries and studies.

Several other studies have also drawn the conclusion that the provision of certain services is not economical under a certain settlement size (what is of interest is its scale, as it is obvious, even without relying on the study, that it is not worth maintaining a school for five children, and so forth), but apart from this, scale-efficiency cannot be demonstrated. Newton has resumed the results of his study related to 73 English cities already in 1974. On the basis of their combination, size is not an entirely irrelevant factor, but in those cases where it has an impact, it is rather modest and is restricted to certain services or service types. For example, the cost of public security (police) and child care per inhabitant increases with the growth of population, whereas the cost of fire-fighting and administration decreases. In the case of the other services, either there was no relation or there were contradictory results (Newton, 1974).

Further essential factors are density of population and settlement structure, which has an influence on the provision of almost all service types. Several researchers have emphasised the importance of economies of density that takes spatiality more explicitly into account (Walls et al. 2005; Nauges – van der Berg, 2008). On the basis of the study of Buettner et al. (2004) related to German territories, on a regional level, there is no relation between population density, population size and communal expenditures. “Per capita expenditures tend to be almost constant in response to changes in the size of the population, indicating that most of the goods provided by the state governments tend to be quasi-private goods.” (Buettner et al., 2004, p. 510.). Ladd (1992), examining 247 macro counties of the US (constituting only 59 per cent of the population) has traced a U-form cost-function, that is to say, the average cost is the highest in the counties with

the smallest and largest population density, and the lowest in the medium population density counties.

Holcombe and Williams (2009), analysing 487 municipalities in the United States with a population over 50,000, not taking into consideration population density, concluded that per capita expenditure increases in case of increasing settlement size. However, if they do not treat the settlements with very different population density together, but compare them within five settlement groups with similar population density, expenditures will be constant in 4 out of 5, do not depend on population size, and only one reveals increasing average cost manifest in the increase of population. That is to say, it is not justified to expect cost savings either through the unification of municipalities or their fragmentation, the financial aspect may be ignored in case of the eventual transformation of the size of municipal system. The same procedure with the same results is repeated by Drew et al. (2012) in their study concerned with the analysis of per capita expenditures of 152 Australian local governments: if the territory units are classified into homogeneous population density units, scale-efficiency is no longer present.

#### *Empirical Results*

Our objective was to compile a database containing company-level data in the following domains: water supply, sewage removal, waste collection, district heat supply, general communal services, real estate management and urban management. We attempted to detect the public utilities companies on the basis of their TEÁOR codes. The main difficulty encountered during the construction of the database was the identification of individual activities and the existence of mixed profile companies. A database was set up after checking and examining each single company, containing complete data on settlements over 50 thousand, and includes the majority of those with a population number between 10 and 50 thousand. Settlements were divided into 11 categories according to their size. Data was derived from the annual accounts of companies (balance sheet, income statement, notes to financial statements) which are public and accessible to all. The data in the analysis concern the 2011 business year. In case of companies ensuring service provision for several settlements, (which is typical of water supply, sewage removal and waste collection) the largest settlement of the supply zone was taken into account during our categorisation.

Economies of scale could be most efficiently analysed on the basis of average cost, i.e. the output per total cost ratio. As regards output, we do not dispose of real quantities, only financial indicators. The output of public utility companies is differs in case of the heterogeneous activities and companies, and it is hard to estimate (e.g. waste collection). Besides, it is difficult to compare the output values in the case of heterogenous services. Therefore, from among the possible proxys, we defined six which operate with revenues and costs (Table 1). The first indicator in this row - depicting production (direct and indirect selling) costs per 1 HUF revenue - can be regarded as the main proxy for average costs. In this case, revenue serves as a proxy for real output, i.e. the indicator demonstrates how much HUF of production costs it takes to produce 1 HUF of output. A decrease of the value of the indicator in case of increasing settlement size is a sign of economies of scale. As we have pointed out in the previous sections, we shall not take into account the possible disparities of quality.

Table 1: Proxys for economies of scale

Number of proxy	Short description of indicator
1 (basic indicator)	Revenues/production costs
2 (secondary indicator)	Production costs/inhabitants
3 (secondary indicator)	Production costs/employees
4 (secondary indicator)	Revenues/inhabitants
5 (secondary indicator)	Revenues/employees
6 (secondary indicator)	Employees/inhabitants

We do not publish the detailed calculations related to the different services (see Czako et al. 2014). The results show in general that there is no systematic relationship between the size of a settlement and the average cost of services. Only in the case of Budapest belonging to the largest settlement category and the settlements with less than 5 000 persons can scale efficiency and scale inefficiency be detected. The cost as percentage of revenues of water supply and sewage disposal is the lowest in Budapest. Smallest settlements have the lowest cost of garbage as percentage of income, while district heating has the highest cost. This is explained by the fact that the first service is the least capital-intensive, whereas district heating is charged with constant, heavy charges regardless of the number of consumers. Due to the reasons related to efficiency, the presence of district heating is not typical in the two smallest settlement sizes, the item number is restricted altogether to certain businesses. The greater specific cost claim of sewage disposal is similarly well renown in the case of smaller settlements. However, concerning the categories between 5,000 and 250,000 inhabitants, no evident tendency can be detected in relation to any activity. Significant differences can be traced between the various size categories from the second indicator until the sixth. These indicators, however, as we have already set forth, do not indicate scale efficiency, but reveal facts about the organisational structure of the size and effect on the capital-labour ratio.

On the basis of our results, we cannot talk about optimal settlement size from the point of view of community services, as the unit cost of services is hardly influenced by the size of settlements. The only exceptions are settlements of a very small (less than 5,000 inhabitants) and a very large (Budapest) size in respect of certain services. The settlements with less than 5,000 inhabitants have slight cost disadvantages in case of actions requiring a larger capital investment, such as water supply, sewage disposal and district heating. In respect of the operating cost per inhabitant, the turnover, the number of employees, as well as the operating cost and turnover per employee, we can see remarkable differences between the respective settlement size categories. The former indicators illustrate the effect of size on organisational structure and the capital-labour ratio. The analysis can be further specialised by studying the following factors: settlement structure and density of population, focusing on the number of service consumers instead of the population number, as well as on the different economic and social specifics of the population.

These results may be useful during governmental decision-making related to community services. For example, in order to avoid the “larger organisation is better and more efficient” approach which is often heard, but is not appropriate in all cases and in case of services where scale efficiency is not matched with a larger organisation.

## The Organisational Integration of Communal Services in Győr

*General Arguments in Favour of and Against Organisational Integration and Empirical Experiences*

A substantial theoretical and empirical literature has evolved on the various types of organisational integrations and in general, the benefits and drawbacks of various organisational forms in organisation science, public administration science, strategic management, corporate finances, public choice theory, the new institutionalist school, agency theory, the economics of transaction costs, accounting and in overall, in professional literature focusing on bureaucratic, administrative questions. According to the theory, even a minor modification in the organisational form may trigger substantial operational changes, a source of advantages and disadvantages, therefore, integration in itself may contribute to raising efficiency. The mainstream neoclassical economic theory does not pay attention to real-life organisational problematics, organisations are characterised by a production function or a set of production opportunities in mainstream theory, where inputs are automatically transformed into outputs inside a black box, in function of the available technology, prices and demand.

The horizontal integration of community services refers to the various forms of organisational integration or cooperation between enterprises previously operating independently in the same geographical area, engaged in service provision (e.g. drinking water, sewage removal, waste transport, district heating). Vertical integration occurs during the merger between units exchanging inputs and outputs (e.g. a power plant and a heat supplier, a water exploitation and distribution utility). Territorial integration is realised in case a merger occurs between the enterprises of neighbouring areas engaged in the same type of service provision, yet territorial integration may involve horizontal and vertical integration at the same time.

During the previous years a certain part of the Hungarian local governments decided to implement a unified corporate governance model for companies engaged in public service provision. Their organisational solutions –holdings, tribal house concerns and the unified company - are presented by Szabó (2014). The organisational integration of municipal enterprises in Győr offers the rare chance of not only evaluating the efficiency of two heterogeneous organisational solutions (horizontal integration and non-integrated organisations) from a theoretical or speculative aspect, but also contrasting them with one another and the statements forecasted by the theory.

The majority of arguments highlighting the benefits of organisational integration are based on the fact that the advantages of efficiency of scale and greater professional knowledge can be more easily exploited in a larger organisation. Already in 1927, Mackinney wrote that according to an unequivocal judgment, the provision of the most diverse local services (from park and road maintenance to public order, education and health care) through a centralised, unified organisation can be executed with higher efficiency and rentability, and that the arguments promoting this claim are practically the same in the case of the most diverse activities: in addition to efficiency and rentability, the consistency and uniformity of the supplied services and administration, the fast speed of services, the evasion of shortage situations and surplus capacity accumulation (Mackinney 1927).

Economies of scale may be derived from various sources, which can be categorised into three major groups: more efficient capital exploitation, more efficient operation and the reduction of organisational and management per unit costs. In case per unit costs of the output of an economic activity decrease with the augmentation of capital, this may result in a natural monopoly. The supply of various network services (water, sewage removal, electric energy, gas, district heating, telephone) is considered to be a natural monopoly in the majority of cases, the supply of which is beneficial by enterprises in community ownership or by regulated private enterprises. The reason for this are the following: the service itself is basic, yet the consumer has no option to decide which supplier to choose, in case of dissatisfaction, he or she is unable to turn to another supplier. The costs may be high, still, they must be paid, and the cost reducing and quality improving impacts of competition do not prevail in this case. This factor, however, cannot be listed among the arguments promoting organisational integration, since the operational capital of the various suppliers cannot be substituted with each another, the shared utilisation of office buildings and the vehicle park are the only imaginable options. On this basis, the presence of only a single water or sewage utility and district heat supplier is justifiable in a city.

Various sources of the reduction of running costs stemming from the increase of size can be detected in the case of the integration between companies engaged in diverse activities. There is a strong chance that a larger firm may procure credit and other financial services in an easier way. Due to larger item numbers, the centralisation of the procurement of various stocks facilitates price reduction and the optimisation of stockpile management. This might be particularly significant in the case of fuel procurement, but also electric energy and the telephone, and in such traditional items such as office supply and vehicles. The centralisation of procurements may also involve disadvantages: prolonged internal delivery time of orders, increasing internal bureaucracy, stricter control and augmentation of internal costs of distribution. Running costs can be reduced through a more efficient utilisation of rarely-used but indispensable instruments. A higher-level specialisation of posts and a greater division of labour would result in a more efficient operation. This, however, is hindered by a specific factor which also reduces the benefits derived from the augmentation of capital, namely, the fact that a greater division of labour is impossible in the case of highly divergent activities. At the same time,



the spatial division of the merged units would also decrease or extinguish the advantages inherent in the spatial integration of identical types of organisations, which would render the reorganisation of independent water suppliers or district heat suppliers into a single national-scale water service provider or a large single district heat supplier.

The organisational advantages are derived from two major sources: the termination or coordination of parallel activities and a higher professional quality of administration. These possible benefits are hardly tangible and measurable in case of the significant transformation of organisational size, since the diverse sizes involve totally diverging organisational solutions, hierarchical systems, administration and problems. An organisation with a few members does not employ a lawyer or a tax expert, but looks for one in times of need. Larger entities may employ full-time lawyers and tax experts, yet this fact does not necessarily influence the quality of legal or taxation solutions.

A part of the changes stemming from an increase of size are usually articulated not only in the case of integration, but also in opposition to it. The exploitation of economies of scale is possible only in case the enterprise is at the border or proximity of production opportunities, i.e. an increase in size does not produce unexploited capacities. Based on experiences, the waste of costs arising from the non-exploitation of large-volume production capacities approaching the optimal size for economies of scale mostly exceeds those losses which are a result of the absence of economies of scale in the case of production capacities below the optimal size (Markowski – Jubb 1989). An increase of governance levels and internal administration, slower and less flexible reactions to changing market conditions, and the decline of innovativity can be observed in the case of larger organisations. The utilisation of internal transfer prices between individual organisational units may prove to be less advantageous in the long run than the option of using market prices. The allocation of the central governance, administrative and other indivisible costs between the various units may be a source of further problems in the long run since the management of the various divisions is more difficult to be evaluated due to the involuntary arbitrariness of the division.

The effects arising from the change of the workplace environment on the satisfaction and comfort of employees are to be regarded as the consequences not necessarily of the changing size of organisations, but the organisational changes themselves in general. These effects may be beneficial and negative at the same time. During the selection of a certain post, the employee evaluates his or her workplace environment, in what way it conforms to his or her individual expectations, values, lifestyle and position. Organisational changes may trigger a drastic change in the workplace milieu, which may decrease the commitment of the employee towards the firm.

In addition to the approach favouring integration while justifying it by aspects of efficiency, another standpoint explaining integration by psychological reasons exists as well. On the basis of the agency theory, the leaders of organisations desire to maximize their personal profit, therefore, their priority is not to ensure the rentability of the organisation, but its growth, since their objective is to construct the greatest possible “empire” in order to increase their personal power, prestige, influence and wealth. On the basis of the results of various empirical studies, neither external disciplinary forces such as

market competition, the control of owners and lenders, a managerial labour force market and various financial regulations, nor internal disciplinary forces such as regulations concerning management incentives, activities of supervisory committees are sufficient to counterbalance the top leadership's greed for power. Corporate leaders are assisted in the construction of their empire by the fact that they monopolise the information related to the activities of their firm and have the greatest influence to shape the news and external communication concerning the situation of their company (Donaldson 1984; Bushman – Smith 2001; Jensen 1986). These types of causes do not prevail so much in the case of municipal enterprises, since the management of these organisations is appointed by the municipal bodies, and a certain organisational transformation may terminate the position of a specific leader, therefore, they are not interested in integration. The elected or appointed leaders and representatives of local governments deciding in favour of organisational integration, however, may be motivated by personal ambitions and the attainment of a higher prestige thanks to a larger organisation.

The literature analysing the horizontal integration of communal services is quite modest, particularly that on the integration of more than two units. On the contrary, a very rich empirical literature has been accumulated on the vertical integration of energy production and distribution or water supply and sewage removal or the various territorial integrations concerning the countries of all the five continents. Just as theoretical predictions are not entirely transparent, since the benefits and drawbacks of organisational integration are highlighted by them simultaneously, the results of empirical studies also reveal the same ambiguity. This can be fundamentally traced back to three causes: the heterogeneous nature of investigated activities, the variance of the concrete geographical location and date, and the disparities of methodology used in the analyses. The methodological differences may be manifest in the varying accessibility of the data, the various definitions of outputs and costs, the treatment of companies producing various outputs, the distinction between fix and variable costs, the applied functions, the inclusion of various control variables (e.g. the impact of population density, quality disparities, geographical differences) and various other minor technical details. Due to the contradictory theoretical predictions and the experiences lacking transparency, it is of outstanding importance to investigate each practical integration separately.

From among the Hungarian cities with county status, companies with a one-tier corporate governance structure operate in the local governments of Debrecen, Győr, Kaposvár, Miskolc, Pécs, Sopron and Veszprém. Their foundation (with the exception of Kaposvár) and the general characteristics of their management (evolution of revenues, level of operational and development funding) are discussed by István Szabó (2014).

According to a part of the literature on the integration of water supply, sewage removal and wastewater treatment, no cost benefits can be derived from the integrated companies. The merger of smaller suppliers may result in cost savings (Cruz et al. 2013, Abbott – Cohen 2009; Garcia et al. 2007; Torres – Morrison 2006). The contradictory nature of the analyses is demonstrated by the review of Saal et al. (2013): various analyses produced results according to which integration was disadvantageous.

A very limited experience and a small number of studies are available in the integration of heterogeneous service providers. Fraquelli et al (2004) and Piacenza and Vannoni (2004) analyse the integration of gas, water and energy suppliers in Italy. According to their results, small-sized companies offering diverse services enjoy an advantage over small and specialised service providers. Farsi et al (2003), and Farsi and Filippini (2009), by examining the same types of integrations in Switzerland, arrived at similar conclusions: the largest cost benefit is detected in the case of small-sized companies offering diverse services compared with firms specialised in the supply of a unique service, the benefit is more moderate in the case of mid-sized firms, while no disparities can be found in the case of larger companies providing a single or diverse services.

The bulk of the analyses focusing on the integration of energy production and distribution demonstrate the beneficial nature of integration, since coordination costs are reduced as well as the risks associated with the selling and procurement of energy (Meyer 2012). These results are not coherent with the integration in Győr, however, the energy production and heat distribution of the heat provider can be regarded as a good example of successful vertical integration. Based on the analysis of 30 railway companies of 23 countries, the study of Mizuani and Uranishi (2013) examined the advantages and disadvantages inherent in the horizontal integration or separation of passenger and freight transport and those of vertical integration between the maintenance of railway infrastructure and the operation of railways. The previous results were contradictory, full of testimonies in favour of and opposing integration. Mizuani and Uranishi explain the contradictory results through the disparities of railway density: in the case of high railway density areas, integration proves to be beneficial, since the coordination costs between the two companies (consultations on train schedules, and the scheduling of railway maintenance) exceed the internal costs of coordination. However, in the case of low railway density, the separation of activities is more beneficial, since integration involves higher costs. These results underline the context-dependence of organisational solutions, which calls attention to the importance of analysing the possible effects of heterogeneous settlement size, settlement structure and population density in the comparison of several settlements from the aspect of communal services.

#### *The Organisational Integration Realised in Győr*

GYŐR-SZOL Public Services and Assets Management Ltd in 100 per cent ownership of the Local Government of Győr City with County Rights was established in 2009. The following four public service providers were merged into the company as of October 1, 2010: Assets Management and Service Provider Ltd. of Győr, Communal Provider Llc. of Győr, District Heat Provider Llc. of Győr, and Urban Development Llc. of Győr. GYŐRHŐ Llc. was engaged in district heat supply, gas supply, electric energy production and trade. The major activities of KOMSZOL Llc. included urban cleaning services, sanitation services, waste collection and treatment, and it operated the parking system of Győr as well. The main activities of INSZOL Ltd. were real estate management, lending and operation. It is important to note that as of September 1, 2009, Markets and Trade Fair Llc. and Innovation and Marketing Centre Llc. of Győr were merged into INSZOL Ltd. This may be regarded as an initial

step towards larger integration, during which the real estate properties and institutions managed by the city and the marketing activities became concentrated in one hand. The Urban Development Llc. of Győr was charged with the elaboration and realisation of the urban development programme. With the integration of 2010, all of these activities were transferred to the competence of a single company.

The various businesses were partially able to preserve their autonomy, which is manifest in the maintenance of five separate directorates within the company, while central leadership is ensured by a common general management team. The preservation of separate business lines is explained by the varying nature and differing resource requirements of activities. While district heat supply is primarily tangible asset-intensive, the labour intensity of communal services is already higher, and real estate management is the most labour-intensive domain. The organisational structure of the company consists of the following separate directorates:

- urban management,
- district heat supply,
- investment and implementation,
- real estate management,
- economic and financial directorate.

The company maintains a separate media and communication team, whereas the rest of the administrative tasks are executed by the departments under the supervision of the economic and financial directorate (e.g. department of labour and wages, billing department for invoicing and fee collection, informatics department). The former sites have been recycled, and the sites of certain departments were changed. Three customer assistance offices were established. Prior to the integration, the companies operated their separate offices in different locations. During the integration, the common customer assistance offices were developed with a view on good accessibility, the availability of infrastructural assets, the density of the inhabitants and the parking facilities as well. One of the advantages of the new customer assistance offices, in addition to enabling the handling of administrative affairs in one single location (account reconciliation, payment, transfer of ownership, authorisation) previously managed separately with three distinct service providers (GYŐRHŐ, KOMSZOL, INSZOL), is that the administrative services of Pannon-Víz water supplier can also be accessed in these spots. A further example of the conversion of sites is renting out conference halls in the buildings in 4-10 Kálvária Street.

The Local Government possesses a voting power of over 60 percent in Pannon-Víz Plc., which, although being excluded from the organisational integration, has established a cooperation in the area of procurement with the new organisation. GYŐR-SZOL Plc. has an ownership share in other public service companies as well, namely in the International Industrial Park of Győr, Józsví Funeral Service Provider and Commercial Llc. and the Public Cleaning Cooperative Society.

GYŐR-SZOL Plc. represents a significant economic potential in Győr and the country as well. Its revenues amounted to 12.6 bln HUF in 2012, and it employs over 800 persons currently. Among the merged companies, KOMSZOL Llc. was the only large company,

(with an average number of employees exceeding 600 and revenues exceeding 3 bln HUF), however, GYÓRHŐ Llc. and INSZOL Plc. are also prominent among the mid-sized firms of the region.

#### *Motivations Behind the Integration*

There were numerous reasons and objectives of the integration. The first among these is tax optimisation, which was not mentioned in the first general section of our study. Among the integrating companies, the heat supplier attained a profit exceeding 1 bln HUF each year, and the operation of INSZOL was also rentable. The activities of KOMSZOL, in the meantime, contain several public tasks which are not profitable: the maintenance of parks, green surfaces, public cleaning service, maintenance of cemetery, mosquito killing, and so forth. These tasks are non-profit activities, they are obligatory according to the municipal act. The Local Government of Győr concluded a task-provision agreement and a financing contract with KOMSZOL, and granted the company with operating aid for the execution of tasks. KOMSZOL Llc. performed functions beyond the above mentioned which generated revenues: waste transport, ornamental plant cultivation and commerce, and delivery of external orders. Its additional sources of income derived from parking fees, the renting out of parking spaces, however, only its surface parking lots were rentable. Its income producing activities, however, by no means covered its expenses related to urban management (which were the *raison d'être* of its establishment, implying basically non-profit type activities). KOMSZOL receives an annual amount of 1 bln HUF from the city budget for the execution of its compulsory tasks in the framework of the urban management contract. In 2011, the funding was no longer present in the city's budget, the new company had to cover this amount basically from the profits generated by heat supply. The management and operation of sports facilities was also transferred to the competence of GYÓR-SZOL, which was formerly included in the city's budget. Tax optimisation is revealed in the integration between profitable companies and public service companies with no revenues, due to which the tax base of the consolidated corporate income tax will be reduced.

The further reasons were presented already in the introductory part of our study. Several administrative and physical activities were carried out simultaneously, all of which became integrated. These include payroll, labour, finances, substance management, and park planning. The latter, for instance, was performed by all of the three large entities, GYÓRHŐ in its own domain, and INSZOL and KOMSZOL as well. The standardisation was realised in the administrative and operational parts of the organisation, which enabled a better exploitation of manual labours in the first place. The centralisation of public procurement and other procurement systems proved to be more beneficial since in the case of purchasing larger quantities, more advantageous purchase prices can be realised, for instance, in the areas of the purchase of fuel, energy, forms, detergents, machines, vehicles, components, and also in mobile phone use. A cooperation was achieved in the domain of common procurements with Pannon-Víz as well.

In addition to the availability of an integrated client database, integration provides further advantages in the area of the management of receivables, too, enabling the coordination of the registration and collection of debts (e.g. rent, water and district heat supply). The benefits of uniformisation cannot only be enjoyed by companies, but clients as well, due to the establishment of the points of single contact (one-stop-shop).

Among the reasons we must mention the increased transparency and uniformisation of operation, since each of the four different companies disposed of heterogenous operational rules previously and their annual reports were not uniform, either. Additional cost saving can be achieved by the fact that it is unnecessary to maintain four directorates and Supervisory Boards in the companies, one is sufficient enough.

#### *Management Prior to and Following Integration*

None of the companies involved in the merger produced losses previously, the underlying reasons of which were manifold. The high profit produced by GYŐRHŐ Llc. throughout several years was a result of the gas power plant investment of 2002-2003, for instance. The loan financing the investment was repaid well before the end of the loan term, thus GYŐR-SZOL Plc. was not merged with an indebted company. At the same time, KOMSZOL would have been inoperable without the allocations of the city budget, and INSZOL was also a beneficiary of the ownership capital increase. KOMSZOL Llc. disposed of the worst indebtedness indicators (rate of liabilities as percentage of total assets) among the four merged enterprises (average 35.6 per cent indebtedness indicator). In the rest of the three companies, this value was an average 15.1 per cent between 2005 and 2010. The integration has resulted in a harmonisation in this area as well, in the case of GYŐR-SZOL Plc., the value of the indebtedness indicator was 15.9 per cent in 2011 and 19.1 per cent in 2012, which can be qualified as good. KOMSZOL Llc. was generally characterised by a long term loan (21.2 per cent indicator in 2005 decreasing to 12 per cent by 2008). The company borrowed a loan in 2009 again (thus the value of the indicator rose to 42 per cent), which it used for the construction of a parking house, the renovation of a building, adding its own contribution to a new dump, and purchasing various tangible assets (during the construction of playgrounds, the recultivation of a dump) and performed leasing.

The same tendency characterises staff efficiency, during its integration with GYŐR-SZOL Plc., the positive values of the heat supplier counterbalance the low indices of the rest of the three merging companies. The staff number was basically unchanged between 2005-2010 in the previous district heat supplier (Table 2). The Urban Development Llc. of Győr, on the contrary, operated with very low staff numbers. In the case of INSZOL Plc. and KOMSZOL Llc., we can talk about a constant fluctuation of staff since 2005. While the average statistical staff number of employees decreased constantly in the real estate management company, KOMSZOL Llc. reached its employment peak in 2008 with 673 persons, and in the next two years, the staff was reduced 60 and 38 employees, respectively. In case of the communal service provider, it must also be taken into account that the average wages of manual workers are low, due to which the level of fluctuation is high. As regards total staff number, it is obvious that the staff of companies with over a 1100 employees in 2007 showed a drastic decrease, in 2010, their number of employees was only 974. During the

process of integration, the decreasing trend is unceasing, in 2011, GYŐR-SZOL Plc. had 66 less employees than the four companies together during the previous year. By 2012, the number of employees decreased by 73 persons compared with the previous year. It can be declared that in just two years, the public service company lost 139 employees altogether. All this is not due to the narrower scope of tasks to be executed, on the contrary, the staff reduction occurred with the slightly widening scope of tasks (as we have already mentioned, the operation of sports facilities was a totally new task).

Table 2: The average number of total employees

	2005	2006	2007	2008	2009	2010*	2011	2012
<b>GyőrRhó Llc.</b>	220	220	218	214	210	209		
<b>Inszol Plc.</b>	244	228	219	206	170	185		
<b>Komszol Llc.</b>	563	610	670	673	613	575		
<b>Urban Development Llc of Győr</b>	3	3	6	6	6	5		
<b>Total</b>	103.0	106.1	111.3	109.9	999	974		
<b>Győr-Szol Plc.</b>							908	835

\* On the basis of quarters I-III.

Source: Annual reports of the companies.

An interesting issue is whether the reduction of staff affected intellectual or physical workers to a larger extent. During our investigations, we reviewed the number of full-time employees broken down by intellectual and manual tasks. In the case of KOMSZOL Llc. we disposed only of aggregate data on full-time employees, therefore we calculated with an estimated ratio of manual labourers (taking a 72 per cent manual employment rate as our basis, with a view of the intellectual/manual labour intensity of activities performed by the firm). The Urban Development Llc. of Győr, due to its very low staff numbers, was omitted from this analysis. The aggregate values of three major public service providers demonstrate that the number of manual workers decreased to a greater extent between 2005 and 2010 than that of intellectual workers (56 less blue-collar workers and 6 less white-collar workers in 2010 than in 2005). If we examine the three companies separately, the distribution of the reduction of staff shows heterogeneous results. While the manual and intellectual workforce decreased in the same manner in GYŐRHÓ, there was a higher rate of departure of manual workers in INSZOL. In the case of KOMSZOL, the massive reduction of the number of manual workers became dominant post-2008, before that, an augmentation of staff numbers could be observed in both categories. Post-integration, according to the staff number data of GYŐR-SZOL Plc., the rate of intellectual employees hardly decreased (3 less), while the number of manual workers had decreased by 80

persons by 2011. In 2012, as a result of the new staff reduction, the number of intellectual employees was 6 less, while that of manual labourers decreased by 70 persons. In overall, due to the integration, the number of intellectual employees was reduced by 9 persons, and the number of manual labourers decreased by 150 (Table 6).

Table 3: Number of full-time intellectual and manual workers

	Gyórhó Llc.		Inszol Plc.		Komszol Llc.			Total		Győr-Szol Plc.	
	Intellectual	Manual	Intellectual	Manual	Full-timers	Intellectual **	Manual **	Intellectual	Manual	Intellectual	Manual
2005	86	133	89	147	538	151	387	326	667		
2006	84	134	87	135	559	157	402	328	671		
2007	84	132	87	127	595	167	428	338	687		
2008	83	129	87	114	578	162	416	332	659		
2009	81	128	85	82	548	153	395	319	605		
2010*	80	127	87	96	539	151	388	318	611		
2011										315	531
2012										309	461

\* On the basis of quarters I-III.

\*\* Estimated values, calculated on the basis of an average 72 per cent rate of manual workers.

In our study, we observed that staff reduction primarily affected manual labourers, which stems from the elimination of parallel activities. The number of employees executing administrative tasks did not decrease in a large number because due to the augmentation of the organisational site, activities such as finances and payroll appeared in the same volume after the fusion as in the previous four units jointly. In the area of client services, the tasks to be resolved did not show a decrease, either, since the size of the client base depends on population size.



## Summary

The organisational integration realised in Győr, compared to the organisational integrations occurring in the market sector, can be regarded as unique in the sense that it was carried out in very diverse activities from an economic aspect. While the literature mainly cites examples for the vertical integration in the water – and sewage system or electricity supply, our volume studies the horizontal integration of district heating, energy production, communal and sanitation services, real estate management and urban development, for which few examples have been provided so far.

One of the specifics of the integration in Győr, one of its main motivations, tax optimization, would not be applicable today. However, the integration had numerous favourable effects, which still continue to prevail. We demonstrated at what extent the different territories varied in terms of their resource-intensity and their profitability was also different. In spite of this fact, they had the opportunity to gain integrational advantages considered as traditional: rationalization and workforce reduction by eliminating parallel activities, increase of consumer service level through standardized administration and customer service offices and the reduction of procurement costs and the rationalization of stock management. From the aspect of economies of scale, harmonised cooperation can foster savings, whereas the unification of IT systems supports administrative actions and has an impact on client satisfaction as well. The harmonisation of financial indicators appears as a significant integrational advantage, since the different economic performance of the four merged firms does not separate in the new enterprise, the most profitable lines of business compensate those public services which do not produce revenues. Due to the realisation of integration, the elimination of parallel actions among the manual workers and a significant staff workforce reduction occurred. Those employed in the administrative field were hardly impacted by the staff workforce reduction, their duties needed to be completed and necessitated the same number later on as well.

Owing to the shortness of the elapsed time, however, it is not yet possible to determine if the negative effects described as potential effects in the theory, emerge: a greater organisational rigidity, greater bureaucracy and a degradation of efficiency due to internal transfer pricing. The too large size of the organisation may obviously have disadvantages, the outsourcing or disintegration of the different activities may commence at the expense of transparency and justifiability, and the excessively complex organisational structure may cause disruptions in information flow or the division of scope and tasks. As regards the changes of regulations related to utility services, these pose further challenges to GYŐR-SZOL Plc., and also to the proprietor local government.

# Some Aspects of the Fiscal Policy and the Future Outlooks in the Automotive Industrial District of Győr, Emphasizing the Issue of the Audi Investments

VALÉRIA LIMPÓK

**SUMMARY:** This study examines budget issues, primarily including tax policy elements with a focus on the Győr Automotive Industrial District (Győri Járműipari Körzet). The analytical framework also takes international events into consideration and approaches the problem from two sides: competitiveness and fiscal sustainability. As a key factor of the development of the Automotive Industrial District of Győr, the fiscal background of the investments and innovations of Audi Hungaria Motor Kft. will be reviewed. The pervasive economic crisis of 2008 will be presented from the aspects of the region's tax policy, the strengthening of international cooperation in the field of taxation, tax evasion, and the intense combat against tax fraud. The current events suggest that the problem of the future sustainability of the tax system is getting into focus, which will be a substantial issue in the work of tax authorities, who have also become participants in the competition. Our main statement is that the fiscal policy had a key impact in the development of the Automotive Industrial District of Győr. Currently the possible use of this tool - as a result of EU tax law harmonization - is limited compared to previous options. Considering this limitation, in the future - taking the principles of transparency and exchange of information into account - every available instruments must be used to promote sustainable development in the region.

**KEYWORDS:** Tax policy, competitiveness, fiscal sustainability, Győr Automotive District, Audi, international tax cooperation, tax avoidance, tax evasion

## Introduction

Predicting and researching the future was always an ancient instinct of mankind. This desire's embodiment in science – the future research – can make our adaptation easier to the ever-changing world. Future investigation established itself as a separate discipline, however, history has proven countless times that only the presumptions of the likely outcomes can be a rational expectation and decision. In addition, it's likely impossible to prepare for every potential event, especially in the fast-paced 21st century.

The fiscal policy's - including tax policy's – growing role is unquestionable in the economic policy. The decisions on this subject will have a growing impact on society and all stakeholders in the economy around the world in the next years. In the 21st century the innovative ideas of the policymakers's deciding on taxation significantly affect a country's or region's competitiveness and the effectiveness of their fight for fiscal revenues.

The paper first reviews the main factors determining the scope of fiscal policy, primarily in the relation of the Automotive Industrial District of Győr. It outlines some elements of international tax policy's trends, than analyses the relation between Győr's growing tendencies and the fiscal policy, focusing on the investments of Audi Hungaria Motor Kft. Finally, we summarize our conclusions.

### The main factors affecting the fiscal policy from the point of view of Győr Automotive Industrial District

In connection with the fiscal policy, some relevant factors and limits must be taken into account for the future:

- The Hungarian economy's often cited economic indicators the public debt and budget deficit, which are the indicators of *fiscal sustainability*, according to the Maastricht criterion.<sup>1</sup> Hungary's struggles for fiscal consolidation is far from over, which puts its mark on the fiscal policy's, including tax policy's scope (eg. The possibility of reducing the rate of value added tax). Since many of the Member States of the European Union are not "afraid" of the debt elevation,<sup>2</sup> Hungary does not necessarily need to force the "reduce the deficit at all costs" attitude in the political economy, only to keep the deficit at a steadily decreasing trend. It is also advisable to take this principle into consideration at the municipal level during preparing and implementing the budget and the formation of the associated local tax policy.
- International companies and their relationship with the individual states connects on many points. In many cases the *international companies are much stronger than the individual states in enforcing their interest.*

1 The must be completed EU convergency criterias related to the monetary and fiscal policy prior to the induction of the euro.

2 See, for example: Italy, France, Ireland, Austria, Portugal, United Kingdom.

- Companies need the best cost structure, so while it's affected by tax burden, economy policy decisions related to taxation determine sustainable economic development, competitiveness, FDI attraction and retention.
- The concept of *effective state* is becoming more and more important in the public sector, where one of the obvious tools of effective communication, information flow and procession is the internet. This can be also one of the primary instruments in the fight against tax evasion, backed by professionally competent human resources. These cases need to be examined on the basis of well-organized, complex considerations, and in its *international context*.
- Due to the growing economic and political affiliations and the *increasing interdependence* between States and international companies, governments seem to have decreasing scope in decisions related to fiscal policy<sup>3</sup> and redistributive programs. These facts were taken into account in our further examinations.

## The World of Taxation

In connection with the global economic crisis, the demand of exploring absorbed tax bases came alive related to countries with aggressive tax-strategy. From 2009 to present a series of steps were taken on international levels, aimed to detect money hidden in tax havens, exploring institutions of banking and tax secrecy in connection with tax avoidance transactions.

Over the past few years a lot of *information exchange agreement* were born (See for example: Limpók 2010). The settlement of these agreements were strongly motivated by the countries's desire to be removed from the "gray list" compiled by the OECD in 2009, which aimed to put pressure on tax havens.<sup>4</sup>

Frequently it's more and more common to review and renegotiate agreements on the *avoidance of double taxation*. For example, it happened between Hungary and the well-known tax haven, Switzerland in 2013. The previous contract did not contain any option that would have made possible for the Hungarian tax authority to request information from Switzerland, so they modified the agreement from the 1st of January 2014.

The so-called *tax amnesty programs* aim to encourage the return of hidden funds from abroad, especially from tax havens. They are generally made for one occasion, but elongation is typical. Hungary first adopted tax amnesty statutes<sup>5</sup> in the years 2008 and 2009. The state tax authority in the summer of 2009 said in an interview that the number of candidates was minimal. Interviewed by a weekly, experts from three of the "Big Four" in

3 On the field of monetary policy as well.

4 The OECD lists four key factors to determine whether a jurisdiction is deemed to be a tax haven: 1. the area of jurisdiction apply only nominal taxes or does not apply taxes at all, 2. the lack of transparency, 3. it applies laws or an administrative practices that prevent the effective exchange of information with other governments, the nominal tax payers, or the non-tax payers, 4. there is no provision that the activity must be substantial (OECD 1998).

5 Act LXXXI of 2008, Act LXXVII of 2009 (2008. évi LXXXI. tv., 2009. évi LXXVII. tv.)

Hungary's leading tax consultancy firms stated in July 2009 that no one has asked them for advice on the usage of the benefits (Hvg.hu 2009). Later the tax amnesty was extended and new opportunities were opened. It was an advantage for the stakeholders that they didn't have to report the usage of the benefits to the state tax authority, the money transaction was certified by the Hungarian receiving credit institution to the state tax authority, which made no statement on the transaction.<sup>6</sup> The credit institution deducted and transferred the 10 per cent rate tax to the tax authority without disclosing the identity. Stakeholders could possess with their money freely. The legislators, 'flexibility' was not inefficient. According to the National Tax and Customs Authority (Nemzeti Adó- és Vámhivatal, hereinafter referred to as NAV) the offshore tax amnesty possibility opened between January 2011 and November 2012 gained 67 billion HUF in tax revenue for the finances (Portfolio.hu 2013). Thanks to the tax amnesty program 100 billion HUF in total tax revenues reached the Hungarian budget. In 2012, the completed offshore tax amnesty was called the last one. It may forecast future trends, that in 2013 the government offered another opportunity that was not a classic tax amnesty literally, but a tax amnesty as a result: "More than 41 per cent of the gross central government debt is foreign currency debt... More instruments must be used to orient the ratio of foreign debt towards the national currency, the forint. This process is supported by the Stability Savings Accounts (Stabilitás Megtakarítási Számlák), that can be opened by only natural persons according to the proposal. "- was said in the summer of 2013, in the first legislative material.<sup>7</sup> The financial package<sup>8</sup> assures that the owners of the accounts can preserve anonymity. After five years, the amount paid or the government bonds bought is exempt from such taxation, and shall be capable to launder incomes that used to bypass taxation. In the first quarter of 2014, 74 deposit account were filled up to total 6,185 billion HUF (Adozona.hu 2014).

One of the key problem is that individuals and businesses specialised for tax evasion or tax fraud beyond national borders are enabled to *establish company*. Countries with more permissive jurisdictions are not investigating if the company really wants to carry out a real economic activity. Before 2012, in Hungary the state-control was rather a loose.<sup>9</sup> This changed after the introduction of a so-called tax registration process, where the authority examines the taxation history of the founders before issuing a tax number required to carry out the economic activity. Depending on the results, the release of the tax code can be denied.<sup>10</sup> The competent tax department is the one under the taxpayer's headquarters's expertise, who controls the tasks of the process. In the year of 2013, 37,2 thousand new business went through the tax registration screening and nearly a thousand taxpayers were not able to start their "activities." (Nemzeti Adó- és Vámhivatal 2014, 33.)

6 Act CLIII of 2010 (2010. évi CLIII. tv.)

7 Economic and Informatics Committee of the Parliament (2013) (Országgyűlés Gazdasági és informatikai bizottság).

8 Act CXCV of 2011, Act CXV of 2013 (2011. évi CXCV. tv., 2013. évi CXV. tv.).

9 For example the ones who had a great amount of public debt left could also establish company.

10 See Act CXII of 2003 (2003. évi CXII. tv.).

On the supranational level, the fight against tax evasion and tax fraud has intensified as well. In the European Union – with the exception of a few privileged state – there is an *automatic exchange of information* on savings. The exchange of information between national tax authorities is lively in connection with value added tax (hereinafter VAT). Within the Hungarian tax audits there is an increasing proportion of those checks which are based on the request of foreign tax authorities, concerning the taxation of companies and individuals.

Beyond the possibilities in the EU, in 2012, the Commission Recommendation on “measures intended to encourage third countries to apply *minimum standards of good governance in tax matters*” was adopted. The document stresses the need for transparency and exchange of information and defines potentially harmful tax measures (European Commission, 2012a). At the same time, the European Commission adopted a recommendation in connection with the aggressive tax planning, which defined the concept and named some aggressive tax planning method (European Commission 2012b). Also this year, an action plan was published, which proposed correction for the Member States on their ineffective, “double no taxation” enabling conventions on double taxation (European Commission, 2012c). In the spring of 2013 the European Commission found the situation so alarming, that it aimed to prevent the income concealment in the Community, and – as a part of the Directive 2011/16 / EU of the administrative cooperation in the field of taxation – it proposed automatic exchange of data on all sources of income (European Commission, 2013). Austria and Luxembourg got under EU pressure again because they did not adopt the directive on savings to their own domestic legal system yet. Since they could not evade the long time cooperation, first Luxembourg, then Austria declared its readiness for change.

According to the NAV – while the European Union Member States provided data for the NAV on the ground of the directive on savings – 16.000 Hungarian citizens had a bank account in 2012. The state tax authority has launched 620 investigations and a 173 million HUF tax deficiency was revealed, which requires more than a billion forints non-tax revenue under the current legislation (Portfolio.hu 2014).

In spring 2014, the EU finally decided to *amend the directive on savings*. The Member States’s financial institutions – beyond the current practice – are obliged not only to transmit the individual bank account holders’s information to the tax authorities, but the data of the owners behind offshore companies too, which is later sent to the concerned business owners’s tax authorities. Modifications are required to be transposed into the national legal systems by 1st January 2016, and the regulations will come into force from 2017. The new directive lists the categories of organizations and arrangements, with the remark “trust or other similar legal arrangement governed by foreign law”<sup>11</sup> for Hungary.

To help the fight against tax evasion and tax fraud the OECD has also opted for a more efficient exchange of information. In 2011, the first conference was held in Oslo, Norway named “Tax and Crime”, which’s one main message was to strengthen fiscal transparency among nations (OECD 2011). Reviewing and amending the OECD Model Convention<sup>12</sup>

11 2014/48/EU.

12 Serves as a model for treaties that ban double taxation. Recommendation, which is practically a base of many treaties that ban double taxation.

Article 26 on the exchange of information finally made it possible to put the “Oslo Dialogue” in practice in 2012. For the tax authorities, that have adopted the OECD tax information exchange agreements, the amendment created the possibility for the authority to seek information from the other Member State’s authority on groups of taxpayers without naming individual taxpayers (OECD 2012).

It can be stated, that the overwhelming crisis from 2008 increases in parallel with the pursuit of international exchange of information in tax matters, and the fight against tax evasion and tax fraud got established.

Interesting, however, that there is a growing number of countries which offer favorable tax treatment of foreign-owned companies (UNCTAD WIR 2013: ix). We do not have to go far for examples, it is enough just to “look around” in the European Union. Latvia - becoming a member of the euro zone in January 2014 - offers additional discounts to the holding companies in addition to the existing ones. Earlier Latvian Prime Minister Valdis Dombrovskis (2002-2004 Minister of Finance, 2009-2013 Prime Minister) justified the tax changes with the purpose of increasing the competitiveness of Latvia. The offered new possibilities immediately got the attention of potential investors, mainly Ukrainians, Russians and Belarusian. Others, including Germany,<sup>13</sup> European vanguard in the fight against tax havens expressed its concern about it. The offshore supply increases and demand for offshore facilities is unbroken. If one site becomes “dangerous”, there will always be another attractive option. In the next chapter, we are going to certify this with data on Hungary and Győr.

## Győr, as Development Pole and the Fiscal Policy

The “homeland” of development poles is France. We have already made a study on the theory of development poles and the development poles of Hungary (Limpók 2006). In 2006, Győr, as Autopolis West Hungary Development Pole (Nyugat-Magyarországi Fejlesztési Pólus) mainly focused on automobile industry, the expansion of the supply and logistics capabilities, and renewable energy in a way that the impact of the local development would cover the whole area and the neighboring border region.<sup>14</sup> The development strategy was based on highly qualified human resource.

### *State Aids and Some Central Taxes that Affects Competitiveness*

The current favorable economic potential of Győr and the regions closeby is clearly based on Audi Hungaria Motor Ltd.<sup>15</sup> (hereinafter Audi), which moved there in 1993. International companies do not only take advantage of the situation - ie. tax optimization - but also modify the tax laws in order to facilitate their tax optimization. The positive

13 Spiegel.de: Schultz, S. (2013).

14 See Innovation Pole Strategy of Győr, 7. (Győr Megyei Jogú Város Fejlesztési Pólus Stratégiája).

15 Audi.hu, 2014.

economic environment for Audi Hungaria Motor Kft. are also a result of the various tax benefits it receives from the start. Even from the start, the company could opt their site based on the favorable tax policy, which was not only beneficial for the company, but later it made a huge impact on the tax policy. In September 2006, prior to the adoption of the so-called solidarity tax,<sup>16</sup> Audi Hungaria Motor Kft. managed to make an impact on the statute, so it could include the tax benefits of research and development. This way Audi could avoid the burden of separate taxation.<sup>17</sup> Also, professionals refer to the excise tax statute<sup>18</sup> that came into force in 2011 as “Lex Audi”, which made possible to recover the excise tax of the fuel used for the development of environmentally friendly engines.

By analyzing the Hungarian fiscal policy, it is not surprising that the development of Audi in Győr has continued in the recent years. In the year of 2011, the new factory’s cornerstone in Győr was put down, where the company received a 11,2 billion HUF – 6 million HUF by workplace – state aid in the first round. The aid was the 5,2 per cent of the total investment.<sup>19</sup> Later, the car-body-builder project also received a 2,3 billion HUF state aid – the 3 per cent of the value of the investment.<sup>20</sup> In 2012, a logistics park expansion was decided<sup>21</sup> in Győr, and in June 2013 the inauguration of the new vehicle factory was implemented. In 2013, considerable public support contracts were also signed,<sup>22</sup> where the Hungarian state committed to aid 334,5 million HUF to the investment in educational workshops, and a 1738 million HUF non-refundable cost on the engine development center. Furthermore, the government decided to support engine and vehicle development center investments by 1.700 million HUF.

Today in Hungary, the corporate income tax system has more attractive component. First, the standard rate of corporate income tax on 500 million HUF tax base is 10 per cent, above 500 million it is 19 per cent. On the other hand, many other elements of the legislation allows tax planning, such as accounting the costs of basic research and development as a deductible tax.<sup>23</sup> Audi is a pioneer in the field of R&D. Thanks to that, its corporate tax base was reduced by 245.880 thousand EUR in 2012, and 331.159 thousand EUR in 2013. As a result of continuous innovation, the Knight Rider car, KITT is becoming a reality from the 1980s cult series, since in 2013 – as part of the Las Vegas Consumer Electronics Show – an experimental version of Audi’s automatic vehicle was presented.<sup>24</sup>

16 Act LIX of 2006 (2006. évi LIX. tv.).

17 Known as “Lex Audi”. It is not an individual case. For example, in the USA, 2014, the government lead by George W. Bush gave in to the lobby of energy and pharmacy companies and made amendments in tax laws.

18 Act CXXVII of 2003 (2003. évi CXXVII. tv.).

19 Kisalfold.hu-autopro.hu (2011).

20 Origo Vállalkozói negyed (2012).

21 Kisalfold.hu: Szeghalmi – Cséfalvay (2012).

22 Audi report, 31. 12. 2013.

23 See Act LXXXI of 1996 (1996. évi LXXXI. tv.).

24 Autosforum.hu (2013).



Looking into further details of the taxation of Audi Hungaria Motor Kft.<sup>25</sup>, it can be seen that the company was not bound to pay corporate income tax until 31st of December, 2011, while from 2012 it is no longer exempted from paying this tax. Based on data from the report of the year 2012, the company had to pay 4,271 million EUR after a tax fund of 48,875 million EUR. Calculation based on the data of the report, the burden of the company's actual income tax rated only 8.74 per cent through recouring to various tax incentives. Last year's profits of the Audi Hungaria Motor Kft. were fully paid by the owners as dividends, and supplemented by the amount provided from the retained earnings, 3,0069 billion EUR were withdrawn from the company, and taken out from the country.

Reviewing the data of the report on the year 2013, it can be stated, that in the context of self-revision the company post-established a 1,352 million EUR tax profit for the year 2012, however, despite the sales of 5 billion 856,250 million EUR in 2013 – which means nearly a 6 per cent growth related to the year 2012 – a negative tax base was determined, so it did not generate a corporate income tax liability for the company. The company takes maximum advantage on all the legal instruments of tax minimizing!

The annual average headcount figures showed a very positive tendency, thanks to the investments in the recent years. As a result, the company provides a living for more than 9.500 persons. Through employment related taxes, Audi is a significant contributor to the Hungarian budget. Considering the company's network of suppliers, it has a remarkable role in workplace creation in the region in the light of the current EU labor market statistics.

The company has produced outstanding results in 2013. 1 million 575 thousand Audi cars were sold around the world, when the company has already reached its goal planned for 2015, exceeding one and a half million. The local Audi remained the world's largest engine factory in 2013 with 1.925.636 pieces of engine. Car sales grew by 8,3 per cent, while the concern's revenues grew by 2,3 per cent. 732.000 cars were sold in Europe, while 492.000 units were sold in China from the overall 1.575.000, where sales exceeded the sales of 2012 by a one-fifth rate (Autoszektor.hu 2014). It is not surprising that in the last year – apart from Hungary – factory building was carried out in China as well. The establishment of new factories are still largely motivated by tax planning considerations. From 2015, Audi is going to start production activities in Brazil as well. In addition to the growing market's demand it is the increasing tax burden imposed on imported vehicles that have likely encouraged the company to begin preparations for the production of vehicles in the South American country.

#### *Local Business Tax*

Among the local taxes, the local business tax is a burden on businesses regardless of profitability. It is paid by the percentage of the adjusted revenue, which has a significant impact on competitiveness. From 2000 to 2013, the maximum extent of 2 per cent local business tax rate was laid down in Győr by the law for permanent economic activities. *This was*

25 Audi reports, 31. 12. 2012., 31. 12. 2013.

reduced to 1.8 per cent in 2014.<sup>26</sup> According to the explanation, “compared to the past, this provision beneficial for all the businesses operating in Győr, and another incentive for the companies that intend to settle down.”<sup>27</sup> The author believes that this rate of tax reduction will not really influence new businesses for settling down,<sup>28</sup> since there are many places located in Hungary where there is absolutely no local business tax burden. New investors today no longer decide over this criterion in moving to Győr. Over the past five years there were constantly over 15.000 business taxpayers in the city, and the proportion of them who actually pay taxes are currently around 60 per cent.<sup>29</sup> For them - including the large taxpayer international companies – it is favorable to decrease the rate. Audi were exempt of the payment of local business tax for 15 years, since its settlement in Győr until 2007.<sup>30</sup> In 2013, the company’s business tax liability was 18,048 million EUR.<sup>31</sup> For similar magnitude of amounts, lower tax rate makes a significant difference.

In Győr, for many years, the targeted utilization of a defined part of the local business tax was possible.<sup>32</sup> Until 2014, local tax paying businesses that payed more than 2,5 million HUF local business tax could offer a specific portion of the tax for the city’s cultural and sports associations, sports, cultural, educational and health institutions, or other environment-saving purposes, if they provided an additional amount equal to the portion they offered from their tax. In June 2013, Audi supported the Audi Hungaria Ethnic German-Hungarian Department of Primary and Secondary School of Cultural Centre of Germans in Hungary (Magyarországi Németek Általános Művelődési Központja Audi Hungaria Nemzetiségi Német-Magyar Általános Iskolai és Gimnáziumi Tagozata), as well as the Audi Hungaria German Department of Primary and Secondary School (Audi Hungaria Német Általános Iskola és Gimnázium Tagozata).<sup>33</sup>

In 2014, with the decrease of the rate this option was ceased. According to the explanation, it was partly in order to preserve the local government’s budget balance, and on the other hand, based on the analysis, the funds were primarily used up for non-municipality goals.<sup>34</sup>

Sustainable budget requires special attention not only on a state level, but on a local government level as well. According to the act on the central budget in the year of 2013<sup>35</sup>, the central government committed take over a part of the debts – gained before 31th of December, 2012 – of municipalities having a population over 5000 people. *The consol-*

26 Act C of 1990, 40. § (1990. évi C. törvény), Tax rate in Győr, 1999: 1,7 per cent, Jogtar.gyor.eu (2014).

27 <http://jogtar.gyor.eu/?p=11799>, 04. 06. 2014.

28 See background, for example: Limpók 2010.

29 See for example: Onkormanyzat.gyor.hu (2013) [http://onkormanyzat.gyor.hu/data/files/kozgyulesek/adrendeletek\\_fellvizsglata.pdf](http://onkormanyzat.gyor.hu/data/files/kozgyulesek/adrendeletek_fellvizsglata.pdf), 04. 06. 2014.

30 Also exempt of the payment of real estate tax.

31 Audi report, 31. 12. 2013.

32 Municipality Decree No. 8/2000. (III. 10.) [8/2000. (III. 10.) Ök. sz. rendelet].

33 Recommendation for the aimed utilization of a defined proportion of the local business tax, AUDI Hungária Motor Kft.’s offering, 2013 (Javaslat az iparüzési adó meghatározott részének célirányos felhasználására, AUDI Hungária Motor Kft. felajánlása).

34 <http://jogtar.gyor.eu/?p=11799>, 04. 06. 2014.

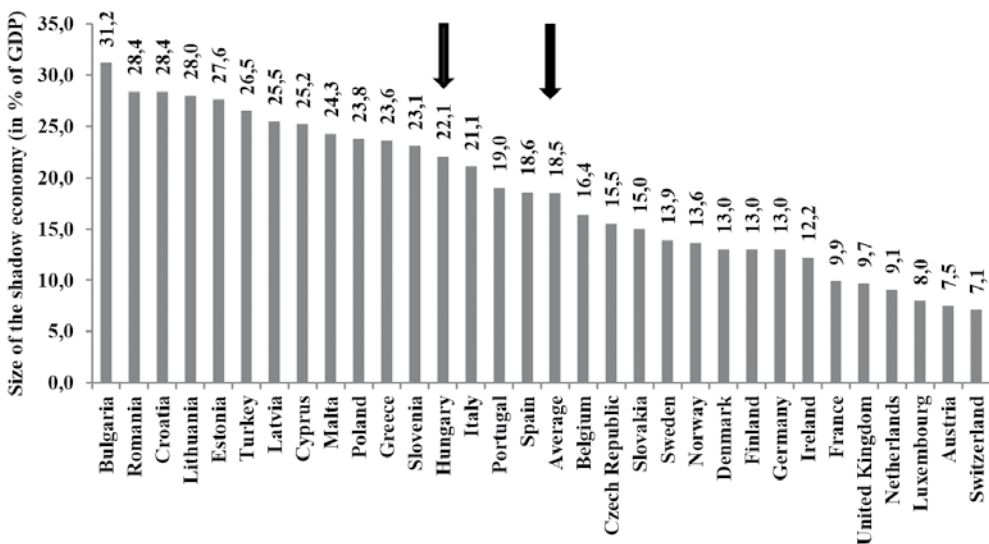
35 Act CCIV of 2012. (2012. évi CCIV. törvény).

idation of Győr was an amount of 7,8 billion HUF.<sup>36</sup> Aggravation of regulations in the recent years encourages municipalities to carry out a more responsible management. However, the European Youth Olympic Festival 2017 (Európai Ifjúsági Olimpiai Fesztivál) can be a substantial temptation, which will be hosted by the city of Győr. Greece is a deterrent example, where the overspending on the Olympic games played a definite part in the latter economic crisis.

#### *Tax Evasion, Tax Fraud*

Figure 1 shows the estimated size of the black economy in 31 European countries for the year of 2013. On different degrees, but the black economy appears everywhere. Its share in Hungary is above the European average, more than 22 per cent. According to the Central Statistical Office (Központi Statisztikai Hivatal), in 2013 the gross domestic product at current prices amounted to 29.114 billion HUF.<sup>37</sup> On this ground, the extent of the black economy in our country can exceed 6.400 billion HUF.

1. Figure: The estimated size of black economy<sup>38</sup> in 31 European countries in 2013 (per cent of GDP)



Forrás: Schneider 2013, 3.

A number of studies came to the conclusion that tax and social security contributions are one of the main reasons for the black economy's existence (See Schneider, 2012, 11).

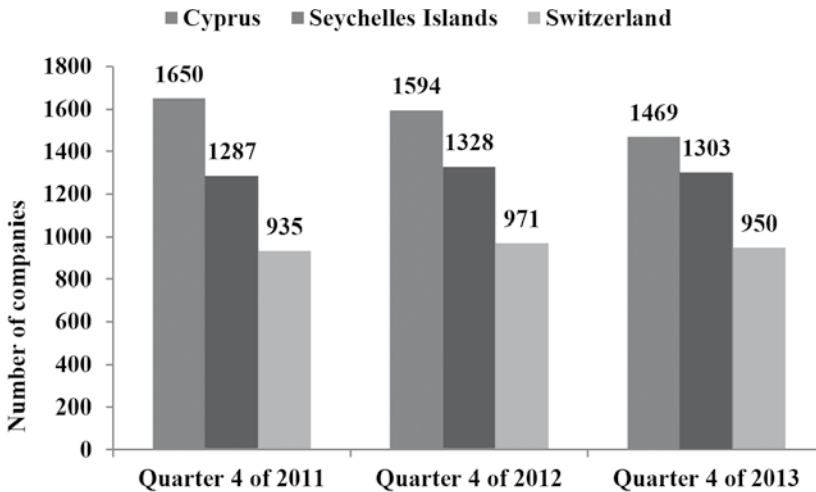
36 National Ministry of Development (2013) (Nemzeti Fejlesztési Minisztérium).

37 KSH (2014a).

38 Often called – especially abroad – as shadow economy.

Currently, it is also a problem in Hungary that a portion of the generated income land in tax havens through offshore businesses. According to a 2014 survey (Bisnode 2014) we can calculate with thousands of company owners that are also active in tax havens.<sup>39</sup> (See Figure 2.)

2. Figure: The number of Hungarian companies owned by a firm operating in offshore country, 2011-2013



Source: Bisnode.hu 2014.

It can be concluded that the use of offshore companies in our country is ever-popular. During the past few years, perhaps the most controversial offshore issue in Győr was related to a new parking facility, which had owners indirectly – by inserting Luxembourg – from British Virgin Islands, and was rented by a 100 per cent government-owned company, the GYŐR-SZOL Zrt. for more than 100 million HUF per year.<sup>40</sup>

Food for thought, moreover, that in 2013 the hundred highest amount of dividends that were allocated outside Hungary has landed in 25 different areas around the world, including 12 places that are typically or mostly used for tax relief. After Audi's activity in 2012, the annual dividend payments were diplomatically described as "having tax-saving characteristics" by the press. First, the money was transferred to its small Hungarian parent company, the Audi Hungaria Zrt. Services, that used the money to purchase shares from a Brussel-based affiliate. This way it acquired a 30 per cent stake, becoming the co-owner of the parent concern, which eventually lead the accumulated profits of the earlier decades

39 The 10 most popular offshore locations amongst Hungarian companies: 1. Cyprus, 2. Seychelles-Islands, 3. Switzerland, 4. Panama, 5. Belize, 6. Luxembourg, 7. Liechtenstein, 8. Marshall-Islands, 9. Hong Kong, 10. Ireland (Bisnode 2014).

40 Kisalfold.hu: Hancz (2011).

in the possession of the parent concern. Beyond Audi's transfer, a 882 billion HUF went to offshore-like owners from a more than 1.500 billion HUF credit transfer.

In the region of Győr, the tax fraud connected to value added taxation is a very common issue, which is even enhanced by the proximity of the border. Over the past years, with the help of the National Tax and Customs Office's West Pannon Regional Criminal Board (Nemzeti Adó- és Vámhivatal Nyugat-dunántúli Regionális Bűnügyi Igazgatósága), several networks involved VAT fraud were eliminated.<sup>41</sup> It is estimated, that in May 2013, a one hundred billion HUF value deal was settled at the Slovakian-Hungarian border illegally, since a significant portion of the traffic is connected with organized VAT fraud. The finance officers constantly checked the main roads for three months and pulled out the suspicious vehicles. After the checking had spread in the news, the daily truck traffic dropped by a quarter, which meant 1.600 trucks less. However, the NAV still seized unlabeled foods, counterfeit goods, and other goods that overall worth several billion forints. Every fourth truck that entered the country was involved in VAT fraud.<sup>42</sup>

The Directive 2006/112/EC allows reverse taxation for EU member states concerning products and services that are particularly affected by VAT fraud. In the case of reverse VAT tax, the tax is payed for the state by the purchaser of the product or the user of the service. Since 2006, these rules are effectively applied in our country in fields like waste trade, building industry, and in some areas of agriculture.<sup>43</sup> The oil and the sugar trade is particularly affected by the VAT fraud taking place at the Slovakian-Hungarian border. It is usual, that the products affected by VAT fraud – by inserting store chains – are sold to multinational companies. In order to eliminate this problem, Hungary repeatedly requested the authorization of reverse taxation in connection with sugar trade, which was recently rejected by the EU in April 2014.<sup>44</sup> Probably the trade of UHT milk is also affected by VAT fraud among the group of foods that are typically traded in large amounts, since a suspiciously big amount of Slovakian labeled milk can be found in the region's supermarkets.

Interesting, that the number of companies linked to offshore countries has increased by more than 5,5 per cent from 2012 to 2013 in Slovakia. There are proportionately more active offshore business in our neighbour country than in Hungary (Bisnode 2014).

41 See for example: Kisalfold.hu: Tóth (2014).

42 Privatbankar.hu (2013).

43 See Act CXXVII of 2007 (2007. évi CXXVII. tv.)

44 COM/2014/0229.

## Concluding Thoughts

We can only make very vague statements for the future, but we will attempt to highlight a few thoughts.

The globalization of the world economy and the technological development brought international tax evasion and tax fraud with itself. The current crisis has also highlighted that the substantial social and economic issues must be solved on both global and state level. These days, an intensifying international cooperation appears to be forming in the field of taxation. What is certain, is that Europe's welfare systems cannot be kept up financially on a long run under the same public-financial circumstances. This can be justified by a number of factors, including demographic problems, but we believe that the biggest nail in the welfare state's coffin is the existence and flourishing of tax haven-like locations.

One of the principles of taxation is utility, which means everyone should be taxed in proportion to the consumption of public goods. Many tax avoider consume the public goods in developed countries that operate with higher tax rates, but shirk from paying tax burdens for their production. In a relatively short period of time, we would require huge changes in the world economy's legislative approach to deliver the results of the international goals, that were formulated on international levels in the past years.

What do we expect from the future? It is us, who must decide. It can be seen over the example of Hungary, that thousands of businesses continue to use companies registered in tax havens with predilection. The legislator uses an anonymity promising, specific investment to lure back the amounts of funds hidden there.

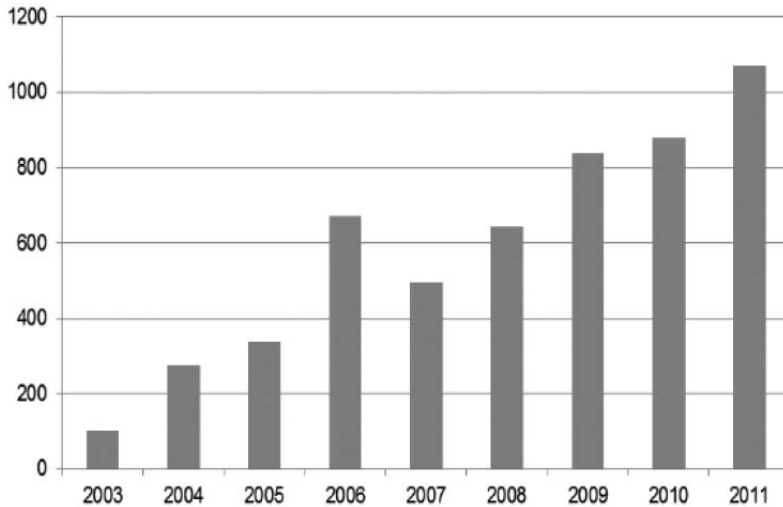
Using the example of Győr and its region, we outlined that one of the main areas of tax fraud is related to the value added taxation. The extension of the practical reverse taxation onto other areas can bring positive results, but we need the European Union's support to achieve that. We appreciate the fact that Directive 2013/43/EU<sup>45</sup> has allowed member states to apply reverse taxation in connection with certain products and services – for example cereals – until the 31th of December 2018.

Our country's standard VAT rate is extremely high, not only between the EU Member States, but also worldwide (European Commission 2014). VAT fraud "may be motivated" by this high standard rate, however, our decreasing, but still high public debt can be an obstacle of lowering the standard rate.

To be efficient, the only way for national tax authorities is to choose international cooperation. Exchange of information between EU Member States is an excellent opportunity if it is used effectively. The numbers speak for themselves: from 2003, on the basis of mutual assistance in tax collection, more than tenfold of the amount of cross-border taxes were collected in the EU Member States (See Figure 3.).

45 Amending Directive 2006/112/EC.

3. Figure: Tax collected in the EU since 2003 on the strength of mutual assistance in tax collection (Index: 2003=100)



Source: European Commission 2013, 10.

Any possible complex implementation of the automatic exchange of information poses new challenges for the Hungarian system. In connection with the described tax frauds around Győr, we would suggest a very intensive dialogue and cooperation with the Slovakian partner authority. It would worth to examine the offshore interests of companies that were registered in Slovakia and also have Hungarian interests.

This study outlined instruments of fiscal and tax policy that are not only linked to the support of the development of Győr, as Autopolis Western-Hungarian Development Pole, but also to Audi Hungaria Motor Kft., the base of the region's current "well-existence." For the sustainable development of the Automotive Industrial District of Győr, we believe that we should not ignore the news – neither on medium or long term – that speak about the shrinking of the European car market sales. Table 1 summarizes the possible scenarios of FDI flows related to the international automotive industry.

1. Table: FDI, international companies/Automotive industry scenarios in terms of Hungary

	Positive	Neutral	Negative
<b>FDI, international companies/Automotive industry</b>	As the winner of the rearrangement processes around the world's automotive industry and the European automotive industry, our domestic manufacturing capacity will be retained or will maybe grow further.	Europe is holding back the production due to the current significant overcapacity in the automotive industry, which affects the domestic producers as well, but factories will not be closed.	Due to years of experience in the decrease in car sales, an increasing proportion of producers locate their factory onto the rising markets (eg. Asia, South America). Factories will be closed in Hungary.

Source: Author's construction.

Because of the flow of globalization, almost everything is temporary, and the constant change encourages an innovative tax policy. The policy makers already should think about the new kind of fiscal instruments that can be deployed in order to maintain the retaining capacity of Győr or to keep its attraction. One of the challenges to handle in the present and the future is to strengthen social security that was shaken as a result of the crisis in this globalized, unpredictable world. Europe must not only find the answers to their own problems. An influx of refugees are waiting for a better fate in many countries of the continent. For example, in the year of 2013, the number of refugees increased by 325 per cent who went to Italy through the sea (Italiadaily.com 2014). In Hungary, 2,157 people applied for asylum, in 2013, their number has reached 18,900, and 2014 also shows a strong growing trend.<sup>46</sup> In 2013, a refugee camp was opened in our region in Vámoszabadi, eight kilometres away from Győr, where refugees constantly seek for asylum since then.

We face a future full of challenges, and today a sustainable tax policy – defined by the author years ago – would be an essential element of the often mentioned sustainable development. Sustainable tax policy

- *takes solidarity into account between generations.* The duty of solving the subsequently manifesting problems in public finance, society and social status caused by today's inconvenient tax policy, is passed to the future generations by today's men, which contradicts the principle of solidarity between generations.
- On the other hand, it *takes intra-generational solidarity into account.* The world's problems can be traced back to many tax avoidance reasons, for example the tax payments of the self-employed are reducing in many countries. The mindset of the society must be changed, and awareness must be raised, that financing public needs and maintaining

46 KSH (2014b).



the social system can not be a burden only of the “wage earners”. Improving the quality of public services can also increase the willingness to pay taxes.

- Third, it *takes solidarity into account between countries*. The well-being of offshore areas depends on the favorable tax policy, but this undermines the tax base of other states. Finding the balance in the future is a global-level task.

Creating this sustainable tax policy may seem like an utopia, but as consumers of public goods, it is all of our interest, and we can not resign.

## Are SMEs Using Open Innovation Methods More Effective?

Results of the empirical research carried out among the enterprises based in the Győr Industrial District

TIBOR DÓRY - ATTILA TILINGER

**SUMMARY:** Throughout the past years the open innovation paradigm has been gaining ground among researchers, strategic management experts and the actors of research and innovation policy. Various empiric research justified that enterprises open up increasingly their innovation processes and involve external actors, i.e. other enterprises and research institutes. The attention of researchers was mainly directed towards to the innovation processes at large enterprises and it was only recently that they started investigating this phenomenon at small and medium enterprises (SMEs). Research of SMEs' innovation activity is even abroad, where specificities of the field are studied based on case studies, in its early stages.

The economic potential of the region's enterprises was surveyed and evaluated in the framework of the project focusing on the processes of the establishment of the Győr Industrial District. The empirical research aimed at the analysis of economic potential and labor market and how the surveyed enterprises apply open innovation techniques throughout their research and innovation activities. The participating enterprises were classified in two groups based on their collaborative behavior. This study describes the effectiveness related specificities of enterprises applying open and closed innovation models.

**KEYWORDS:** Open innovation, small and medium-sized enterprises, collaboration, knowledge and technology transfer

## Introduction

The concept of open innovation originates at such large companies, which are able to integrate their own research activities with external development ideas and technologies (Chesbrough 2003). The open innovation paradigm can be also interpreted as the opposite of the traditional, vertical innovation model. In this latter case, the R&D division of the company carries out the product development activity and generally the production too and finally the company sells the resulting products. If we need to describe the open innovation by one sentence we could say that it is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively. Chesbrough (2003) defines open innovation as a paradigm, which supposes that firms can and should use external ideas as well as internal ideas as they look to advance their technology. The business model uses both internally and externally created ideas to create values; at the same time it defines internal mechanisms to acquire a part of the created value (Molnár-Németh 2009).

The concept of open innovation, however, can be applied for small and medium-sized enterprises (SMEs), since they do collaborate with numerous external organizations, often with other SMEs as well, when developing and manufacturing their products. International surveys and empirical researches based on case studies highlight the fact that those SMEs can take the most advantage from open innovation that regularly collaborate with their clients, buyers and different higher education institutions. The innovation activity of successful companies is carried out in an “ecosystem”, whose actors are in dense and intensive relationship with each other. By using this system of relationships built on mutual trust, companies can complement their innovation resources and they can share new ideas with each other (Vanhaverbeke 2012).

The research - carried out in the framework of the research project focusing on the processes establishing the Győr Industrial District - was mainly aimed at the examination of SMEs' innovation specificities. The main goals were the following:

- To what extent it is reflected by indicators that small enterprises applying the open innovation model differ from the ones operating in the traditional closed model?
- What is the role of higher education institutions in the innovation activity of the investigated companies?

Based on the review of academic literature, the first part of this study presents the most important features of the open innovation paradigm; this part is followed by the presentation of the specificities of the companies applying the open innovation model. Then, an open innovation collaborative model is outlined, by the application of which the efficiency and effectiveness of universities and enterprises could be ameliorated. Finally, the study ends by the summary of conclusions and outlining further potential research directions.

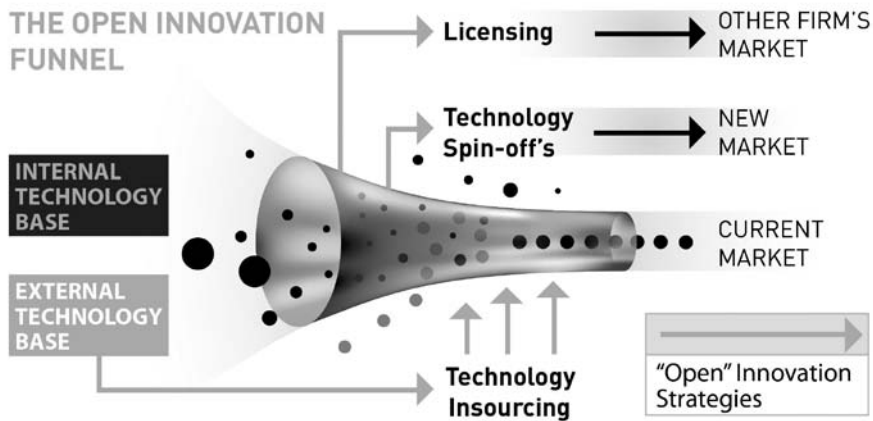
## **Different Forms of Open Innovation**

There is no ideal open innovation strategy. Open innovation might be presented in numerous forms and there are several potential ways how it can be used. This depends on the type of innovation and the actors involved in the development process. Different open innovation strategies can be presented the best by the “open innovation funnel” (see Figure 1) introduced by Chesbrough (2006).

Every day, in every moment, several thousands of seemingly brilliant ideas rise in the heads of employees and managers of different companies. A large part of this ideas gets into the above mentioned innovation funnel, however, only a few leave it in form of new products and services: the most of the ideas vanish away in the development process. According to the concept of open innovation the borders of the enterprise’s innovation funnel are permeable, they are full of wholes, through which external ideas can get into the funnel and the companies’ dead ideas can get out to the other members of the ecosystem, so that they can implement them on existing or new markets, or by establishing new enterprises. This is easily understandable since our thoughts, intentions, as well as the market, change as time goes by. Sometimes we observe something that seems to be a good opportunity, and then we elaborate product ideas in order to realize this idea. If we do see perspective in the developed idea a year later and the management supports it, different solutions and technologies can be elaborated by the development department of the company based on these ideas. Of course, not all technologies are manifested at once in a product, and they do not always end up as new products and services. The situation is complicated by the fact that often neither the basic idea, nor the technological solution come from the enterprise itself, but from an external source.

The open innovation concept presents the timeframe necessary for a new product to be introduced on the market, as well as the lead time of the development of product-related opportunities, ideas, technologies and how these processes are related to the different sections of the innovation funnel. Thus, the funnel can be described as a process that can be operated effectively: the identified opportunity needs to be shaped to an idea, the idea needs to be developed to technology, the technology needs to be incorporated in products and services, and the developed product has to be marketed.

Figure 1: The open innovation funnel



Source: Chesbrough 2006.

The companies have four possibilities when realizing the open innovation strategy (see Figure 1):

1. Involvement of technologies from outside the company: At the early stages of the innovation process companies are often aware of the fact that certain external solutions and technologies could significantly accelerate the company's own development efforts. This is an arbitrary action of companies, in which they involve external R&D resources and solutions in order to complete or replace their own R&D activities.
2. Technological development within the company. It is a business practice, in which companies realize in-house all the developments, which otherwise would have been outsourced or subcontracted. Mostly, companies justify their outsourcing decisions by cutting costs or focusing on their core activities, and in this case they have access to more knowledge, talent and practice that would yield higher profit.
3. Licenses. Two business actors conclude a contract, based in which the licensor authorizes the licensee to use a certain trade mark, patent of other intellectual property in exchange for the payment of a certain fee, the so-called "royalty". The license allows the licensor to take advantage of the goods and values created by the licensee.
4. Technology utilizing firms ("spin-out"). Companies can "spin-out" ideas and technologies not meant for in-house development to other companies, which generally just start their activities on a new market. The utilizing companies can be defined as a group or division of the company heading towards independence.

The most important message of the open innovation concept is that utilization possibilities of a new discovery, technology or any other novelty need thorough consideration and only after contemplation can the decision on the realization method - own or external - be taken, according to which serves the interests of the company the best.

## Researching Open Innovation Among Small and Medium-Sized Enterprises

Hungarian and international researches support the fact that, besides large enterprises, small and medium-sized companies have significant innovation capacity as well, moreover, not only small enterprises with cutting edge technologies can be considered innovative, but companies realizing innovation in traditional branches of industry as well (Acs-Audretsch 1988, Csizmadia-Grosz 2011).

The authors Brunswicker and van de Vrande (2014) present that, in contrast to large enterprises, innovation processes and models show significant differences in case of small enterprises. SMEs are more flexible, because of their faster decision mechanisms and they respond faster to the changing demand. However, they face several disadvantages in contrast to the large companies: e.g. they have fewer specialized employees, their resources are limited and their R&D activity is less formalized. From the fact that their resources are limited follows that they cannot engage in all kinds of R&D and innovation activities, thus, they are forced to collaborate with other enterprises or research institutes. Researches verified that those small enterprises that do collaborate with other organizations in many ways are more successful in the realization of the innovation as well.

In several cases, small enterprises lack the *ability* to articulate their need for external knowledge, technology and know-how in a proactive manner. This is so even when the small enterprise intensively collaborates with other organizations. The other extreme is that the small enterprise collaborates too intensively with other companies, thus, it becomes far too dependent on others or their specific knowledge. Therefore, one of the main goals of the investigation of open innovation is to study how SMEs utilize their network relationships, social capital and external knowledge.

Different empirical researches verified the positive relationship between the *size and openness* of companies. Furthermore, in the past years researches reported on the ever increasing innovation activity of small enterprises. Small enterprises practice mostly *open innovation techniques from outside*, in contrast to the diffusion of knowledge created within a company and its utilization jointly with other organizations. The innovation coming from an external source means generally cost free methods, such as networking, it is rare that SMEs would buy licenses to support their development activities. From among the networking activities the collaboration along the value chain can be considered the most frequent; however, the role of collaboration with universities and research sites is also significant. The outward-directed open innovation techniques, e.g. licensing own patents, technologies or know-how are very rarely applied. Presumably they do not have capacities to identify the potential partners and to pursue long negotiations with them. It is also very rare that they publish their product ideas or technologies without requesting financial compensation (Vanhaverbeke 2012).

The open innovation activity of SMEs is mainly determined by two factors: the financial needs of the company and the innovation system of the country. Based on research experiences, the open innovation activity of SMEs is mainly driven by financial motivations.

The main hindering factor of openness is the lacking market and technological knowledge of the SMEs, and the ineffective handling of intellectual property rights. The ownership structure of enterprises also has an influence on the open innovation practice of SMEs. The family owned companies, typically, do not pay sufficient attention to open innovation, which fact is not really influenced by the education of the CEO or the management (Brunswick-van de Vrande 2014).

Research results also verify that besides the collection of external ideas innovation collaboration and R&D mandates for external experts have a positive impact on SMEs' innovation. This impact is, however, influenced by the age of the enterprise and its position in the life-cycle. Open innovations techniques have a rather major role in young SMEs of a couple of years of age. Besides this, the SMEs' strategies on obtaining new ideas, technologies and knowledge do have a major influence on the impacts of open innovation methods. It is interesting how different open innovation practices have different impacts on incremental and radical innovation. While the role of the search for new technologies is more significant in the incremental innovation, licensing patents is rather characteristic for SMEs introducing radical innovations. Vertical collaboration with the buyers and end users of the supply chain has beneficial impacts on radical innovation.

Also, the role of those *networks* needs to be highlighted, which play a determining role in the performance of spin-off and start-up companies, as well as in SMEs in general. Especially those SMEs' performance is getting better that participate in informal knowledge networks. Usually, these networks are regional initiatives encouraging knowledge sharing and network collaboration among the representatives of different organizations, e.g. innovation agencies, business incubators, university technology transfer offices, start-up companies and venture capital firms. Researches verified that the dynamics of SMEs' network relations and collaboration have a beneficial impact on their strategic decisions and activities. While large companies would be able to carry out open innovation even without strategic changes, in case of SMEs the opening and openness stand for a radical strategic shift (Vanhaberbeke 2012).

In case of SMEs we need to mention their disadvantage: when developing a new product or service some of their capabilities are typically incomplete for the rapid and successful market uptake. Therefore, it is advantageous for them to apply open innovation techniques not only in the development phase, but in the commercialization phase as well. However, SMEs only scarcely notice their own limitations by themselves. There is a need for intermediaries, on the one hand to identify failures, on the other hand to suggest services and experts matching their needs. Besides, SMEs need to make decisions on the type of communication (informal, semi-informal or formal), on whom, what organizations they trust and how they plan to handle the inevitable potential conflicts.

Finally, SMEs applying open innovation methods need to be prepared to develop their management skills. It is possible that certain SMEs cannot carry out successful open innovation by themselves, without the assistance of an innovation network manager. Thus, a body needs to be established, whose main task is to motivate and inform the SME's managers and owners on the tricks of implementation and to facilitate collaboration and knowledge-sharing (Brunswick-van de Vrande 2014).

## Results of the Company Survey

Our research is based on the survey related to the project “Győr Automotive Industrial District as the new trend and means of spatial development” No. TÁMOP-4.2.2.A-11/1/KONV-2012-0010. Consultation with the companies was carried out by interviewers in the first quarter of 2014. A database composed of 240 companies was established as a result of this research. The database offers adequate inputs for research on the openness of SMEs operating in the region<sup>1</sup>.

### *Definition of Open Companies*

To be able to examine the behavior of open and closed companies and the differences between them we need to define the group of *open companies*. According to the literature the base of openness is the collaborative behavior when carrying out R&D and innovation activities. Therefore, we consider those companies to be open, in which the following conditions are rather or completely fulfilled based on respondents' evaluation:

- Carry out innovation activities jointly with external partners.
- Seek to obtain external ideas, knowledge and innovative solutions.
- Involve external partners in identification of new innovation opportunities.
- Collaborate with their customers and suppliers.
- Collaborate with universities and research institutions.
- Collaborate with intellectual property experts.
- Collaborate with networking partners.
- Develop innovation strategies jointly with their research partners.

The above conditions are fulfilled by 65 companies (27.1 per cent) out of the sample of 240 companies. For the sake of convenience we called the remaining 175 companies (72.9 per cent) closed companies.

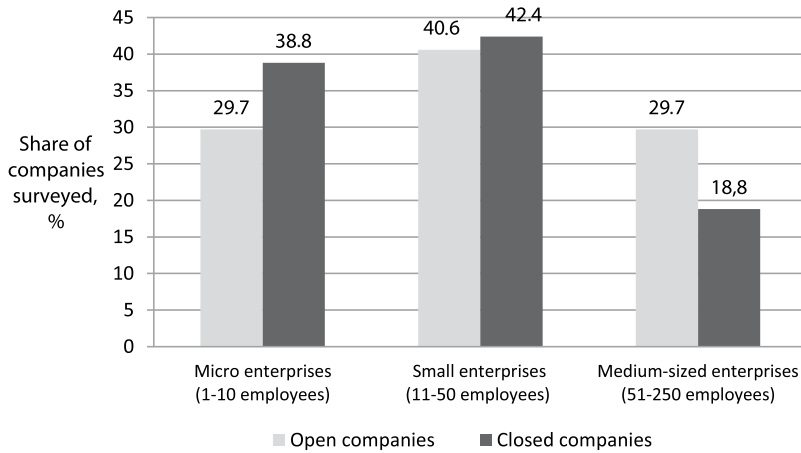
### *Differences between Open and Closed Companies*

Considering the *number of employees* we can say that in the cluster of open companies the proportion of micro-enterprises below 10 employees is lower than in case of the closed companies, while the proportion of medium-sized companies' is higher. Considering the proportion of small enterprises, there is no significant difference between open and closed companies. From all this follows that the larger a company is the more open it can be considered (see Figure 2).

1 Not all companies answered all questions in the survey, therefore the figures in the analyses refer to the ones that answered the given question.



Figure 2: Average statistical number of employees, 2012

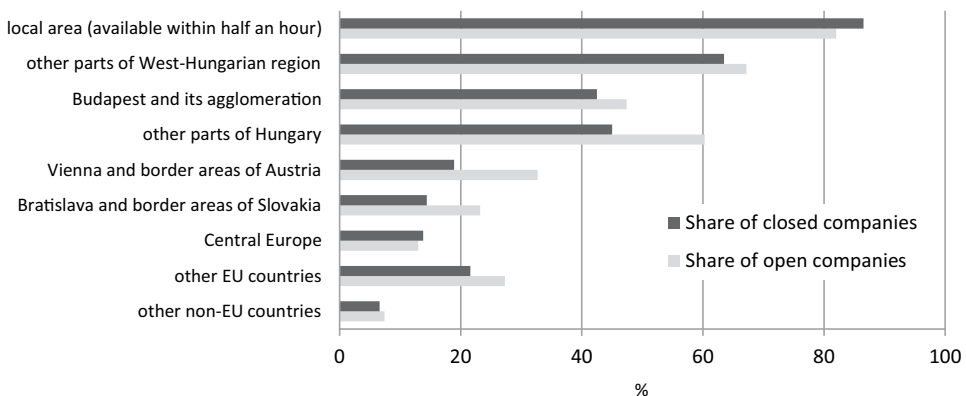


Source: Győr Automotive Industrial District survey - Enterprise survey, N=240.

Based on economic data of surveyed companies of the 2010-2012 period, it is clear from the survey that 15.7 per cent of the open companies' annual turnover came from exports. In case of closed companies this figure is less than 13.9 per cent.

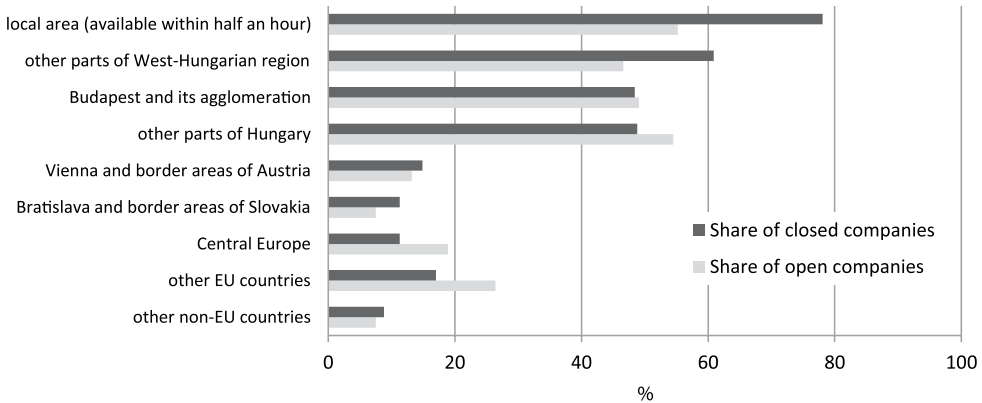
In the next question we wanted to see from which geographic regions the companies' purchases were delivered from, and where they market their products/services in the 2010-2012 timeframe. Considering both purchases and sales it is noteworthy that as we move from local towards global level the proportion of open companies is getting higher in contrast to the closed ones (see Figure 3 and Figure 4). This means that the relations of open companies are less limited to the local level and a larger proportion of open companies have buyer or supplier relations with foreign partners.

Figure 3: Purchases by geographic regions



Source: Győr Automotive Industrial District survey - Enterprise survey, N=240.

Figure 4: Sales by geographic regions



Source: Győr Automotive Industrial District survey – Enterprise survey, N=240.

Furthermore, it should also be noted that a higher proportion of open companies prepared *strategic documents* facilitating the companies’ development: 43.1 per cent has a business plan and 28.1 per cent has an innovation strategy (see Table 1).

Table 1: Existence of strategic documents

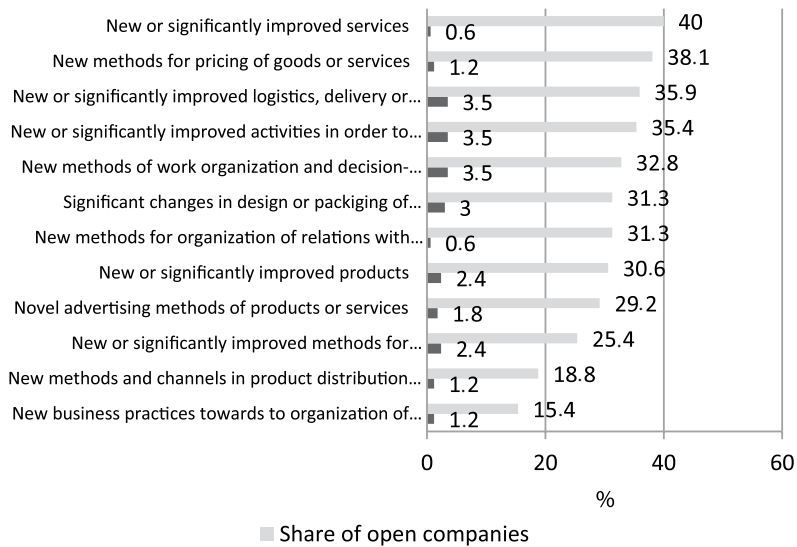
Document	Open companies’ %...	Closed companies % ...
	...prepared the given document.	
<b>Business plan for 1-3 years</b>	43.1	32.6
<b>Innovation strategy</b>	32.6	8.7

Source: Authors’ own compilation

14.1 per cent of the open companies *carried out or commissioned R&D* activities in the 2010-2012 timeframe. This, by itself, is not a high proportion, but in case of closed companies this ratio is even lower: 7 per cent of the companies carried out R&D activities of this kind.

We also examined whether the companies had *introduced any innovations* between 2010 and 2012. There is a significant gap between the open and closed companies. A significantly higher proportion of open companies had introduced some kind of innovation (see Figure 5).

Figure 5: Innovations introduced by types of companies, 2010-2012

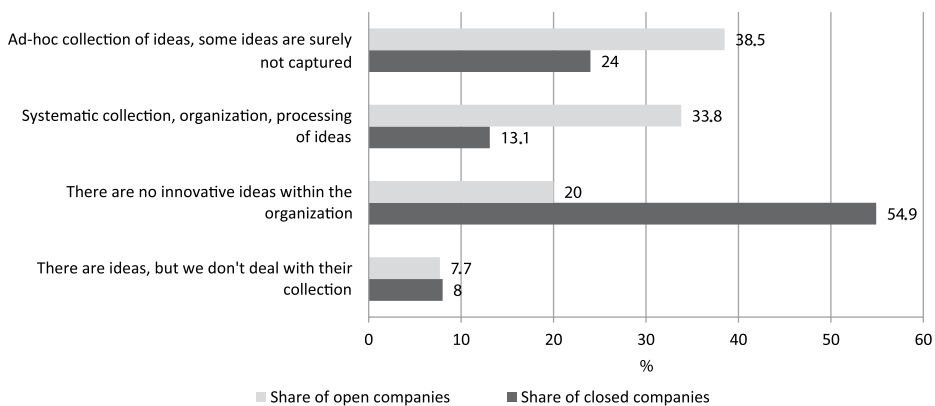


Source: Győr Automotive Industrial District survey - Enterprise survey, N=240.

Examining the number of people employed in R&D we can say that average 11.1 per cent of the open companies' employees worked in the field of research and development in the 2001-2012 timeframe. This proportion is lower in case of closed companies: 2.4 per cent.

A higher proportion of open companies collect viable ideas developed within the organization, which can form basis for further development or innovation. Systematic collection, organization, registration are characteristic for 33.8 per cent of the open and 13.1 per cent of the closed companies. Ad-hoc collection - where a significant part of the ideas is getting lost - is characteristic for 38.5 per cent of the open companies. Considering this indicator, the position of closed companies is better: 24 per cent collects ideas in an ad-hoc manner (see Figure 6).

Figure 6: Conscious collection of the viable ideas emerging within the company



Source: Győr Automotive Industrial District survey - Enterprise survey, N=240.

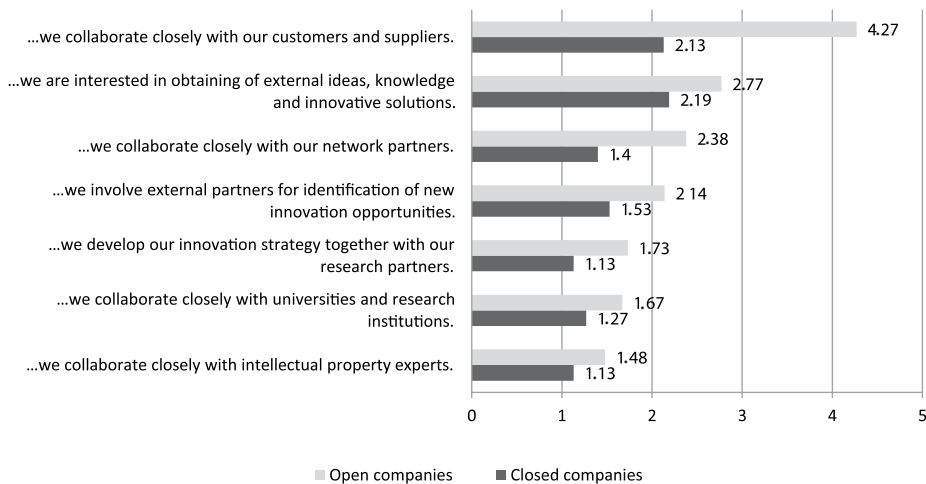
In the survey, the respondents had to evaluate on a 5-point scale (1: not at all, 5: significantly) how they *encourage their own employees to generate new ideas and develop them further*. The average of the answers was higher in case of open companies (2.67) than in the group of closed companies (2.27). From this we drew the conclusion that encouraging their employees is rather characteristic for open companies.

The respondents had to evaluate on a 5-point-scale (1: not at all, 5: fully applicable) what *collaborative behavior* is characteristic for the company when carrying out research, development and innovation activities (see Figure 7). Based on the average scores of the answers - examining the differences between the behavior of open and closed companies - we can draw the following conclusions:

- Collaborative behavior is generally stronger in open companies than in closed ones;
- Collaboration with customers and suppliers is more characteristic for open companies;
- Collaboration with network partners is more characteristic for open companies.

On the same scale, in closed companies it is more their own staff (3.87) that develops new ideas and carries out innovation activities, than in case of the open companies (2.81).

Figure 7: Evaluation of the companies' collaborative behavior



Source: Győr Automotive Industrial District survey - Enterprise survey, N=240.

### Where does Open Thinking Lead to?

The average of open companies' *annual net turnover* exceeds significantly that of the closed ones. In 2012 this figure was 828.9 million HUF in case of the open companies, which is more than 100 million HUF higher than the average turnover of the closed companies (723.5 million HUF).

In the three-year-long timeframe of 2010-2012, 28.6 per cent of the open companies, however, only 13.7 per cent of the closed companies could increase their export income. In the same timeframe of 2010-2012, more than the half of the open companies (55.6 per cent)

could increase their expenditures on research, development and innovation. In contrast to this figure, only 21.4 per cent of the closed companies could increase their expenditures on this type.

Considering the change in number of the *people employed in the field of R&D*, the situation is more favorable in case of the open companies: 41.7 per cent of them could increase the number of employees, while in case of the closed companies this figure was only 9.1 per cent.

When examining the *patent applications*, we can say that 7.9 per cent of the open companies had submitted patent applications since their foundation. In case of the closed companies this figure is only 1.1 per cent! The difference between open and closed companies is underlined by the fact that 11.7 per cent of the open companies is planning on submitting patent applications in the following three years, while in case of the close companies only 2.4 per cent has such plans.

## **Suggestion on the Establishment of an Open Innovation Model in Collaboration with Universities**

The results of the company survey have clearly demonstrated that it is profitable for the companies and it pays off to keep looking for new collaboration opportunities and ways. Collaboration with universities is one of the traditional collaborative forms, just like e.g. educational and research collaboration, which can be smoothly operated among those who have known to each other for years and the partners are open for each other's initiatives (Inzelt 2004). A lot can be done in the interest of those university departments and researchers who do have the adequate competences and knowledge for collaboration, but they have failed to find each other so far. It seems, that on both sides there is a need for a certain change, since higher level of openness and proactive behavior can defeat the making of excuses. It is not enough simply to change the management style and behavior, but new types of activities need to be started in order to establish and strengthen confidence.

The companies of the 21<sup>st</sup> century know well that continuous development and innovation are crucial for the survival in the global competition. Both companies and academic institutions are forced to seek for new solutions and explore better ways, since the current world order is based on the production of "cheaper, better and faster" goods. The closed innovation activity, which was based on internal resources, is already history. Companies need to open up and involve external actors and ideas into their R&D activities, since they are not able to develop all technologies by themselves.

It needs to be highlighted that the proactive behavior of higher educational institutions could generate significantly more collaboration than ever before. Of course, it is in their own interest to be more active and to carry out more marketing activities, e.g. the universities could present their competences and research instruments in different conferences and exhibitions. As it has been demonstrated in numerous studies, we can

conclude that the communication between universities and their corporate partners is not sufficient; furthermore, its forms are not suitable either. In several cases they do not even understand clearly what the other party wants, since corporate and university employees speak different languages. To sum it up: more and more intensive communication is needed.

The good news is that there is a solution, namely, the process of becoming more open. The first step on this way is to understand the drivers and reasons of the other party. In the second step we need to open up slowly towards new partners, management processes and eventually, towards new results (Alexander et al. 2012). For higher educational institutions it is recommended to promote more effectively their research competences, laboratory capacities and instruments. Awareness, provision and dissemination of information, both in electronic and printed format, hold significant potential, which can be developed. Based on the corporate feedbacks, newsletters sent regularly or made available from their continuously actualized website are the most effective forms of communication. Besides this, annual research reports and working papers can be sent to potential corporate partners who have interest in the results and would be interested in joint projects (Dóry-Tilinger 2012).

For companies, holding different lectures and seminars at universities can be considered to be a very effective relationship and confidence building method. The critical point is the step-by-step learning about each other before engaging into further significant collaboration with each other. The field of joint R&D projects is a rather sensitive terrain and it might lead to the exchange of confidential data and information. Consequently, before entering such collaboration it is highly recommended to gain experiences and to learn about the other on the above and some less sensitive fields of collaboration. If the parties consider all this they will be able to form fruitful collaboration, which will be followed by significant results.

If the partners want to carry out innovations with significant impacts, adequate management competences are crucial for both companies and universities. Open innovation and broad collaboration are mainly hindered by factors linked to the management and the organizational culture, which arise at the time when the partners start their common activities. The keys to a successful open innovation are well-managed partnerships and networks. Finally, some unchanging suggestions are presented for SMEs, research intensive universities and staff members, in order to facilitate a successful relationship with their partners (Vanhaberbeke 2012, pp. 75-76):

- Carefulness in the choice of partners.
- Establishment of clear management principles and framework for the organization and management of the own innovation network.
- Facilitation of the continuous operation of the innovation network.
- Communication with innovation partners.
- Keeping balance between the own management of the own company and of the external network.
- Choice of partners of similar size and ambitions, who may ameliorate the collaboration.
- Cost-control.

- Awareness of the “who knows what” question, since this is going to be a valuable information in the future.
- Proactive management of frictions and problems in the network.

## Conclusions and Outlook

The research of open innovation in small enterprises has started in the recent years in international context as well. However, the conclusions in the growing number of publications and the experiences of the survey carried out in the Győr Industrial District are in line with each other: they indicate that it is worth and profitable for the SMEs to use open innovation methods. This is verified by the higher turnover, exports and patenting activity of the SMEs actively involved in open innovation.

We assume that the main difference between open and closed companies lies within their collaborative behavior, i.e. the open companies carry out more active collaborative behavior. Open companies are rather characterized by international relationships and innovativeness; these factors determine their turnover and the number of employees, since these figures are typically higher than in closed companies. Openness involves dynamics and development as well: it contributes to the increase in the number of employees in the field of R&D and the export revenues; besides, the number of patent applications is higher too.

There are steps to be taken when we aim to increase: open companies operate in a proactive manner in the field of development, since they collect and organize viable ideas born within the organization, they encourage their employees to elaborate new development ideas, and they are aware of the benefits originating in collaboration. Open companies operate with their eyes open, in their case external impacts have a more determining role in the innovation activity than in case of the closed companies, since new directions and changes of the business environment need to be foreseen and followed as soon as possible.

In spite of the fact that the evaluation of the details of the open innovation methods' application was not carried out in the Győr survey, we can say that small enterprises realizing open innovation are more effective and, presumably, more competitive than the ones operating in the traditional closed framework. Nevertheless, there is a need to continue this research and analyze the development of ideas and selection mechanisms at the very beginning of the process along with the collaboration established to realize them. In connection with the conclusions of Brunswicker and van de Vrande (2014) the fact was verified by our investigation that small size by itself does not mean any disadvantage if the organization has intensive collaboration and dialogs with its buyers, suppliers and it makes use of the services provided by different research institutes, universities and other specialized experts.

Knowledge providers, participating at the early stages of the small enterprises' innovation activities in the generation and validation of innovative ideas, as well as in the

selection, could form also a base for further investigation. The authors *Csizmadia* and *Grosz* (2011) made important findings on relationship networks' impact on innovation; it would be preferable to improve this research and to extend the analyses to the frequency and efficiency of different networking methods. Especially the role of social capital and the dependency of small enterprises on network relationships should be analyzed, since there were no results published in the literature that would explore the role of different relationships in the realization of open innovation.

Interesting consequences can be drawn from the research on why Hungarian (small) enterprises do not buy licenses and why they do not think about purchasing know-how. One of the potential reasons could be the high cost of the protection of intellectual property rights, but probably SMEs do not think about obtaining such incomes, since this terrain is supposed to be rather abstract and complex, and it has to be said that this, for the most part, is true. Finally, small enterprise management methods, business organizational processes, business strategies and business plans could also be interesting objects of research, since the realization of open innovation requires serious coordination mechanisms and delegation, which show deficiencies even in larger organizations.



# Patterns of social structure and stratification in Győr

ZOLTÁN CSIZMADIA – PÉTER TÓTH

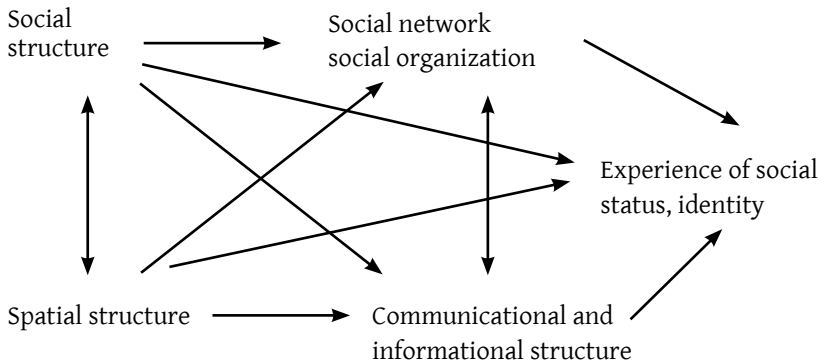
## Introduction

The tradition of the intertwining of social structural and spatial structural research dates back to the beginnings of sociological research. The researchers of the Chicago School set the objective to study the society of the metropolis and its region from diverse aspects (Park – Burgess – McKenzie 1925; Wirth 1938). The approach related to the social structural studies of urban sociology is associated with the work of Iván Szelényi in Hungary (e.g. 1971, 1973). The outstanding studies of this national school were carried out by Lajos Héthy and Csaba Makó in the city of Győr (e.g. 1972) with the application of an economic structural viewpoint, too. On the basis of international social structural research, we know that the study of its social status needs to be linked with that of related values and identities (Kluegel and Smith 1986). This double approach was applied in domestic sociology by Kolosi et al (1980).

Settlement research intertwining the above approaches and analysing local societies and identity with complex methods dates back to nearly thirty years in the institutional environment which provided the professional background of the research group publishing in the present volume (Bóhm 1984; Barsiné 1985; Bakó – Szabóné 1985; Szabóné 1985; Bóhm – Táll 1992). Research continued even post-regime change, detecting altered career patterns and opportunities in the labour market, as well as the study of the young generation populating the settlement and its agglomeration (Bóhm – Ferenczi – Szakál 2000; Bóhm 2002; Szakál 2003, Tóth 2009). The city and its region have been the object of several comparative studies dealing with a definite segment of local society post-regime change (Egedy 1996; Gábor 2002). In addition, a detailed analysis of the historical roots of the local society of Győr has been carried out in the framework of various social historical studies, for instance in the case of the entrepreneurial group, the middle class or the embeddedness of the local political elite (Szakál 2002, Varga 2009).

The majority of the sociological studies of this research program summarise the major results of the comprehensive social study of Győr as a regional metropolis and an automotive industrial district on the road towards integration on three parallel analytical levels: *social structure, spatial structure and the experience of social status* (identity). According to our hypothesis, the three research levels (to which we added the components of social relations and communication-publicity) mutually define each other, and their relationship can be described as follows (Table 1).

Table 1: The scheme of the research



Source: own. compilation.

We are seeking an answer to the following question: How are the phenomena described in the sections of the previous volumes of our research programme on economic, labour market, spatial structure and institutional transformational processes manifested in socio-cultural, social and health care dimensions? With its unique characteristics and functions developed two centuries ago, Győr and its district form an intermediate contact zone between Vienna, Bratislava and Budapest, and with the catchment areas of Central European capital cities. Today, the city is a prominent automotive industrial centre of Hungary and Central Europe as well. The city and its area is a successful industrial region, endowed with organic linkages with secondary and higher level educational institutions, as well as an increasingly dynamic research potential. An extensive service institutional system facilitating the high-quality service provision to the city's inhabitants has also been established. The economic base of Győr is continuously increasing, even during the crisis period (2008-2010). New investments have been launched related to the enlargement of the labour catchment area, as well as to the broadening of supplier networks and the development of urban and regional living standards, the improvement of housing supply or the creation of new spaces and institutions of consumption, culture and sports. These processes generate radical changes in the city's social structure, its internal spatial structure, local inhabitants' lifestyle, the evolution of human needs or the type of institutional system and service environment designed to detect and satisfy these. Our main focus is on the sociological aspects of the above regional, economic and institutional transformation, with a special attention to local specificities of social cohabitation, identity, mentality and lifestyle.

In our empirical study of the social processes characterising the city and the evolving structures and mechanisms they trigger, we concentrated on the following research questions:

- What characterises the qualification and employment level of the population of Győr and its region?
- What are the main features of the population's income and financial status and housing conditions?

- What are the unique social structural characteristics of Győr's local society?
- What kind of inner spatial structural processes can be detected in the local society?
- What is the relationship between the social structural and spatial structural processes?
- What characterises the identity of the population of Győr and its metropolitan area in relation to the region? What does the society's value-based organization look like? What picture do the region's inhabitants have of themselves?
- How do social relations and networks contribute to the shaping of the social structure of the agglomeration of Győr?
- What are the basic features of the inhabitants' communicational structure, practices and social activity?
- What characterises cultural, leisure activities and the Internet use?

As regards the metropolitan area of Győr and its catchment area and the functional region conceived as a kind of growth centre, there is only a limited availability of knowledge on the territorial and organisational specifics of intrasectoral and intersectoral (interprofessional) cooperative linkages and networking structure of the social and health care system and the non-governmental, nonprofit and ecclesiastical organisations.

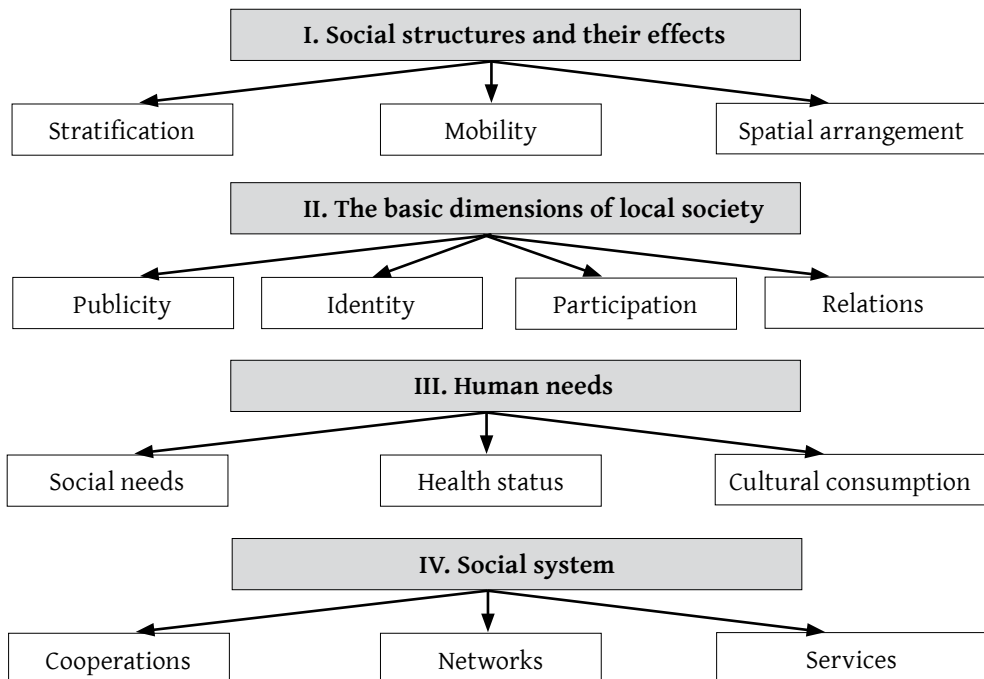
The economically advanced regions – e.g. Győr and its wider catchment area – generally dispose of a structured social supply system, service provision for the needy is considered to be adequate, however, we are in lack of global empirical research data to justify this claim. We are lacking the necessary information concerning the relations, cooperation and networks of stakeholders of the social system and the quality of these aforementioned. Up till now, no Hungarian research – targeting especially the examined region –, has been performed in this subject. The relational approach and network analysis became increasingly utilised in relation to non-governmental/nonprofit organisations specialised in social activities (Nárai – Reisinger 2012). In parallel, we also need to highlight the fact that in the majority of the countries of the developed world, and in Hungary too, the reduction of the burden of disease becomes a more and more significant economic and social requirement, a substantial proportion of which could be prevented through the amelioration of the health and the transformation of the ideas and habits of the population.

In the field of social and health care type human service relations and cooperations, the following four topics were covered by our research:

- institutional and inter-organisational relations and interactions (regional structure);
- the detection of operational mechanisms and quality aspects based on these former (regional function) by means of surveys, structured interviews and focus groups, the modelling of the regional network matrix and application of network analytical procedures,
- becoming familiar with the human needs of the population and linking those with the regional economic, spatial and social indicators to enable a better understanding of the interaction between objective assets and subjective ideas and needs,
- presenting the spatial disparities of the health conditions of the regional population, explaining the roots of the disparities, and examining employers' activities related to health, health preservation and amelioration.

Taking Győr’s population as an example, the majority of the analyses examine the aforementioned relations based on data of the local population sample collected within the framework of the research project. This empirical survey was performed with the assistance of interviewers in the autumn of 2013 in Győr for which a previously composed questionnaire with closed questions was used. Data collection provides us information on 3 032 inhabitants of Győr above 18 years of age; this sample, compared with the relevant data of the 2011 Census, is representative in terms of sex, age and district.

Table 2. The structure of the research field



Source: own. compilation.

The sociological studies are organised around four major issues presenting our results in the domain of the above objectives in thirteen topics (Table 2).

The first three dimensions are related to the social structure of Győr, the mobility of the population and the spatial organisation of the respective groups, providing a somewhat long-range, overall picture of the structural parameters of the local society and their effects. The topics which belong to the section of the fundamental dimensions of local society highlight one specific aspect of the everyday life of Győr’s inhabitants from the aspects of publicity and communication, identity formation and local ties, social activity and interpersonal relations.

The third and fourth research field introduce us to the realm of human needs and social services and institutions conceived as a response to these.

## The Stratification of Győr's Local Society – Theoretical and Methodological Background

The study presents some of the aspects of the stratification of Győr's local society. Transcending a mere descriptive process, the stratification of local society - qualified as metropolitan in domestic standards - is for us an exciting issue in the sense that it helps us to detect the unique features identifiable in the local urban space constructed on a socioeconomic and territorial basis. What are the specifics of a social organisation based on dynamic economic development on the level of a regional metropolitan center which are also manifest in the stratification pattern?

In case we aim at depicting the social structure of a city, we cannot omit the presentation of approaches used by different research groups in the description of structural features of Hungarian society as a whole during the years post-regime change. Nevertheless, numerous works have undertaken to provide an extensive presentation of the literature on Hungarian social structure and stratification (Róbert 1997, Éber 2011, Huszár 2012). We hereby will only focus on the presentation of the major differences.

The presence of two major scientific theoretical approaches and one applied research approach derived from the domain of market research can be detected in the ongoing discourse on the structure of Hungarian society during the last one and a half decades. The scientific approach is typically based on research focusing on the bottom and the top of the social structure, in which the main objective was to demonstrate the effect of perceptible changes in the aftermath of the change of regime. On the one hand, the analyses concentrated on the transformation of the elite class, and on deprived social groups on the other hand (Kolosi – Keller 2010). Research relied on data accessed from the Hungarian Household Panel, TÁRKI Household Monitor surveys and Censuses, while the international comparisons were performed with the help of data series provided by the European Social Survey. Hungarian authors approached the topic from two aspects. The first one was designed by Zsuzsa Ferge and Rudolf Andorka in the 1960's and 1970's, which was an employment-based approach operating with work type groups, and its further developed and extended and modernized versions, where the main explanatory and stratifying factors are qualification, labour market situation and income disparities. Erzsébet Bukodi et al. have created social strata schemes based on data from the 2001 Census, and highlighted the deficiencies of the model (Bukodi – Záhonyi 2004). The further development of the approach based on employment class structure enabled Ákos Huszár, who had already used the data of the 2011 Census for this purpose (Huszár 2013), to elaborate a normative-functional class model. Taking into account the traditions of European stratification research and aspects of international comparability, each of these approaches relied on models applied in these fields – EGP-scheme with its work type classification (Erikson – Goldthorpe 1992) and the post-industrial approach of Esping-Andersen (1992).

The emergence of consumer society in Hungary justified the application of Western European interpretive frames in the 1980's, according to which various social statuses can be accessed by members of society as a result of deliberate choice, leisure activities

and consumption schemes (Hradil 1982). Tamás Kolosi (1987), who was the first to develop ideas on the stratification of Hungarian society through setting up various status groups, had based his research on this approach already prior to the change of regime. In this way, the dimensions of the employment-based approach were completed by aspects of lifestyle, consumption, enforcement of interests (empowerment) and culture. The central elements of lifestyle groups and social milieu research are not work and employment, but rather, the individual habits of spending money and their group forming role (Róbert 2000; Fábíán – Kolosi – Róbert 1998). The approach of market research also applies this type of consumer group segmentation in a special way.

We can also find examples of the co-existence of the two theoretical approaches (Bukodi – Altorjai – Tallér 2005). The most recent class-based approach also applies this mixed scheme. With the partial adoption of the methodological grounds of the research titled *Class Size 2014*, from the *Great British Class Survey*, the Centre for Social Sciences of the Hungarian Academy of Sciences (MTA TK) and GfK Hungária developed together a research frame within which they used the availability of economic, cultural and relational, i.e. social capitals as stratifying factors (Origo.hu; 2014, Savage et al. 2013).

The scientific processing of domestic research is still in progress, but it is already evident that the Hungarian society is “bottom-heavy”. The rate of excluded, deprived individuals is 23 per cent, the rate of manual workers is 16,5 per cent, that of the drifters is 18 per cent, and the common men of the Kádár era represent 17 per cent. Besides, there is also a 7 per cent provincial intellectual group, a 6 per cent emerging young generation, and the ratio of the upper middle class is 10,5 per cent. Elites form the smallest group in Hungarian society since only 2 per cent of the interviewees belong to this category.

Relying on the established practice of the above discussed professional framework, we are going to interpret the process and structure of social stratification in the city in light of Bourdieu’s classification of the types of capital (1997) applied in the *Osztálylétszám 2014* Survey as well. The structural and quantitative features of capital portfolios constituted by varieties of economic, cultural and social capital fundamentally determine an individual’s social status, possibilities and scope of action in society.

We measured the different stratifying capital forms with two variables (Table 1) obtained in the majority of cases as a result of an aggregation process. In the case of economic resources, we based our calculations on the estimated average value of the monthly net household income and the occurrence frequency of the various consumer goods. We used an active, basically consumer based approach in the treatment of cultural capital, distinguishing between activities related to the consumption of high culture (e.g. theatre, museum) and the most regular types of leisure activities. The indicators measuring the complexity and frequency of cultural/leisure activities of the past year were derived from a data reduction procedure (factor analysis). We proceeded in a similar way in the case of indicators measuring the two basic types of social capital (weak and strong ties). The strong social capital variable measures the size of family and kinship ties and relatives ties and the intensity of contact. The weak social capital variable, in the meantime, measures the size of the circle of acquaintances (the number of important persons the interviewee knows – position generator technique), the participatory activity in professional and social organisations (organisational membership), and the heterogeneity of social life and activity.

All of these indicators were integrated into the process of cluster analysis serving the identification of the groups of the local stratification system (two-step cluster) in a standardized form. The size of the supply of a certain type of resource was always indicated by the highest value. In the case of each of the group forming variables, their positive value refers to a stock of resources beyond the average, while negative values refer to a low rate or their absence in some cases. In this sense, indicators pointing towards the same direction are suitable for the identification of consistent/inconsistent situations in the status of group members forming the stratification structure of local society in Győr (Kolosi Róbert 2004).

Table 1: The characteristics of variables measuring capital forms constituting the basis of the stratification analysis

Variable	Equity form	Content of variable
<b>gt_mincome</b>	economic capital	<i>Average monthly net household income, forint</i> We substituted the missing values stemming from the denial of response with the average value of the group with the same number of consumer goods.
<b>gt_durcons</b>	economic capital	<i>Number of consumer goods in the household</i> (car, personal computer, Internet access, weekend plot, resort, washing machine, dishwasher, flat TV, smartphone, security alarm, tablet, ebook reader) The weight in the event of several cars and personal computers was 2. Minimum value: 0; maximum value: 14
<b>kt_highculture</b>	cultural capital	<i>Complexity and intensity of high culture consumption</i> Factor variable created from the occurrence and frequency of three activities: theatre and concert attendance, museum visit KMO value: 0.669
<b>kt_leisure</b>	cultural capital	<i>Complexity and intensity of leisure activities</i> Factor variable derived from the occurrence and frequency of six leisure activity items: restaurant, sport event, festival, beach and wellness, plot or resort, active outdoor leisure activity. KMO value: 0.805
<b>tt_strong</b>	social capital	<i>Strong social capital – Size and complexity of family and kinship relations</i> Factor analysis, the three factor forming variables: – Among the 8 kinship relation types, how many occur (0.784) – Occurrence of daily basis contact among 8 kinship types (0.745) Size of kinship (0.619)
<b>tt_weak</b>	social capital	<i>Weak social capital – Circle of acquaintances, social activity, organisational activity</i> Factor analysis, the three factor forming variables: – Involved in the activities of at least 2 different types of organisations or groups (0.759) – Is s/he acquainted with an “important person” (at least 1 among the 6 categories) (0.712) – How many forms out of the 10 leisure activities have occurred at least once in the past year (0.616)

Source: own compilation.

On the basis of six cluster forming variables we were able to distinguish eight social groups. In the course of the analysis, we were obliged to exclude 147 persons from the 3032-person sample due to lack of data, thus our social stratification model was constructed on the basis of the answers of 2 885 inhabitants. The smallest cluster includes 210 persons (7.3 per cent), the largest one contains 591 persons (20.5 per cent), and the cluster size ratio is 2.8.

According to the theoretical literature and other empirical research pursuing the same objectives, the Győr sample also reveals a correlation between the stock and availability of economic, cultural and socio-relational resources that form the background of the six stratifying indicators. This clearly indicates the presence of conversion mechanisms between the respective capital forms (Table 2). On the one hand, we can observe an internal correlation between the variables measuring the distinct capital forms, which is evident. In parallel, however, interrelationships are noticeable between the three resource types, albeit in the form of smaller correlation coefficients. As far as social capital is concerned, no internal correlation exists, since the two indices were formed as factors of a factor analysis uncorrelated with each other.

Table 2. The significant values of correlation coefficients between the variables

	gt_mininc	gt_durcons	kt_highcult	kt_leisure	tt_strong	tt_weak
gt_minincome	-	,742**	,233**	,340**	,311**	,285**
gt_durcons	,742**	-	,322**	,442**	,358**	,369**
kt_highcult	,233**	,322**	-	,578**	,145**	,532**
kt_leisure	,340**	,442**	,578**	-	,271**	,545**
tt_strong	,311**	,358**	,145**	,271**	-	,000
tt_weak	,285**	,369**	,532**	,545**	,000	-

Sig: 0,01.

Source: Győr Automotive Industrial District survey – Population survey, N=3032.

As a first step, we are able to use cluster centres in the identification of social assets distinguishing those groups in which the internal stratification of the population is manifest (Table 3). These values practically refer to the group averages of variables measuring the different aspects of economic, cultural and social capital, where the negative sign is lower than the average of Győr, whereas the positive sign reveals a higher occurrence of the respective variable.



Table 3: Cluster centres – group averages

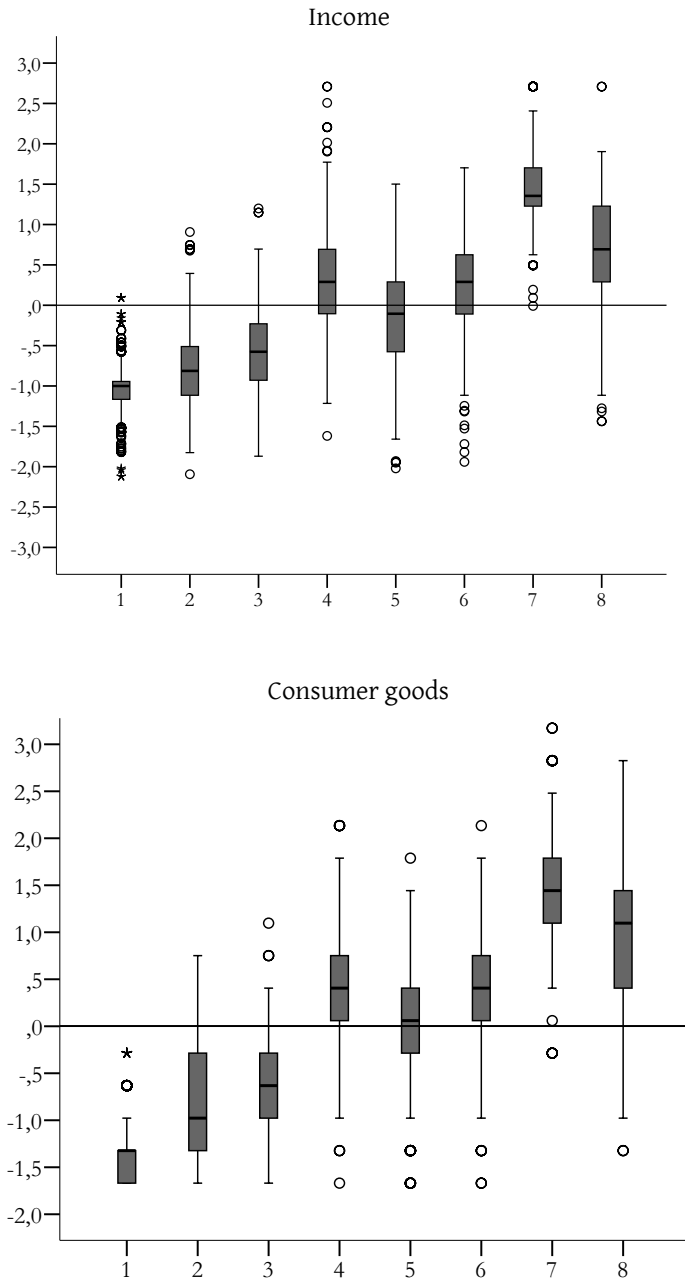
	Clusters							
Variables	1	2	3	4	5	6	7	8
Ratio of respondents	12.6%	7.5%	17.9%	20.5%	10.8%	13.9%	9.5%	7.3%
gt_mincome	-1.02	-.76	-.57	.35	-.18	.19	1.71	.70
gt_durcons	-1.35	-.84	-.57	.38	.01	.36	1.53	.95
kt_highcult	-.70	-.23	-.59	-.45	.70	.41	.04	2.13
kt_leisure	-.95	-.28	-.70	-.44	.44	1.15	.43	1.64
tt_strong	-1.02	-1.20	-.09	.58	-.38	.60	.46	.29
tt_weak	-.85	.38	-.69	-.54	1.18	.00	.50	1.72

The values featured in the table (z-scores) are standardized. The negative values refer to a lower “quantity” than the sample average, whereas the positive values indicate a higher quantity in the case of the respective capital forms.

Source: Győr Automotive Industrial District survey – Population survey, N=3032.

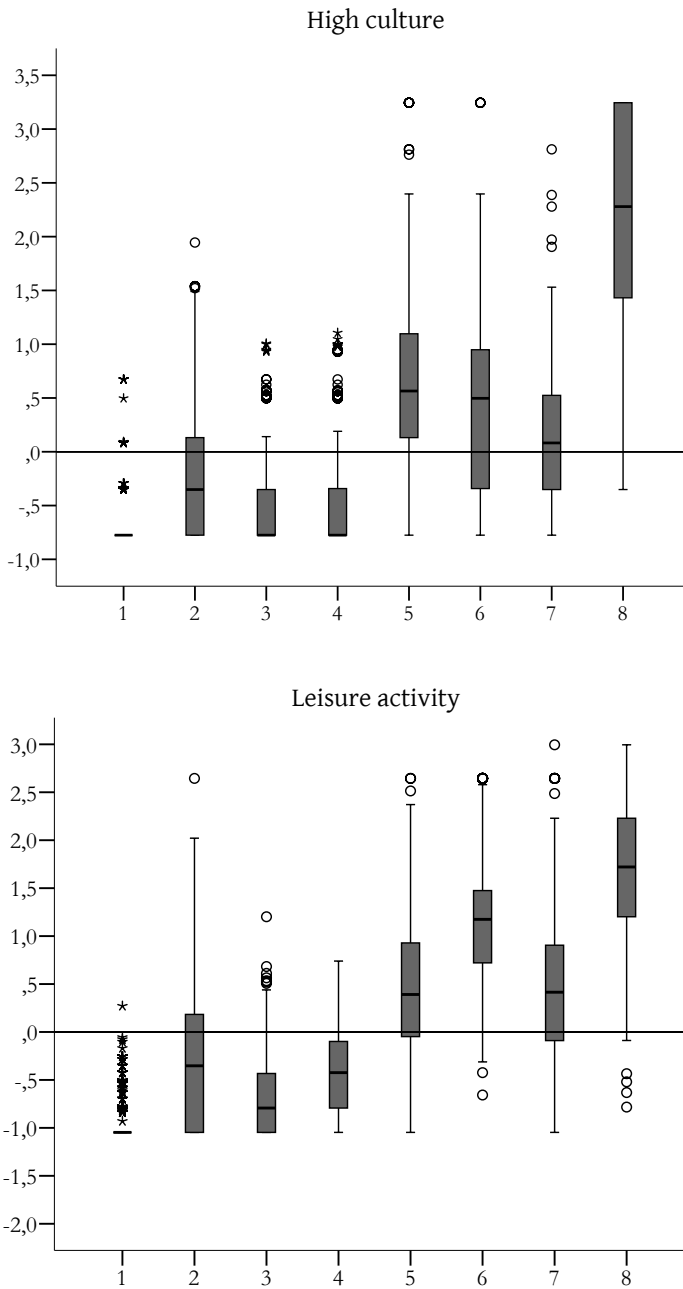
Since the interpretation of group averages presented in the table is cumbersome due to standardisation, in further sections, we shall give a more detailed presentation of the distinctive features of each group with the inclusion of a higher number of socio-demographic parameters. Our present aim is to demonstrate that the respective categories are basically separated on the basis of a hierarchic, dominantly consistent pattern, and the hierarchical ranking of groups proceeds from the more disadvantaged social groups towards those in an increasingly more favourable position (Figure 3).

Figure 3. The difference of the group averages of the six variables by strata



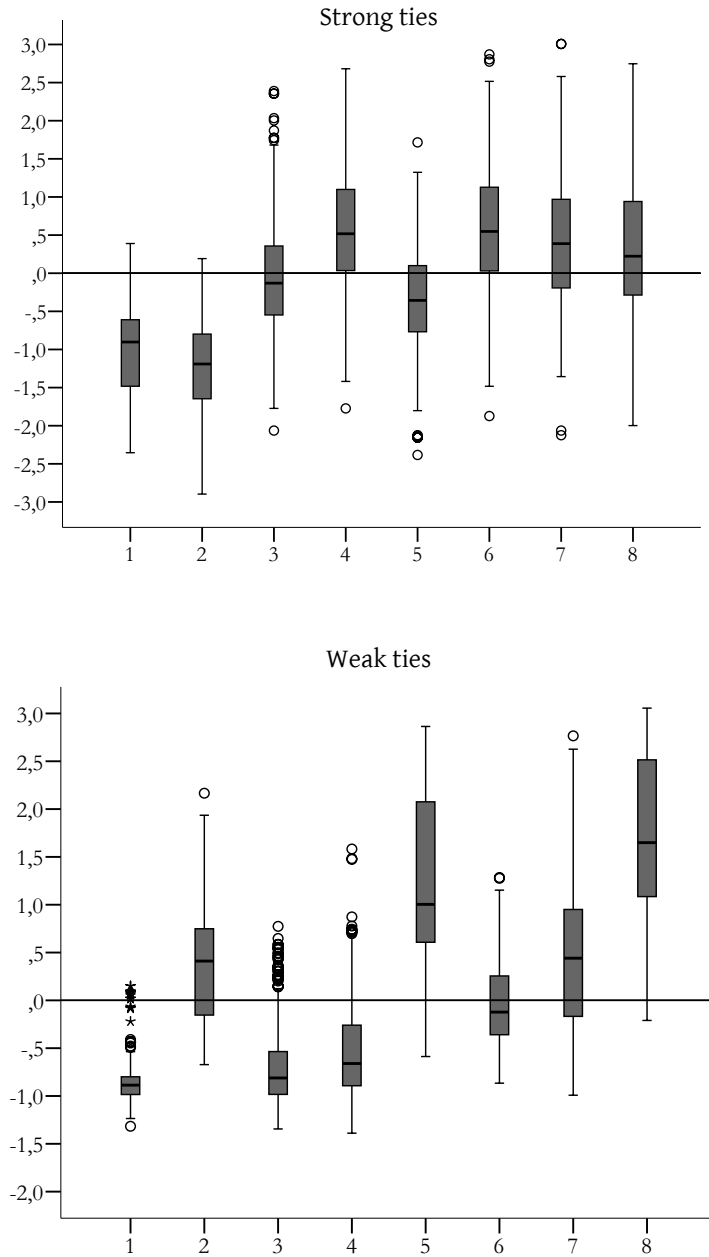
Source: Győr Automotive Industrial District survey - Population survey, N=3032.

Figure 3: The evolution of the group averages of the six variables by strata



Source: Győr Automotive Industrial District survey - Population survey, N=3032.

Figure 3: The evolution of the group averages of the six variables by strata



Source: Győr Automotive Industrial District survey - Population survey, N=3032.

## The characterisation of particular social groups

The respective clusters as homogeneous groups in the local society of Győr, are melting pots of individuals with a similar social status from a certain aspect. In case of the present study, the term “from a certain aspect” refers to assets embodying the combined effects of the financial situation measured in terms of income and the occurrence of consumer goods, the cultural capital measured in terms of cultural and leisure activities and the social network resources characterised by weak and strong social capital. Consequently, the next step is the characterisation of these social groups, in the process of which, besides the original six indicators, we shall also take into account further indicators of socio-demographic position in order to be able to profile the eight strata more precisely.

It was evident that in our study we compared the results of our own research with the social groups featured in the *Osztálylétszám 2014* survey, since we were able to utilise a great deal from the methodological background of the survey in the course of our present work. On the one hand, this is useful because through presenting the phenomena and patterns which differ from or resemble the Hungarian trends, our research can be placed in a national context which facilitates its comparability. On the other hand, it is a difficult task since, as opposed to national sampling, we describe the characteristics of a much more special base population. For example, some types of housing treated as a distinct element in the national survey played a significant role in the presentation of the various social strata. This is not possible for us here, since we can only examine the disparities in the built-up density of city districts in our attempt to highlight the differences. In the following, we shall mention in all cases if we have detected a match with the national data in any of our established categories. By way of introduction, we can state that the pear form comprised of the national structure cannot be used in the case of Győr. The consideration and utilisation of indicators previously applied to Győr (city of merchants, blue collar worker city) serve as additional interpretive frames (Honvári 2014). The main statistics of the eight group resumed and described in this section are summarised in Table 4 following the presentation of each group.

### *Strata 1 – The Excluded: 12.6 per cent*

Comparing the rate of this group with the one in the national sample carrying a similar name, we can state that their proportion is much lower, nearly half of the national value. Typically, this is a group with low qualifications, 68 per cent of them do not even hold a baccalaureate. The dominant presence of persons belonging to the older age group is a characteristic feature in their case, the average age (62 years) being the highest in this group. Consequently, 70 per cent of them are pensioners, which, at the same time, has a crucial impact on their social network and the related social capital endowment. They have very low values in terms of both strong and weak ties, friends (an average 5 persons) important acquaintances (an average 2 persons), and this group has the narrowest circle

of acquaintances. This also means a kind of isolation, both from the community and from public affairs. This has an effect on their leisure activities. Only 10 per cent of this group has the opportunity to possess a car. However, they perceive their subjective social status quite well. Concerning their urban living space, we cannot discern any individual district, they are practically present in all spots of the city. On the basis of their negative data, we can explicitly identify the members of the lagging underclass, but we must emphasise that there is a significant alteration in terms of their poverty level and their group size compared with the national data. A more modest presence of the lower classes can be detected in the city of Győr and with members who are more well-off than the national average. Compared with the rest of the groups, their values are below the average in all domains. They are aware of their social status.

*Strata 2 - Declining Groups: 7.5 per cent*

In the national survey, the following group was referred to as Labourers, which is appropriate in our case, too, since the rate of unqualified, manual workers is high (41 per cent), although this fact will apply more markedly to the next group, thus our term “labourer” might be misleading. This strata incorporates a much more colourful group, as the proportion of the professional class is also surprisingly high in this group (21 per cent). Although the average age is the highest in the first group, the rate of pensioners is high here as well (65 per cent), that is to say, this group is typically affected by elderly inactive life and all of its consequences. Among the members of this strata, we can find a large number of inhabitants of the internal residential areas. Therefore, we can talk about a declining group which held a higher status in their former active life. This is also demonstrated in their activities, as they can be found within the most active clusters, provided that we study them from the point of view of public engagement and civilian life. All those people belong here who formerly lived an active public life and had a higher status. Material goods do not play such an important role in their everyday life since the number of consumer goods is very low on average. The extremely vibrant retired club life in the city is a result of the activity of this group. We gain an insight into a group which formerly had a better life, but where the economic means are no longer present, although the habits of the former period are still alive (consumption of high culture, leisure activities). The size of households is the smallest in the two groups (1.7-1.6 persons), which is explained by the large proportion of elderly inhabitants living alone.

*Strata 3 - Lower Working Class: 17.9 per cent*

The classical working class succeeds the first two clusters that are below them in terms of economic capital. Half of the group do not even hold a baccalaureate, but skilled workers constitute a large proportion (49 per cent), the majority of them are active, and their social activity is low. If possible, they avoid public life, but on the basis of their savings and the average number of consumer goods (3 items), they possess a higher economic

capital, which distinguishes them from the rest of the groups. Their leisure activities and consumption of high culture are low, and the group is characterised by its isolation. They are also isolated territorially, since their residences can be found in the housing estate zone of the city. After their retirement, they may sink to the first or second level, in case their savings are not enough for them to maintain their standard of living. They largely contribute to the shaping of the city image (blue collar worker city). They resemble the group denominated as labourers in the framework of the national survey in many respects, but their economic status can be claimed to be better due to the influential effect of the unique industrial background of Győr.

*Strata 4 – Settled skilled workers, small entrepreneurs: 20.5 per cent*

They constitute the backbone of Győr's local society. They are an extremely inhomogeneous group, a sort of collective category, where the groups referred to as common men of the Kádár era and the drifters in the national survey were judged by the same standard. We can simultaneously find a group honoured by the industry of Győr, endowed with a considerable professional history and knowledge base and capacities suitable for industrial production, and another one constituted of those who have started a business as autonomous suppliers in order to respond to the demands arising in the city as small entrepreneurs. So long as they are successful at their workplaces and manage to collect a sufficient capital, they have a house built in the detached residential areas of the city and form a homogeneous community. They have all the given opportunities, and their income is claimed to be higher than the average. We can talk of a youthful, active group (the average age is 42 years, which is 10 years less than that of the third group), which incorporates professional groups (23 per cent) and skilled workers attempting to make a living without a baccalaureate (32 per cent). The rate of autonomous entrepreneurs is exceedingly high in this cluster, one-fifth of the inhabitants of Győr belong to this category. The group is extremely individualist and withdraws from public life: neither their weak ties, nor their community activities are of any significance. This is compensated among them by the strong ties manifest in their kinship relations, a further sign of introvertedness. The size of their household and their typical married status clearly point to the traditional family model. In addition, the group is characterised by an inclination towards accumulation and an essentially higher income and a higher number of consumer goods (6 items on average) than the previously described groups.

*Strata 5 – Middle class: 10.8 per cent*

The group referred to as rural intellectuals in the national survey only receives the name "middle class" in the present case, since they cannot be contrasted with anything of the like. In the majority of cases, they represent the average. The rate of the professional class is high (34 per cent), the average age is the fourth highest among all the groups (49 years). Due to their high age, the members of the retired age group having a higher status also

represent a greater proportion in this group (40 per cent retired people in the strata). Their economic accumulation of capital is typically lower than that of the fourth strata, which is manifest in their lower average income and the lower number of consumer goods. In contrast, they actively participate in public life, 63 per cent of them are members of certain kinds of professional or non-governmental organisations. With this value, they approach the elite of the city. However, their performance in terms of strong ties is well below the average, which is also demonstrated by the smaller size of their households and their weaker family relations (the average household size is only 2.1 persons). Their typical residential environment can be found in the city centre.

*Strata 6 - The Emerging Young people: 13.9 per cent*

The city of Győr attracts groups which move there from other parts of the country and seek their fortune with high expectations. The group incorporating young adults starting their career appeared as a distinct group in the description of the city's society. The youngest cluster is represented by the presence of the lowest average age (40 years) and the most typical age group (18-39 years old). This is the age group where advancement depends only on how one can profit from the possibilities of his own career. Many of them try to make their first steps in their independent life while still relying on their families; this is clearly shown in the presence of strong ties above the average. The lack of collegial and business relations is indicated by the low weak ties. This group is the most active amongst all: they make use of leisure activities in the most diverse forms, yet they try to avoid public life and the civil sphere, they refuse to participate in those. Their territorial location can typically be found in the internal residential zone within the city built in by tenement houses.

*Strata 7 - Professionals and Entrepreneurs: 9.5 per cent*

The group of entrepreneurs leads us to the top of the city's local social pyramid, where two groups can be found in the elite position. None of them can be characterised with all of the features of the group referred to as elite in the national survey. We could rather state that one of the capitals necessary for the elite position characterises one group, while the other capital form is rather typical of the other groups. In our case, we can talk about a cluster defined in terms of economic capital, where the accumulation of capital and the resulting consumption patterns largely determine the group membership. Incomes, which are the highest among all the groups, show the lowest variance here: the average monthly net income of households is above 400 000 HUF. Saving propensity was reported in the largest occurrence here (64 per cent). Welfare can also be observed in the high number of durable consumption goods, the average value of this element is also the highest in this group (9 items). The rate of the professional class is also high (44 per cent), but the presence of respondents giving account of an autonomous entrepreneurial life is even more remarkable, being also the highest in



this group (23 per cent). As far as their leisure activities are concerned, they resemble the fifth strata. They are slightly introverted and passive, whereas their consumption of high culture can be regarded as average. Their participation in public life is moderate, 42 per cent of them take part in the activities of a certain kind of professional or non-governmental organisation. As regards their self-perception, they consider themselves to be the most valuable in local society. This is true even if they are preceded by the members of the eighth strata in many respects.

*Strata 8 – Upper Middle-Class: 7.3 per cent*

Even though they do not reach the level of the seventh cluster in terms of economic capital endowment, they precede that in other respects. This group displays the classical civilian way of life and lifestyle, where the rate of the professional class is the highest among all the clusters (51 per cent), which makes them similar to the elite presented in the national survey. Consequently, the rate of professional intellectual leaders is also the highest here (42 per cent). Entrepreneurial mentality is not characteristic of this group, they make use of their remaining human capital in other forms. They exceed by far the other previously described strata in terms of consumption of high culture, this is the dimension which fundamentally defines the background of this group. They are open as regards their leisure activities, love being in community and are not only passive participants, but also active shapers of public life. They have varied relationships, and they can be regarded as the richest group from the point of view of their weak ties, too. Even though they are not as well supplied with economic capital as the seventh strata, they are economically conscious, which is clearly indicated by the great proportion of their savings (58 per cent).

Table 4: The basic socio-demographic characteristics of each strata (group averages or dominant response categories)

	Strata							
	1	2	3	4	5	6	7	8
Number	364	218	518	591	312	401	276	210
Frequency	12.6	7.5	17.9	20.5	10.8	13.9	9.5	7.3
Age group	60 - x	60 - x	50 - x	30-49	-	18 -39	30-49	
Average age	62	58	52	42	49	40	41	43
Family status	Widow (35%)	Widow, divorced (43%)	,	Married, companion (71%)	,	Bachelor, maiden (28%)	Married, companion (70%)	Bachelor, maiden (30%)
Household size per person	1.7	1.6	2.2	3.1	2.1	2.7	3.1	2.8
Professional class	8%	21%	10%	23%	34%	26%	44%	51%
Without baccalaureate	68%	38%	50%	32%	22%	25%	14%	9%
Retired	70%	65%	44%	18%	40%	20%	20%	28%
Unqualified manual skilled worker	57%	41%	49%	38%	27%	29%	19%	14%
Professional intellectual or at least middle manager	6%	15%	10%	15%	30%	19%	34%	42%
Autonomous entrepreneur	6%	10%	11%	20%	12%	18%	23%	11%
Number of durable consumption goods (0-14)	1	2	3	6	5	6	9	8
Net monthly household thousand HUF	130	156	175	266	214	249	401	300
Personal income, net monthly, thousand HUF	96	106	103	136	123	133	185	148

	Strata							
	1	2	3	4	5	6	7	8
Dominant residential zone		Internal residential zone	Housing estate	Detached residential area	City centre	Internal residential zone	Detached residential area	Detached residential area
Has savings	38%	38%	42%	52%	47%	44%	64%	58%
Has a car	10%	31%	42%	80%	69%	79%	98%	88%
Spent his/her summer holiday abroad in the last year	2%	15%	8%	17%	35%	31%	52%	54%
PC at home	7%	40%	63%	96%	86%	94%	100%	96%
Internet at home	6%	38%	61%	95%	85%	93%	100%	96%
Participation in professional and non-governmental organisation	16%	44%	15%	22%	63%	22%	42%	71%
How many forms of leisure activities have occurred out of the 10 at least once during the past year	1	3	2	3	6	7	6	8
Does not maintain a day-to-day relationship with any of his/her relatives	56%	59%	29%	13%	30%	11%	12%	15%
Number of friends	5	7	8	10	11	10	11	14
Number of important acquaintances	2	4	3	5	7	6	7	10
Number of contacts in mobile phone per item (if occurred)	23	52	49	87	90	117	132	140
Email address in private correspondence per item (if occurred)	12	26	29	40	49	47	59	62
Acquaintances on social network site per person (if occurred)	176	223	206	257	282	313	330	359
Self-categorization, employment (0: bottom; 10: top)	5.6	6.1	5.9	6.4	6.5	6.6	7.2	6.8
Self-categorization, material status (0: bottom; 10: top)	5.5	5.8	5.5	6.1	5.9	6.2	6.9	6.6
Self-categorization, educational attainment (0: bottom; 10: top)	5.6	6.3	6.0	6.6	6.9	6.8	7.4	7.3

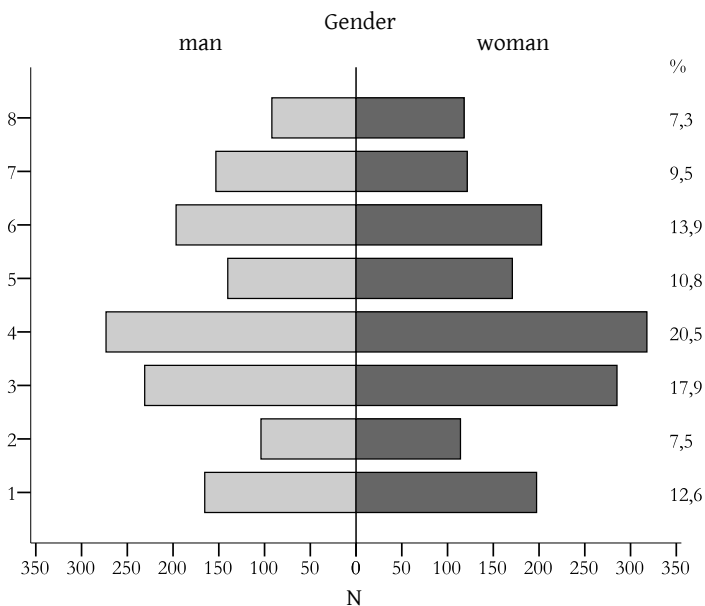
Source: Győr Automotive Industrial District survey – Population survey, N=3032.

## Stratification Formations

In addition to the descriptive analysis, we find it crucial to present the pattern on the basis of which the social groups are arranged in the social structure portraying the internal hierarchy of Győr's society. The figures which make visible the concrete form and shape of the structural pattern are called stratification formations. In addition to the stratification formation referring to the entire population, we shall also present the unique shapes of the categories of two significant background variables. On the one hand, the urban population is fragmented in terms of age. On the other hand, we shall examine the density of distinctive groups in terms of qualification in each respective group. In simple terms, our objective is to present the stratification pattern of the young, middle-aged and elderly population, as well as that of the low, medium and highly qualified population in our elaborated 8-scale stratification scheme.

Taking into account the fact that we are not talking about a national sample, but the most economically developed metropolitan region, the figure below depicting the total population (Figure 4) demonstrates clearly the dominant weight of lower and the lower-middle classes even in such a special social milieu. The result is particularly interesting if we join the two lower groups. In that case, we can talk about a lagging, declining group representing roughly 20 percent besides a 18-percent lower-middle class and a 20-percent block in a temporary status.

Figure 4. Stratification formation by gender (size and the proportion of the eight groups)



The length of the columns is defined by the number of elements. Men are presented on the left side, women on the right side. The eight groups are arranged from the bottom to the top.

Source: Győr Automotive Industrial District survey - Population survey, N=3032.

The most striking result of the age group-based analysis is manifest in case of the pattern of the social structure of the population over 60 (Table 5), in such a way that the age factor did not play a direct role in the formation of strata, the categorisation was based exclusively on certain quantitative and qualitative parameters of the three capital forms. This age group is virtually condensed into the three lower groups, following the shape of a narrow, slim pyramid with a massive base. The results confirm that in case of the great majority of the age group over 60 years, we can talk of the simultaneous lack, exhaustion or decline of material, cultural-leisure and social resources. Naturally, part of these are the result of the processes necessarily occurring due to the progress of age, but we should keep in mind that this age group is primarily composed by the potentially active old age group under the age of 75 years. In this sense, we clearly face the problem of active old age and the sustainability of social integration. It seems that dropping out of work means a stronger and more definite dividing line also from the point of view of life opportunities and lifestyle.

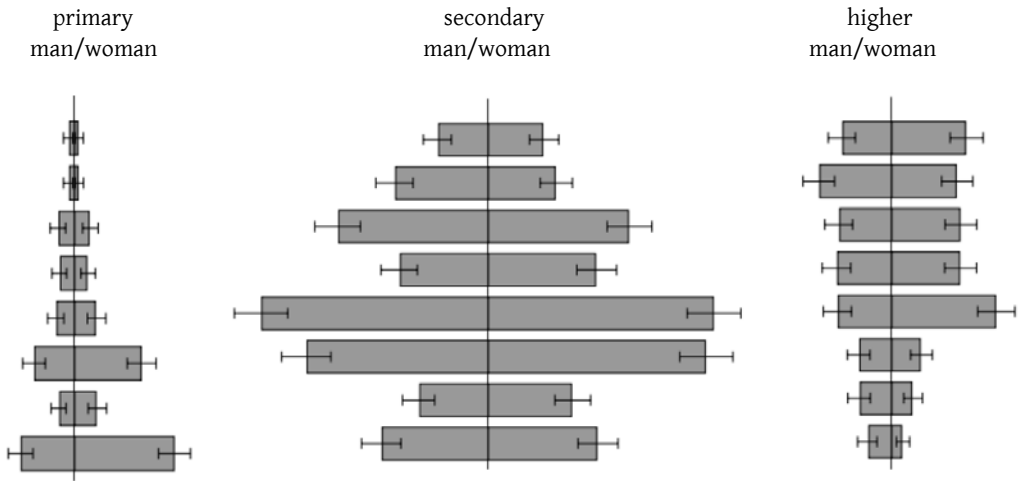
Figure 5: Stratification formations by age group



The length of the columns is defined by the number of elements. Men are presented on the left side, women on the right side. The eight groups are arranged from the bottom to the top.

Source: Győr Automotive Industrial District survey - Population survey, N=3032.

Figure 6: Stratification formations by highest educational attainment



The length of the columns is defined by the number of elements. Men are presented on the left side, women on the right side. The eight groups are arranged from the bottom to the top.

Source: Győr Automotive Industrial District survey – Population survey, N=3032.

We selected the criterion of qualification because it is evidently one of the most determining factors of social position and status (Figure 6). It has a fundamental impact on all the three capital forms, what is more, it is the obvious status-indicating variable of cultural capital. Even though it has not been directly presented in the stratification model within the framework of our analysis, it naturally plays a role in the shaping of the respective groups. Today, primary education attainment has been intertwined with age to such an extent that it is rather its effect which is reflected in our results. We are more interested in the upper segment of the qualification hierarchy, that is, the situation of the population possessing a college or university degree in our stratification scheme.

The stratification formation clearly shows that there is no pyramid shape turned upside down as the counterpart of the distribution structure of the age group over 60 years. The inhabitants of Győr with a higher education qualification figure more or less evenly in the five upper strata. Despite this fact, the “protective function” of higher educational qualification is still discernible in the population of Győr. With respect to the three capital forms, the proportion of those with a higher educational degree is minimal among the lower groups endowed with much less favourable assets.

# Internal spatial characteristics of the social structure

Social Structure of Districts and Residential Areas in Győr

ÁDÁM PÁTHY

**SUMMARY:** The goal of this study is to give a general overview on the social stratification of the society in the city of Győr, examining those specificities, developments and special structural elements which can be identified in the different districts as well as in residential areas of different character. We had three main examination paths throughout our research. The first one was the analysis of different spatial mobility paths through the observation of external and internal migration tendencies. Secondly, we made an attempt to shed light on the differences in the quality of life and socio-demographic status in different districts, identifying the spatially differentiated specificities of social stratification. We completed our research with the analysis of the subjective image of the city and the different residential areas.

**KEYWORDS:** local society, social stratification, spatial structure, migration

## Introduction

If we intend to give a comprehensive and accurate picture on Győr's social structure, we cannot ignore the fact that in case of a city of such size, spatial structure plays a key role in the stratification of the local society. All the different parts of the city, the residential areas of diverse character can be described as special micro-societies, however, we need to emphasize that they are not isolated and stand by themselves, but their interactions, functional relation systems and continuous transformation paths can be interpreted in an integral framework. In the light of this, the main goal of this study is not only to reveal the significant divergences regarding the social structure of districts, preparing a kind of registry, but to seize the dynamic elements of the internal spatial stratification, which continuously shape the social structure of Győr.

The study is focusing on three main questions. First we examine those spatial motion paths, which largely contribute to the differentiation of the internal social structure. In this framework we will monitor the spatial and chronological specificities of the migration to the city and we explore the main directions and motivational bases of migration within the city. Our next question is the internal stratification of the local society. By using simple and complex indicators, we make an attempt to give a picture of the differences in the socio-economic status of different districts and residential areas, paying special attention to the elements, which may seem particular or atypical in contrast with the original idea. Besides the measurement, examination of the social structure and interactions we must not lose sight of the subjective elements either, whose understanding can enhance our picture of the internal social developments to a large extent, while it will make them more understandable as well. The third issue is the image of Győr and the residential areas in the inhabitants, this will complete our research.

## **Spatial Stratification of Large City Societies- Conceptual and Theoretic Questions**

Internal spatial stratification of cities and large cities' social structure are crucial research directions for urban and social geography as well as for urban sociology. From urban and social geographical viewpoint, when examining a given settlement's internal social stratification, the relationship between the environment and the people is a question of primary importance. It can be described as a two-way interaction: on the one hand people shape their own living spaces, on the other hand the determination by the character and status of the living environment influences the social composition by functional transitions and migration of the population. Consequently, this approach is building largely on the morphological specificities of different units of settlements (Jankó 2005), spatial and social organizing impacts of institutional roles and functions (Csapó 2004), and the context of basic social functions and the operation of the local society (Berényi 1983). The strong social science determination of large city structural specificities' in the social geographical approach can be traced when researching the "soft", subjective elements of the relationship between people and space (Berényi 2001), as well as in the widespread use of social statistical data (Berényi 2003, Mészáros 2013).

In the classical sociological approach the relationship between man and its environment, the structure shaping and differentiating role of these interactions also play an important role. The work of the Chicago school is based on this: spatial specificities of large city structures and the establishment of areas with different functions are considered to be results of ecologic developments. However, other aspects of interactions are needed to be revised when examining the urban social structure and milieu;



in our study an important question is to what extent do interpersonal relations, linkages between groups and modern urban and traditional patterns, based on a different nature of micro-social solidarity coexist and how they can be detected (Redfield 1947; Utasi 2002; Wirth 1973).

Spatial dimension of differences in the social status is also an important issue and research direction. The position in the urban space is able to reflect social status, however, on the one hand such differentiation cannot be considered completely stable, since there are continuous developments and changes in this aspect; on the other hand there might be miscellaneous forms, whose consideration can lead to difficulties in the generalization of certain similar residential areas' position in the status hierarchy. Cyclical urban development theories, which mainly apply to complex urban areas, seize the transformational dynamics of different elements, spatial structure of functional urban regions (Berry 1976; van den Berg 1982), however, due to the different historical traditions and socio-economic structure, they can be only applied with certain modifications to the Hungarian context (Enyedi 1984, 2011). Such specificities are for example the motivational factors of suburbanization that largely differ from the Western European patterns (Ladányi-Szelényi 1997), or the situation of residential areas (microdistricts), which can be characterized by special social developments (Csanádi-Csizmadý 2002).

## **Delineation of Districts and Residential Areas**

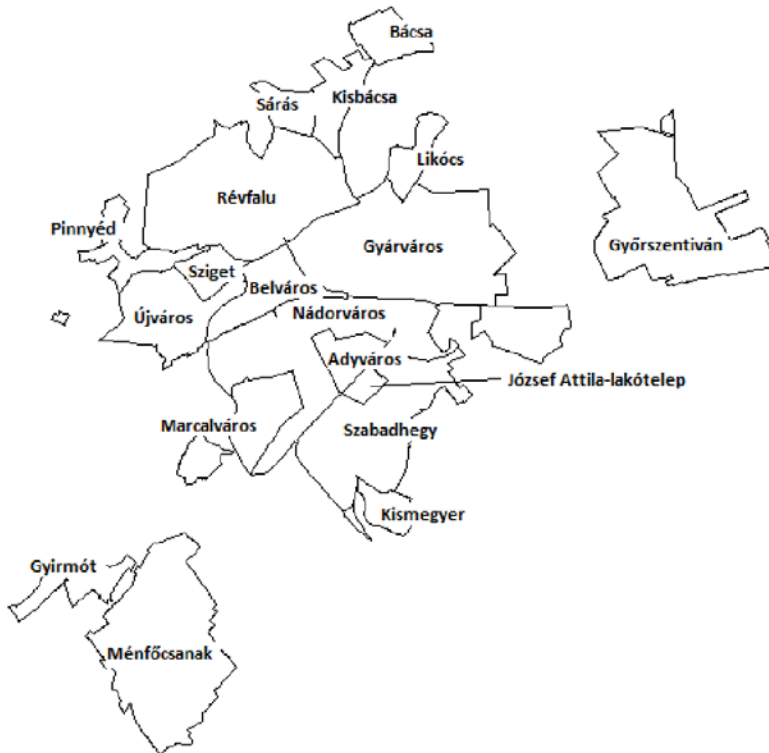
Throughout our survey, we divided Győr into 19 districts, which are identical with the primary categories delineated officially by the city's development plan, with the only difference that we categorized two districts of low population, Rabkert and Góré-dűlő, as parts of Marcalváros. Location was one of the criteria of the sampling representativity, thus, the sample reflects proportionally the distribution of the population per district. Aggregating the whole district-delineation, we established three further sets of categories: on the one hand, on geographical basis, on the other hand based on the character of the residential areas. These and the respective case numbers are shown in Table 1, whereas Map 1 shows the geographical location of the districts.

Table 1: Districts and residential areas of Győr by various subdivisions, with case numbers

Districts one by one (19)	N	Districts, unified by geographic location (11)	N	Residential areas with special districts (7)	N	Residential areas with different character (5)	N
Center	241	Center	241	<b>Center</b>	241	<b>Center</b>	241
Révfulu	170	Újváros-Sziget-Pinnyéd	282	Center		Center	
Nádorváros	357	Révfulu	170	<b>inner residential area</b>	527	<b>inner residential area</b>	527
Adyváros	392	Bácsa-Kisbácsa-Sárás	156	Révfulu		Révfulu	
Marcalváros	409	Gyárváros-Likócs	129	Nádorváros		Nádorváros	
József Attila-lakótelep	137	Győrszentiván	225	<b>Microdistricts</b>	938	<b>Microdistricts</b>	938
Újváros	137	Nádorváros	357	Adyváros		Adyváros	
Sziget	119	Adyváros	392	Marcalváros		Marcalváros	
Gyárváros	111	Marcalváros	409	József Attila-microdistrict		József Attila-microdistrict	
Szabadhegy	167	Szabadhegy-Kismegyer-József Attila-microdistrict	341	<b>suburban residential area</b>	750	<b>External residential area</b>	534
Pinnyéd	26	Ménfőcsanak-Gyirmót	288	Pinnyéd		Újváros	
Kisbácsa	76			Kisbácsa		Sziget	
Bácsa	71			Bácsa		Gyárváros	
Sárás	9			Sárás		Szabadhegy	
Likócs	18			Likócs			
Győrszentiván	225			Győrszentiván			
Kismegyer	37			Kismegyer			
Ménfőcsanak	252			Ménfőcsanak			
Gyirmót	36			Gyirmót			
				Újváros-Sziget	256	<b>suburban residential area</b>	750
				Gyárváros	111	Pinnyéd	
				Szabadhegy	167	Kisbácsa	
						Bácsa	
						Sárás	
						Likócs	
						Győrszentiván	
						Kismegyer	
						Ménfőcsanak	
						Gyirmót	

Source: Author's edition based on the Győr Automotive District research – public survey.

Map 1: Location of districts used in the analysis

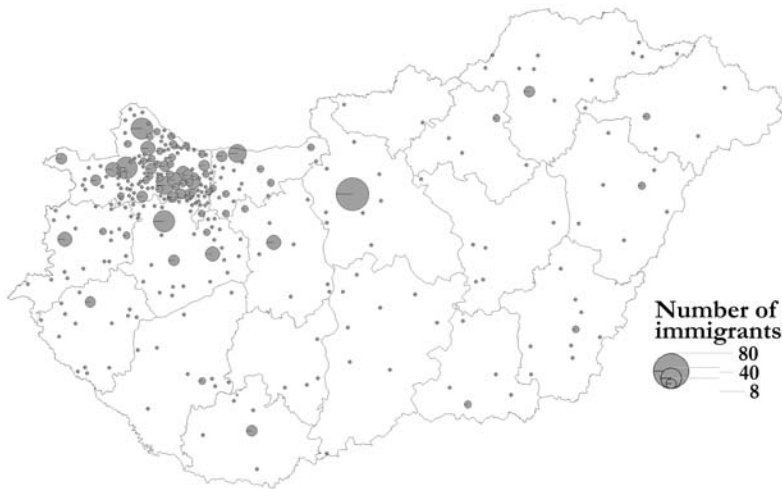


Source: Author's edition.

## Migration Developments

More than one-third of the respondents (38 per cent) were not born and grown in Győr; therefore, they need to be considered migrants. Considering the time of moving to Győr we face a relatively even distribution, however, the 1970s and the period after 2000 can be characterized as outstanding decades. Regarding the places of origin we can conclude, that the proportion of those who moved from the Győr agglomeration to the city is only 12 per cent, while the migrants from within the county make up the half of all immigrants. 5 per cent of the immigrants came from abroad. The chronological shift of migration directions shows an interesting picture; while migration from within the county was characteristic for the 1960-1990 timeframe, after the transition period, the proportion of people moving to Győr from more remote areas became overrepresented. Two-thirds (69 per cent) of the people moving to Győr from abroad settled in the city after the political transition. Map 2 shows the immigrants' places of origin.

Map 2: Immigrants by place of origin



Remark: The number of foreign immigrants is 54; they are not shown in the map.

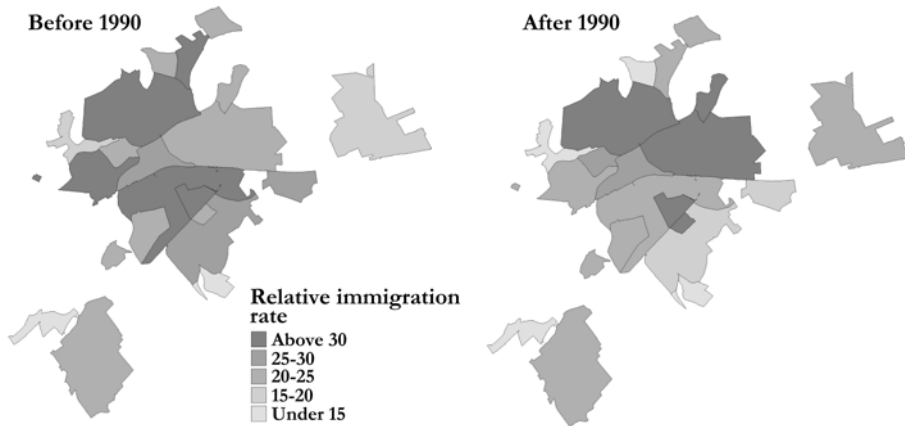
Source: Author's edition based on the Győr automotive districts research – public survey.

Considering the reasons of migrating to the city the majority (62 per cent) refers to family reasons. 27 per cent is the proportion of the immigrants for work purposes, 7 per cent arrived to study. Based on the time of immigration, there are significant divergences in respect of the reasons that are really spectacular with respect to the occupational objective. After bottoming out in the 1980s (23 per cent), the proportion of immigrants with occupational objective was increasing after the regime change; after the year 2000 it was already 33 per cent, approximating the highest proportions (36 per cent) characteristic for the 1950-1960 time period. The increase in the proportion of immigration for study reasons cannot be considered as impressive after the transition; moreover, we see a decreasing trend line after the turn of millennium.

If we study the proportions of immigrants in the light of districts and residential areas, moving outwards from the city centre, we experience decreasing proportion of the not Győr-born population; while this proportion approximates 42 per cent in the downtown and the inner residential areas, in the residential areas with suburban and rural character it is only 28 per cent. In Révfalu, in the József Attila-microdistrict (47 per cent) and in Adyváros (46 per cent) the proportion of immigrants is the highest (48 per cent), while the lowest rate can be observed in Pinnyéd, Gyirmót (both 19 per cent) and Kismegyer (22 per cent). Considering the time of immigration, we can see that after 1970 the microdistricts take over the leading role of the traditional internal and external residential areas, then, from the 1980s the role of suburban residential areas started to increase. The trends of the post-transitional time period seem to be reversed after 2000, when on the one hand the city centre, forgotten after 1990, became a preferred destination again; on the other hand, the proportion of people moving to microdistricts had risen significantly. In Map 3 we can see the relative immigration rates per districts before and after 1990. What we see is that the trends, shown by the census data

on the rash population increase throughout the last two decades into the suburban residential areas, cannot be unambiguously identified considering moving to the city from outside. The relative indicator shows significant increase in the post-1990 period only in the case of Győrszentiván and Likócs. This suggests that the population of the rural or suburban residential areas increased due to the rising proportion of internal migration throughout the last two and a half decades; however, microdistricts had not lost their character as ‘first station’ for the immigrants from outside the city after the change of regime either.

Map 3: Relative immigration rates before and after 1990 by district



Remark: the relative immigration rate shows the immigration/total population ratio with regard to the pre-1990 data; the post-1990 data were weighted in the interests of comparability

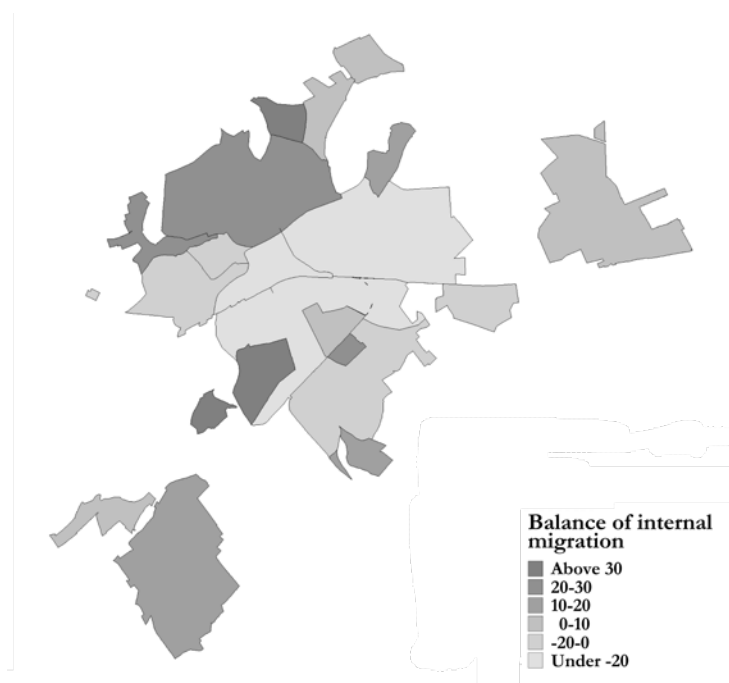
Source: Author's edition based on the Győr Automotive District research - public survey.

To be able to explore migration developments it is indispensable to examine the migration within the city itself. On a whole we can say that 42 per cent of the respondents had moved at least once within the city. If we compare the data of internal and external relocations we can consider 32 per cent of the Győr inhabitants as ‘indigenous people’, i.e. they were born in Győr, and they did not move from the district where they were raised. While in the inner residential areas the proportion of the people born in Győr is the lowest, the picture is somewhat different regarding the ‘indigenous inhabitants’. This is mainly due to the fact that fluctuation rate is the highest in the microdistricts: the proportion of inhabitants born and staying in such districts is only 23 per cent (19 per cent is the lowest value in the case of Adyváros). At the other end of the scale are the suburban residential areas: in Győrszentiván this proportion is extremely high (52 per cent). The position of Nádorváros is specific, since the proportion of people moving in from outside the city exceeds slightly the average, while the proportion of ‘indigenous people’ is significantly beyond that. The proportion of people born in Győr, but moved in from other districts is by far the lowest in Nádorváros (it is 16 per cent, while the total average is 31 per cent). In Kismegyér (49 per cent), Gyirmót (45 per cent) and Kisbácsa (44 per cent) is the proportion of the Győr born internal migrants the highest; this illustrates well the suburbanization trends so characteristic for the city.

We used relative migration ratio, which shows the proportion of the total immigration / emigration and the total case number per district, to be able to examine the balance of intra-city migration per districts.

Based on this, we can say that the emigration ratio is the highest in the traditional inner and external residential areas (Gyárváros: 111 per cent; City centre: 88 per cent; Sziget: 83 per cent); while these values are the lowest in the rural residential areas (Gyirmót: 11 per cent; Ménfőcsanak: 16 per cent; József Attila-microdistrict forms an exception with its value of 11 per cent). Considering the immigration ratios the picture is more balanced: the values are high in the microdistricts (Marcalváros: 71 per cent; Adyváros: 67 per cent); however, the ratios are similar in several traditional residential areas as well (Sziget: 68 per cent; Gyárváros: 67 per cent). Considering the migration balance (the difference between immigration and emigration ratio), the highest values can be seen in Marcalváros (38 per cent), Révfalu and Pinnyéd (27-27 per cent). By contrast, the indicators of the City centre (-50 per cent), Gyárváros (-44 per cent) and Nádorváros (-22 per cent) are strongly negative (Map 4). The fluctuation rate resulting from the sum of the migration ratios is the highest in the inner residential areas and microdistricts, while the residential areas of rural character can be considered the most 'immobile'.

Map 4: Balance of internal migration by district



Source: Author's edition based on the Győr Automotive District research – public survey.

We do not see any striking differences regarding the socio-economic status of the Győr born and migrant inhabitants, however, the picture gets more interesting when we examine the “indigenous people”. Generally we can say that those Győr-born people, who were born in a given district and did not move within the city, are in a more disadvantageous situation considering their income, financial and educational level. Significant differences can be mainly seen in the residential areas of rural character with gardens, which can be considered the main targets of the suburbanization processes dominated by the upper middle class and the employees of active age (Gyirmót, Kismegyer, Pinnyéd).

## **Key Features and Specificities of the Socio-Economic Status of Districts and Residential Areas of Different Character**

When examining the socio-economic status of the Győr districts and residential areas of different character we reach back to the most important socio-demographic and quality of life indicators, and by using complex indicators we make an attempt to explore and typify the characteristics of social structure for the different units.

### *Socio-demographic Features*

Trends can be clearly identified with respect to the household sizes in the different residential areas. Moving outwards from the Centre, the average headcount of households is increasing, while in the center this value is only 1.94, in the suburban residential areas with gardens it is already 2.85; we face the highest values in Bácsa (3.11) and Ménfőcsanak (3.05). District related specificities and neighborhood factors are reflected also by the marital status of the inhabitants. Although the differences in average age decrease the differences to some extent, they are still remarkable. The proportion of the married population is outstanding in the suburban residential areas with gardens (59 per cent in contrast to the 49 per cent average), however, the proportion of divorced is extremely low (3.6 per cent). In this case we can reflect on the persistency of a traditional set of values that is supported by the fact that in case of “indigenous people” the proportion of divorced is even lower, it is barely 1.7 per cent. At the other end of the scale we see in the City centre and the microdistricts where besides the low marriage ratio the proportion of common-law marriages and divorces is extremely high.

Differences in educational level can also be considered significant; however, here too, several individual and district related specificities can be traced. Generally we can say that in case of the City centre and the suburban residential areas the level of education is above average, while in the microdistricts and the external residential areas it is below average, however, within the single residential areas there is a significant internal heterogeneity, which can be described as follows:

- The proportion of the tertiary education graduates is the highest in the inner residential areas, however, this is mainly due to the outlying indicator of Révfalu (43 per cent), and in the case of Nádorváros (26 per cent) this proportion barely exceeds the Győr average (25 per cent).
- Because of the low educational level of Újváros and Sziget the indicators of the external residential areas are rather unfavorable; the proportion of people with at most primary education exceeds 20 per cent in these districts (respectively 26 and 23 per cent), while this proportion is somewhat above average in Gyárváros, and it is below average in Szabadhegy.
- Besides the low proportion of university graduates in the microdistricts, the proportion of people with at most primary education is not higher than the average either. Secondary school graduates are in majority, with proportions approximating or exceeding two-thirds in every case. It is important to mention that in these districts the holders of craft certificates are overrepresented: in Marcalváros their proportion is 30 per cent, which is the highest value among all districts except for Pinnýéd (33 per cent).
- Educational features in the suburban residential areas are generally speaking more favorable than the average; however, we face a significant internal deviation. While in case of Kismegyér or Gyirmót the proportion of people with tertiary education is outstanding, Likócs and Pinnýéd belong to the ones with the lowest values (17 and 15 per cent respectively)

Map 5: Proportion of people with tertiary education by district



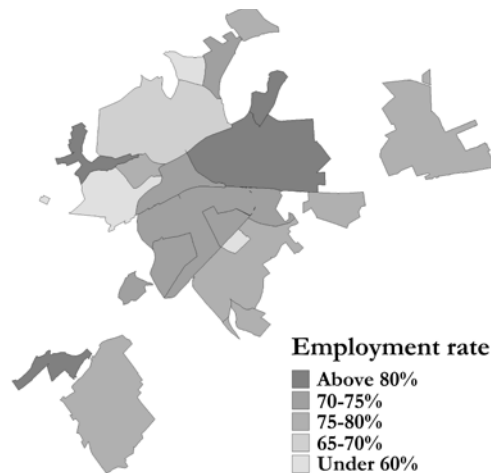
Source: Author's edition based on the Győr Automotive District research – public survey.

On the subject of economic activity we need to highlight that the proportion of employees significantly exceeds the total average in the microdistricts and suburban residential areas, while in the City centre it remains clearly below the average, however, this can partly be attributed to the high average age as well: the proportion of pensioners is outstanding



(46 per cent). If we examine the employment rate of the working age population, we get a similar picture in the single residential areas, but in this case the indicators of the City centre are above average. It is striking that the employment of the working age population in the district of Révfalu, where sociodemographic and life quality features are very favorable, is below average (70 per cent), the indicators are only in the József Attila-micro-district (64 per cent) and in Újváros (52 per cent) are more unfavorable. The proportion of economically inactive people is extremely high (26 per cent) in Újváros. Újváros is an outlier when considering the unemployment data, since its value (11.8 per cent) is almost four times higher than the average (3.0 per cent). Considering the residential areas, the unemployment is above average in the microdistricts and external residential areas, while it is below average in the inner residential areas and in the suburbs. 30 per cent of the Győr inhabitants have already been unemployed for a longer or shorter period of time, and there are significant deviations among the districts in the values: while this ratio approximated 50 per cent in case of Újváros and Sziget, we can observe lower ratios in suburban residential areas with (Kismegyer: 12 per cent; Gyirmót: 14 per cent). The average duration of unemployment was somewhat longer than one year, however, the data of Adyváros (17 months), Sziget and Bácsa (16-16 months) exceed it, while in Győrszentiván this period was only 9 months. From among the past or current unemployed persons, in Sziget (25 per cent) and Gyárváros (23 per cent) have the highest proportion of those who had been without a job for more than 18 months.

Map 6: Employment rate by district (for the age group 18-59 years)

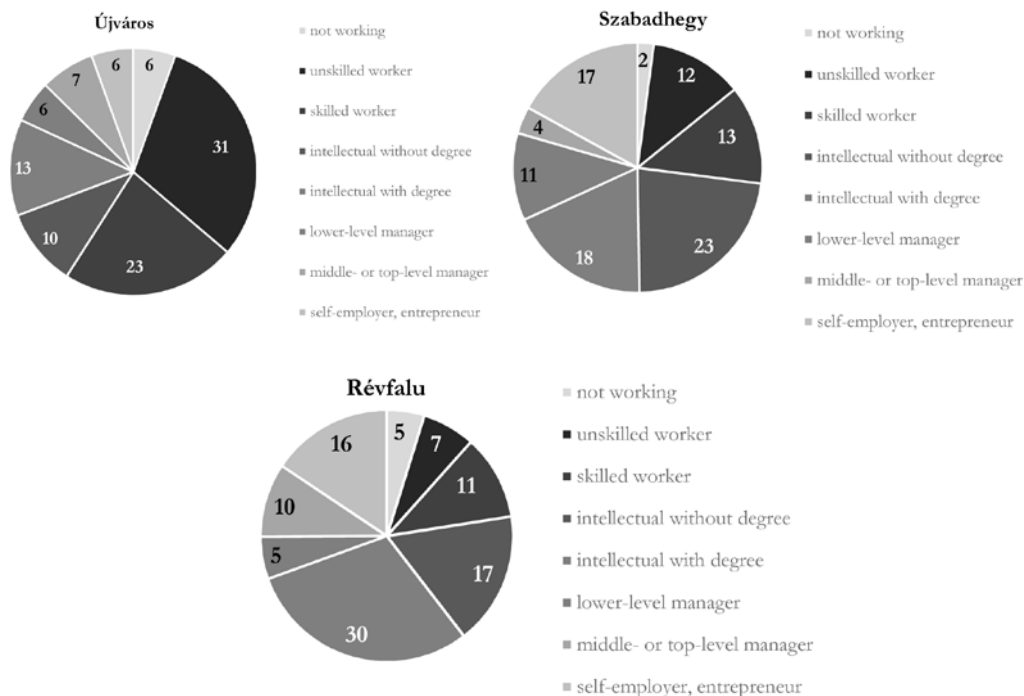


Source: Author's edition based on the Győr Automotive District research – public survey.

The above average proportion of people in high employment status is mainly characteristic for the inner residential areas; the total proportion of graduate intellectuals or people in management position is 45 per cent in Révfalu and 35 per cent in Nádorváros. As high as this latter are the proportions in some of the districts belonging to the suburban residential areas (Bácsa, Gyirmót, Ménfőcsanak), and- in a somewhat surprising manner – in Adyváros, where the proportion of people with tertiary education is below average. Blue collar workers form

absolute majority only in three districts: Pinyéd (73 per cent), Likócs (56 per cent) and Újváros (54 per cent). This ratio remains below 20 per cent in Révfalu (18 per cent). In the external residential areas the proportion of untrained blue collar workers is the highest, which phenomenon is mainly due to the unfavorable educational indicators of Sziget and Újváros.

Figure 1: Distribution by occupation and assignment in districts with low (Újváros), average (Szabadhegy) and high (Révfalu) employment status



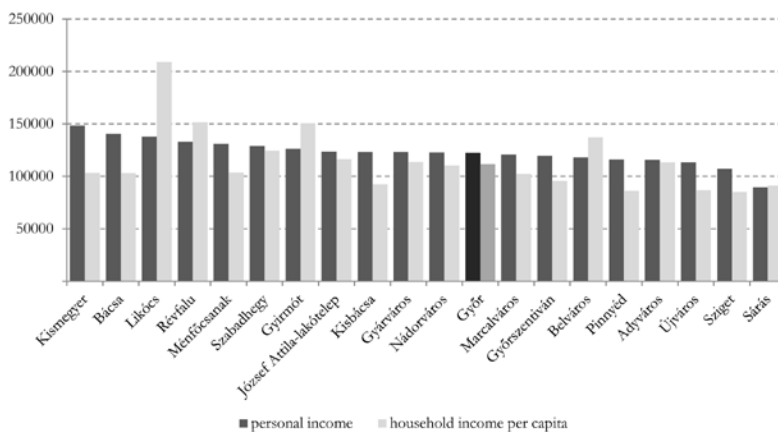
Source: Author's edition based on the Győr Automotive District research - public survey, N=137 (Újváros); 167 (Szabadhegy); 170 (Révfalu).

### *Indicators of wealth and quality of life*

In our survey the proportion of response denials relating to the personal and household incomes was rather high (53 and 59 per cent), thus, we needed to apply corrected variables when examining the income levels. In case of missing values, for both individuals and households, we calculated an average income linked to the characteristic value of the composite durable consumer goods possession index. Based on the corrected index, the personal average income was 122,267 HUF, while the average household income per capita was 111,687 HUF, considering the city, as a whole. If we examine the income disparities per districts or residential areas, we can see that spatial structures in respect of personal and household income might slightly differ. While the highest average incomes are to be found in the suburban residential areas (the three districts with highest income are Kismegyér, Likócs and Bácsa),

the average household income per capita is the lowest in these neighborhoods. This trend is partially due to the fact that the average household size is the highest in the suburban residential areas. The level of personal income exceeds the total average in the inner residential areas (Nádorváros, Révfalu). Sziget and Újváros show the most unfavorable values in case of both personal and household income. An interesting duality can be perceived in case of the City centre as well: while the level of personal income is below average, the household income per capita is the third highest, right after Likócs and Révfalu. Because of the high proportion of non-responses and the low case number we could not draw far-reaching conclusions from the distribution of household incomes by sources of revenue.

Figure 2: Average of personal income and household income per capita by district



Note: the figure shows the average values of corrected income indexes

Source: Author's edition based on the Győr Automotive District research – public survey, N=3032.

### *Spatial Features of Social Status*

To be able to research spatial disparities in the social structure, we applied an approach, which considered the different dimensions behind the social status. By using five criteria (income, wealth, cultural consumption, life style, networking) we intended to form homogeneous groups by K-means cluster analysis. The indicators shaping the different dimensions are the following:

- income: standardized form of the above corrected personal income
- wealth: standardized form of the composite durable goods possession index
- cultural consumption: principal component formed on the basis of some characteristic cultural activities (concert and theatre attendance, exhibition visiting)
- life style: principal component formed on the basis of indicators on leisure activities (attendance to sporting events, festivals, time spent on the beach, dining in restaurants, active pastime activities, working in the weekend house, relaxation)
- networking: factor showing the extent of the relationship network and the intensity of communication.

Throughout the analysis we could identify eight clusters; their main characteristics are summarized as follows:

1. Cluster 1: Income elite (1 per cent): This small group is identified by its above average income, they are in favorable situation considering both their wealth and relationship network; however, their cultural consumption and leisure activity is only average. The proportion of university graduates (54 per cent) and employees (88 per cent) is extremely high in this group; half of this cluster's members are managers and intellectuals. Because of the low case number of the group, we need to handle the data with caution, but the fact that from among all clusters the proportion of people moving to Győr from elsewhere is here the highest, whereas the proportion of "indigenous people" (people born in a given district, who had not moved even within the city itself) is the lowest definitely merits the attention.
2. Cluster 2: Upper middle class (7 per cent): Advantageous income and wealth position, as well as somewhat above average cultural consumption and pastime activities are characteristic for this group. Their education and employment indicators are good, their position is outstanding based on their human capital indicators as well (e.g. the proportion able to speak at least one foreign language is the highest in this group /67 per cent/). The proportion of blue collar workers is the lowest here, it is barely 15 per cent.
3. Cluster 3: "Active" middle class (8 per cent): the income level in this cluster somewhat exceeds the average, this group is distinguished mainly by its outstanding cultural consumption and pastime activity. Basically, we speak of a group dominated by intellectuals, the proportion of intellectual workers in positions necessitating university level education is 30 per cent, and their education indicators are outstanding. Considering their social network we can say that in terms of the existence and intensity of strong links they do not differ from other middle class groups, however, here are the indicators relating to both the weak links and the "quality" indicators of the social network the most favorable.
4. Cluster 4: "Suburban" middle class (17 per cent): their income and wealth position is more favorable than in case of the members of the former cluster, however, their indicators in the cultural and life style dimensions are rather weak. Considering the education and employment structure, we can see that, although the proportion of university graduates is above average, the proportion of intellectual workers is only average and the proportion of managers is below average. Skilled workers are overrepresented in this cluster, and the proportion of sole proprietors and entrepreneurs is outstanding (26 per cent).
5. Cluster 5: Dynamic youth (12 per cent): This is the cluster with the lowest average age (38 years), their income is average, but their position relating to possession of durable consumer goods is rather favorable. Their educational level is above the average, but also the proportion of unemployed and previously unemployed people. Their relationship network is the most extended, and their pastime activities are outstanding as well.
6. Cluster 6: Workers (12 per cent): This group can be characterized by below average income, unfavorable financial status and relatively high average age. The proportion of blue collar workers is not dominant, however, considering all clusters the proportion of

those who work or worked earlier in intellectual positions, which did not require university degree is here the highest. This cluster can be considered special from the aspect of marital status: the proportion of married people is the lowest, while the proportion of singles and divorced people is the highest in this group.

7. Cluster 7: Pensioners (26 per cent): This is the most numerous group, where all indicators are below average. Still, the classification into the status hierarchy is not unambiguous, since, except for the average age, we do not see any significant differences in the other groups, whereas this group is clearly distinguished by all others from this aspect: the average age is 62 years. In case of this cluster mainly the difference in age determines the unfavorable status in terms of certain socio-economic indicators (low proportion of university graduates, weak economic activity and marital status composition of the population).
8. Cluster 8: Lagging behind (17 per cent): The income and employment status of this group are the least favorable. Based on the educational indicators, there is a significant lag in comparison with the other clusters (except for the exceptionally aged cluster). The proportion of blue collar and untrained workers is the double of the average. Their relationship network is asymmetric: since their indicators on the existence and intensity of strong links are above average, their position is the least favorable considering the quality indicators of relationships and the weak side of the relationship network.

Table 2: Position of clusters along certain socio-economic indicators

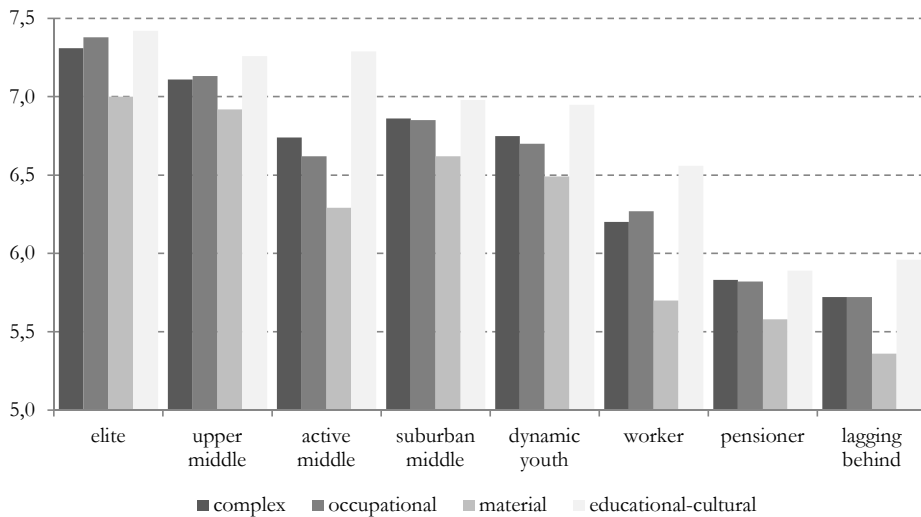
	Elite	Upper middle	Active middle	Suburban middle	Dynamic youth	Worker	Pensioners	Lagging behind	Total
<b>Household income per capita (thousand HUF)</b>	172	170	127	124	114	111	101	79	112
<b>University graduates (%)</b>	53.8	46.1	45.5	30.4	32.1	21.5	11.7	12.2	24,1
<b>Persons with no secondary school graduation diploma (%)</b>	15.3	12.6	12.4	26.1	21.4	28.7	55.3	48.0	22.4
<b>Blue collar workers (%)</b>	22.7	14.9	18.6	28.5	27.1	31.8	50.8	51.7	36.5
<b>Managers and intellectuals (%)</b>	50.0	43.6	43.7	26.4	30.1	33.5	25.4	17.3	29.1
<b>Persons who have ever been unemployed (%)</b>	12.5	25.7	23.9	24.7	35.1	33.8	22.8	43.3	29.6

	Elite	Upper middle	Active middle	Suburban middle	Dynamic youth	Worker	Pensioners	Lagging behind	Total
<b>Speaks foreign languages (%)</b>	57.7	67.0	61.9	53.7	67.0	40.3	16.0	29.6	41.4
<b>Owens a car (%)</b>	88.5	92.6	82.2	91.5	86.9	50.9	25.6	51.4	61.5
<b>Has some kind of savings (%)</b>	73.1	60.2	53.4	59.8	52.4	39.1	40.3	38.7	47.4
<b>Persons who were on holiday abroad in the last year (%)</b>	23.1	53.4	48.7	28.0	40.2	20.3	5.2	11.5	23.3
<b>Persons participating in the work of a professional or civil organization (%)</b>	42.3	37.9	37.3	16.2	29.6	27.7	16.0	9.9	21.6

Source: Author's edition based on the Győr Automotive District research - Public survey.

The hierarchical system, in which the clusters can be arranged to, is revealed through the data presented in Table 3. Just as we mentioned at the presentation of the single clusters, the group of pensioners can be hardly fit into this hierarchical system, and we can also see that in the case of the middle class categories there are certain shifts in dimension determining the social status (e.g. the relatively weaker financial status and the willingness to make savings of the active middle class, or the more favorable educational and employment status and weaker social activity of the suburban middle class). Beyond the typifying of the clusters based on objective socio-economic indicators, we considered the examination of subjective perception and assessment of the social status is also important. In the survey we assessed the subjective social position by using three questions: the respondents had to classify their employment, financial and educational/cultural position on a scale of one to ten. The examination of the average values of single clusters shows that there is a strong connection between the cluster membership and the subjective assessment of status. All three partial indicators and the complex subjective status index composed of them show significant positive correlation with the hierarchical ranking of the clusters and the differences between the group averages are significant in every case. The above mentioned shifting emphases, which are characteristic for the middle class categories can be traced here too: we can see that the average scores in case of the active middle class – with the exception of the educational/cultural status - are somewhat lower than the respective averages of the suburban middle class or the dynamic youth (Figure 3).

Figure 3: Average scores of subjective indicators of socio-economic status by cluster



Source: Author's edition based on the Győr Automotive District research - Public survey.

### *Spatial Features of Social Status*

Since the main goal of our paper is the exploration of the inner spatial specificities of the social system in Győr, in the next step we are going to examine the differences of the formerly established stratification structure by residential areas and districts. Based on the distributions present in the different residential areas we can say that in Győr we can trace the determination of social status based on the residential zones. Table 4 presents the distribution by clusters in the single residential areas. From the distributions it can be derived that the presence of three clusters ('suburban' middle class, 'active' middle class and dynamic youth) is higher than the average in the suburban residential areas, while the upper middle class and the cluster with low social status are under-represented. Microdistricts and external residential areas can mainly be characterized by the above average presence of people belonging to low status clusters. In the city centre, the proportion of the upper middle class is the highest, however, there is a deficit here regarding the 'pure' middle class categories.

Table 4: Distribution of cluster membership by type of the residential areas (percent)

District	Elite	Upper middle	Active middle	Suburban middle	Dynamic youth	Worker	Pensioners	Lagging behind
Center	<u>0.5</u>	<b>9.2</b>	9.2	12.4	9.2	<b>17.0</b>	29.0	13.8
Inner residential area	<b>1.2</b>	7.0	9.6	15.6	12.8	14.2	26.5	13.0
Microdistrict	<u>0.3</u>	8.0	4.5	15.2	11.2	13.6	28.2	19.0
External residential area	<u>1.3</u>	6.5	9.0	12.8	10.0	11.9	28.0	20.5
Residential area with gardens	<u>1.3</u>	5.9	<b>11.0</b>	<b>22.9</b>	<b>15.5</b>	7.6	20.5	15.3
<b>Total</b>	<b>0.9</b>	<b>7.1</b>	<b>8.2</b>	<b>16.5</b>	<b>12.1</b>	<b>12.2</b>	<b>26.0</b>	<b>16.9</b>

Source: Author's edition based on the Győr Automotive District research - Public survey.

If we look at the composition of clusters by districts we get a more nuanced picture of the spatial structure of social stratification. The structure cannot be considered homogenous in every case, not even within the single residential areas. The positions of the districts belonging to the external residential areas show significant differences: while clusters characterized by low social status are over-represented in Sziget and Újváros, in Gyárváros and Szabadhegy we see distributions approximating the average with outliers from certain clusters of high status (upper middle, active middle). Certain differences can be experienced between the social structures of the single microdistricts; it is noteworthy that the proportion of the people belonging to the upper middle class is outstanding in the József Attila-microdistrict, and the proportion of people lagging behind in Marcalváros substantially exceeds the average, while it is not characteristic for the other two microdistricts. The breakdown by districts illustrates the contrast between the distribution of the active and the suburban middle class. There are two districts of rural suburban character (Győrszentiván, Ménfőcsanak) where the proportion of the active middle class significantly exceeds the average, while in the other cases this proportion is below average, in contrast to this, the suburban middle class is over-represented at least by one-and-a-half times.



Table 5: Distribution of cluster membership by district (percent)

District	Elite	Upper middle	Active middle	Suburban middle	Dynamic youth	Worker	Pensioners	Lagging behind
Belváros	<u>0.5</u>	<b>9.2</b>	9.2	12.4	9.2	<b>17.0</b>	28.9	13.8
Újváros	<u>1.5</u>	3.8	<b>11.4</b>	<u>7.6</u>	12.9	12.9	25.0	<b>25.0</b>
Sziget	<u>1.7</u>	<u>2.6</u>	6.0	11.2	<u>2.6</u>	<u>8.6</u>	<b>39.7</b>	<b>27.6</b>
Pinnyéd	<u>4.0</u>	4.0	8.0	<b>28.0</b>	<u>4.0</u>	<u>0.0</u>	<b>40.0</b>	12.0
Révfalu	0.6	<b>10.4</b>	<b>16.9</b>	16.2	<u>18.2</u>	11.7	14.3	11.7
Kisbácsa	<u>0.0</u>	7.9	5.3	<b>28.9</b>	10.5	6.6	25.0	15.8
Bácsa	<u>1.4</u>	<b>11.4</b>	4.3	<b>42.9</b>	7.1	<u>5.7</u>	15.7	11.4
Sárás	<u>0.0</u>	<u>0.0</u>	<b>11.1</b>	11.1	<u>0.0</u>	<b>22.2</b>	<u>11.1</u>	<b>44.4</b>
Gyárváros	0.9	6.4	<b>12.8</b>	11.9	11.0	12.8	27.5	16.5
Likócs	<u>0.0</u>	5.9	5.9	<b>35.3</b>	11.8	11.8	23.5	<u>5.9</u>
Gyórszentiván	<u>0.5</u>	6.7	<b>14.4</b>	13.0	14.4	10.1	24.5	16.3
Nádorváros	<u>1.4</u>	5.5	6.4	15.4	10.4	<b>15.4</b>	31.9	13.6
Adyváros	<u>0.0</u>	6.8	4.9	15.2	9.8	<b>16.3</b>	29.5	17.6
Marcalváros	<u>0.5</u>	7.4	<u>3.7</u>	15.8	11.9	10.6	28.0	<b>22.0</b>
József Attila-lakótelep	0.8	<b>12.9</b>	6.1	13.6	12.9	<b>15.2</b>	25.0	13.6
Szabadhegy	<b>1.2</b>	<b>11.5</b>	6.7	18.8	12.1	12.7	22.4	14.5
Kismegyery	<b>6.1</b>	<u>0.0</u>	6.1	<b>36.4</b>	<u>3.0</u>	12.1	24.2	12.1
Ménfőcsanak	<u>1.3</u>	<u>3.1</u>	<b>15.0</b>	20.4	<b>25.7</b>	<u>5.8</u>	14.2	14.6
Gyirmót	<u>2.9</u>	<u>11.8</u>	<u>0.0</u>	<b>26.5</b>	8.8	<u>5.9</u>	20.6	<b>23.5</b>
Total	<b>0.9</b>	<b>7.1</b>	<b>8.2</b>	<b>16.5</b>	<b>12.1</b>	<b>12.2</b>	<b>26.0</b>	<b>16.9</b>

Source: Author's edition based on the Győr Automotive District research - Public survey.

Based on the district values we can see that the Révfalu can be characterized by the dominance of groups of relatively high status, this is mainly due to the outlying values of the upper and active middle class. As it is shown in Map 7, beyond Révfalu, in Gyárváros and Gyórszentiván, the proportion of the population belonging to the three clusters of higher status exceeds 20 per cent as well, however, in these two districts both the elite and the upper middle class are under-represented, but the number of the members of the active middle class is significant. It is noteworthy, that the suburban residential areas do not belong fully to the districts where the proportion of the members of the high status social groups would be significant, in several cases (Kismegyer, Ménfőcsanak, Pinnyéd) we see that the upper middle class is almost totally missing from the social structure. The high proportion of the population with low social status is characteristic for Újváros and Sziget, two districts in the most unadvantageous situation, and the microdistricts. In the case of Gyimót there is an interesting duality: besides the strongly over-represented elite and upper middle class, the proportion of the people lagging behind, the group that has the worst social status substantially exceeds the average.

Map 7: Proportion of membership of clusters with low (workers, pensioners, lagging behind) and high (elite, upper middle, active middle) status by district



Source: Author's edition based on the Győr Automotive District research - Public survey.

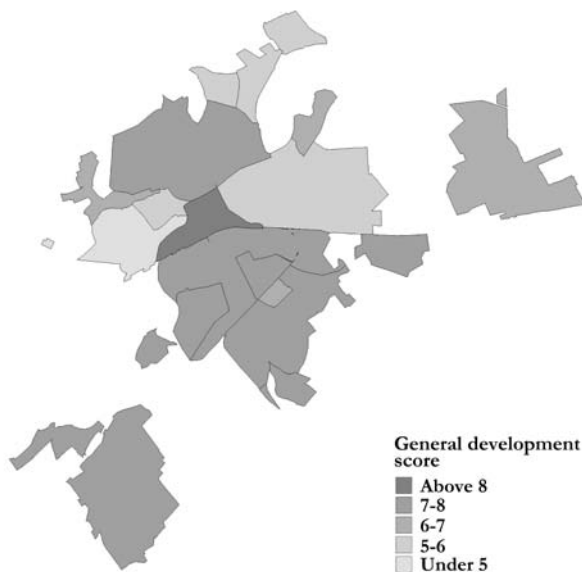
## Perception and Evaluation of the City and the Internal Spatial Structure Based on Subjective Elements

If we consider the general evaluations of Győr, the picture drawn by the respondents is generally positive. For the question, that how much they like living in Győr the majority of the respondents gave a favorable answer. Considering all respondents 8.76 was the average on a one to ten scale; 40 per cent gave the highest score (10), while 85 per cent gave the city at least 8 points. The breakdown by districts shows significant differences in reference to the evaluation: generally, we can say that the evaluation by the people living in the Centre and the inner residential areas is the most favorable; in contrast to this, the scores given by the people living in the microdistricts were below average. The breakdown of the average scores

by social groups is also interesting: the highest scores were given by the suburban middle class and the dynamic youth; however, the assessments of the upper and active middle class are less favorable than the average, they broadly equal with the scores given by the low status clusters. If we examine the other factors, we see that high occupational, financial and income status have a beneficial influence on the contentedness with the city. It is noteworthy that average scores are increasing along the age of the respondents; the elderly gave the most positive evaluations.

The subjective evaluation of the status of the residential area was assessed by a question on the own district's developmental position within Győr. Here too, we used a one to ten scale (Map 8). There are significant differences in the average scores of the districts: the Centre had the highest average score (8.16), while the lowest was measured in Újváros (4.36). The breakdown by the character of the residential area shows an interesting picture: the subjective evaluation of the microdistricts, which were characterized as low status areas by the socio-economic indicators, is more favorable than that of the suburban residential areas. In the case of Bácsa and Kisbácsa, which districts were characterized by the over average presence of relative high status social groups, the scores are substantially below average. The evaluation of the own district's general development has a strong correlation with the socio-economic status; better position involves a better evaluation. These trends can be traced regarding the educational and employment status and the financial and income positions as well. We did not see the same age-influenced impact, which was to be seen in case of the city's general evaluation: there is no linear relation between age and average scores.

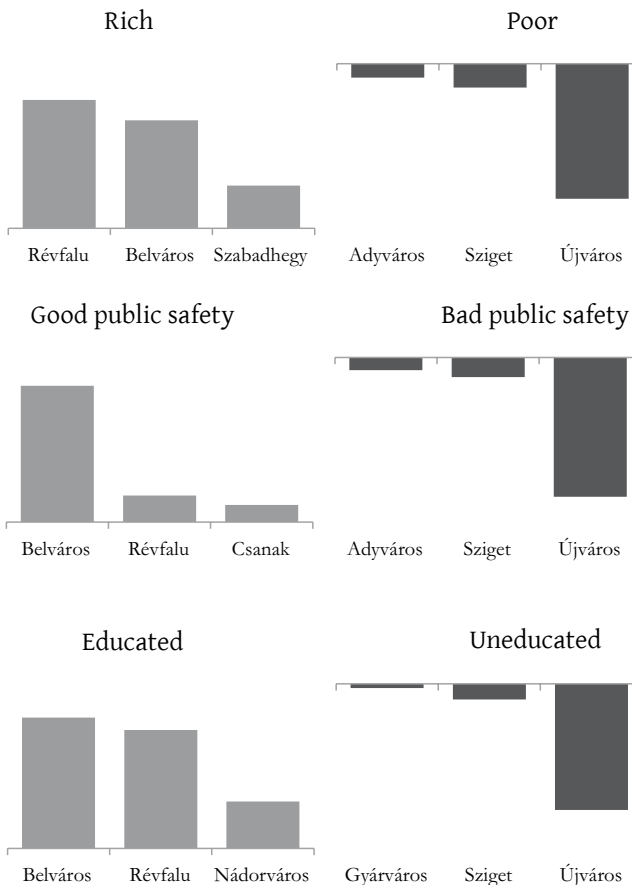
Map 8: Average scores of general development status of districts by subjective evaluation

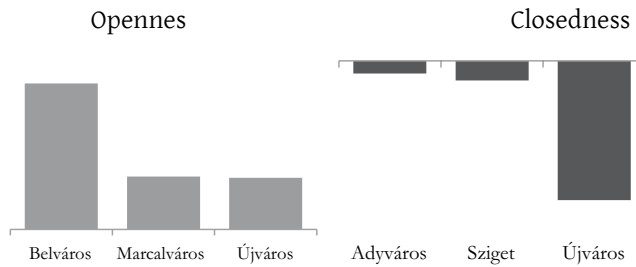


Source: Author's edition based on the Győr Automotive District research - Public survey.

To complete the evaluation of the general development level we asked the respondents to mark the districts, which are characterized the most by given characteristics and pairs of opposites. At the evaluation of six antonymous pairs (rich-poor, educated- uneducated, good traffic - bad traffic conditions, few services - numerous services available, good public safety - bad public safety, openness - closedness) we noticed that irrespectively of the different problematic issues there is a general evaluation of the districts. On the “negative side” of the opposite pairs, regarding any of the problems Újváros’s scores are outstanding, while the situation on the positive side similar, but the concentration in Center and Révfalu is not that clear (Figure 4).

Figure 4: Districts with most mentions by positive and negative characteristics (wealth, education, public safety, openness of local society)

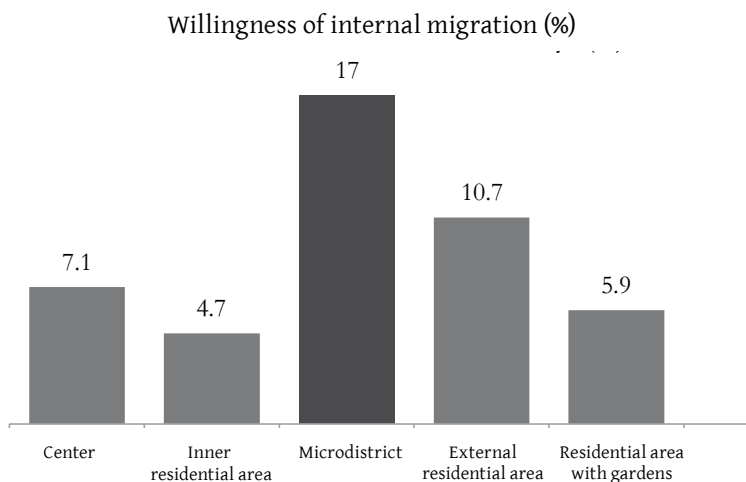


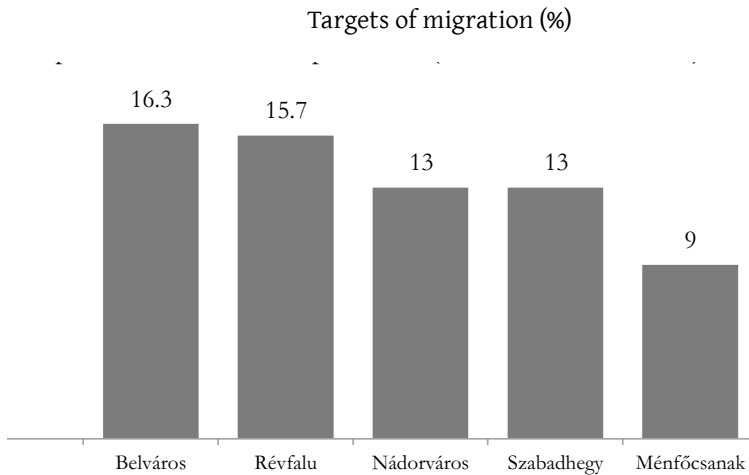


Source: Author's edition based on the Győr automotive district research - Public survey.

To a certain extent we reflect to the districts' evaluation when studying the willingness of internal migration. 11 per cent of the respondents said that if they had an opportunity, they would move to another district within Győr. The differences in the willingness to move are significant among the single residential areas. While in case of the suburban residential areas the proportion of those willing to move is deeply below average, this proportion is extremely high in case of the microdistricts (17 per cent), and it peaks in Adyváros (22 per cent). Above average willingness to move can be seen in Újváros, Sziget and Pinnyéd. When examining the potential targets of migration it is clear that these attitudes do not correspond with the classic suburbanization trends, residential areas of rural character cannot be considered as primary targets. The most attractive targets are the inner residential areas and the Centre (Figure 5). It is the age among the different socio-demographic features that has the strongest impact on the level of the willingness for internal migration, the relationship in this case is linear. While 16 per cent of the 18-29 age group answered that they would be willing to move within the city, in case of the seniors above 60 this proportion falls below 5 per cent. Above average is the migration willingness of the university graduates, singles and divorced people and, interestingly, of the people with no savings.

Figure 5: Willingness of internal migration by type of residential area and the most frequent targets of migration





*Source: Author's edition based on the Győr Automotive District research - Public survey.*

From the evaluations of the city's different features, institutions and services we can generally conclude that the people of Győr are the most satisfied by the high level of the city's educational, commercial and health care services. The scores are lower in case of environmental and infrastructural features, the status of the roads received the lowest average scores on a one to four point scale; this issue was often mentioned when we were inquiring about problems, which need the most urgent development, repair. Along the socio-demographic features there are significant differences in the evaluation of certain factors. Generally the people with higher educational level and financial background evaluate educational institutions higher than the average, while the same group evaluates the quality of certain services below average. Considering the age of the respondents, the most significant differences lie in the evaluation of the pastime and leisure activities and the local social life. In case of the younger generations these scores are below average. In the breakdown by the character of residential areas we did not see any significant differences in the evaluations, in the same way the problem structure (i.e. proportions of mentioning tasks to be developed, repaired) seems rather stable.

## Summary

Our research attempted to detect and highlight the inner spatial specificities and differences of Győr's social structure. Primarily, we wanted to answer the question, whether there are characteristic differences in the social structure and the developments shaping it among the residential areas and districts of different character, furthermore, we wanted to see whether we can say that impact of location shaping and representing social status prevail and can be identified.

The research of external and internal migration trends highlights the dynamic side of spatial differentiation and a two-way tendency is unfolding based on the directions of migration and the changes of their intensity in time. Although we could see certain temporal shifts of emphasis considering the districts where immigrants first settled in Győr, but these changes affect only slightly the suburban residential areas, which are the main targets of migration. The quick increase in the population of these districts throughout the last two-and-a-half decades was mainly due to the internal migration processes. In our experience, in case of the relatively high social status population living in the suburban residential areas the proportion of emigrants is significantly higher than the average, thus, the existence of the suburbanization trends are supported by the data of the survey. To a certain extent the presence of the filtration phenomenon can be justified as well: the social status of the people moving from the microdistricts to other districts shows a more favorable picture than that of the “indigenous people” not moving within the city or the people moving to the microdistricts from outside the city.

In order to detect the residential area related specificities of social stratification, we established a multidimensional stratification typology, by using cluster analysis. The differences detected throughout the classification of people belonging to the single social groups based on their neighborhoods and districts underline the differences, which were to be seen when examining the socio-demographic and life quality indicators of the single districts. In case of certain districts and residential areas the picture based on the social structure is unambiguous; the dominance of the groups of relative high or low social status can be identified. In several cases, however, the structure is more complex and ambivalent. It is obvious, on the one hand, that there is a distinctive dividing line within the middle class that is manifested spectacularly in matter of spatial location as well. The upper middle class and the “traditional” middle classes of high educational level, favorable cultural and relationship network indices are overrepresented in the inner residential areas, while the middle class group, with good financial and income position, however, on lower level of education, cultural and relationship capital lives mainly in the suburban residential areas. A significant proportion of them moved from the Centre or the inner residential areas into these districts.

Considering the subjective evaluation of the city and the own neighborhood, we can say that the differences do not fully correspond with the status of the districts, which could have been estimated based on the objective indicators. The most significant is the difference in case of the microdistricts and suburban residential areas; in the first case evaluations considering the general development level are more favorable, while in the latter case they are a lot more unfavorable than what would be justified by the objective socio-economic development indicators.

# Human Demand Developments in Győr

MÁRTA NÁRAI

**SUMMARY:** In the questionnaire based survey on a sample of 3,000 people we examined the emergence and satisfaction of the essential needs of the people living in Győr. Based on results we made an attempt to determine the city's deprivation index. This was necessary, since in spite of the city's favorable economic position (e.g. unemployment rate 3-4 per cent) there are multiply disadvantaged persons and social groups and their identification is not a negligible factor from the aspect of Győr's development either. It is an important question from this regard what answers the institutions providing human services (social, health care, cultural educational etc) can give to the evolving needs, how they can support the satisfaction of these needs and, in case of certain needs, how they can make people aware of these needs and how they can reach, involve marginalized people. In our research, by making interviews, we examined these questions mainly in the circle of social, cultural and pastime institutions; however, this study provides no information on these: based exclusively on the results of the survey it only gives a foretaste on the emergence and satisfaction of needs.

**KEYWORDS:** human demands, deprivation index, satisfaction, hierarchy and levels of human needs

## System of Needs-Theoretic Approach

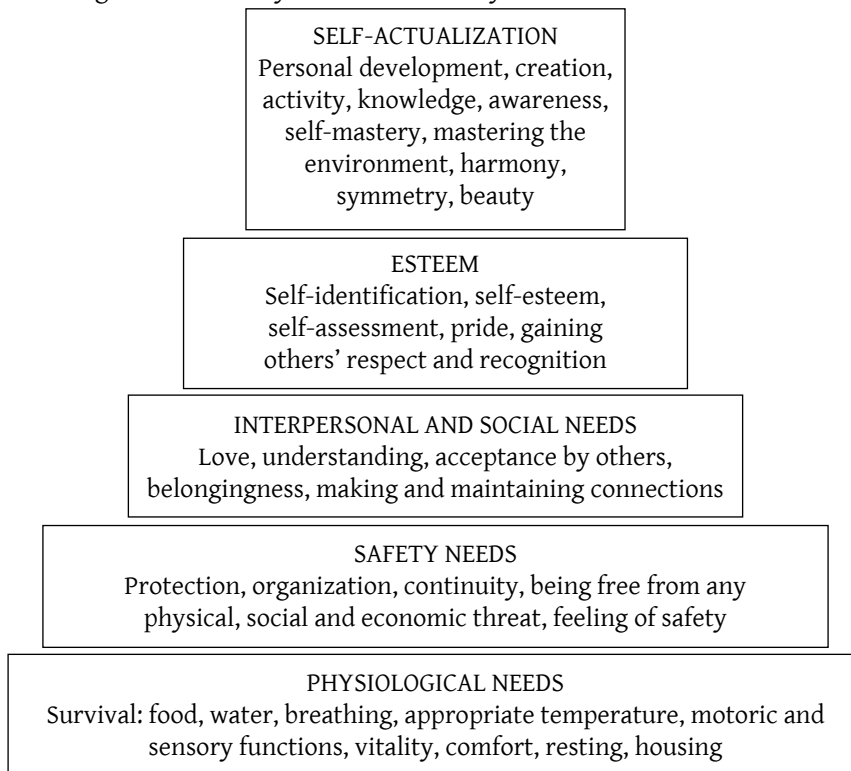
The behavior and acts of people are determined either by the object of their direct needs (the need itself) or the components of their satisfaction (instruments-conditions) (Farkas 2004). When identifying human needs and the detecting how they could be met we took Maslow's theory of needs (Maslow 1987) as basis, knowing its criticisms and other motivational theories as well (Carver – Scheier 2002; Farkas 2004; Fodor 2007; Kenrick et al. 2010). Maslow identified the main groups of needs, which were ordered into a ranking by importance, a hierarchy based on the force of their emergence (Figure 1), and he supposed that to become aware of a need on a "higher" level the satisfaction of the need on the lower level is indispensable. He defined the needs on the basic four levels as "deficiency needs", meaning that when they are met they do not have further motivating impacts, their impacts cease to exist and the needs on the next level take precedence. Self-actualization is on



the top layer of the hierarchy. This need can only emerge when all previous needs where achieved, and since it is a so-called growth need, there is no definite fulfillment: behavior itself is the goal. On this level, not “self-interest” is motivating, but the continuous development of personality and a self-exceeding character are the most important.

In spite of the limitations and criticism of Maslow’s theory and system, it serves still as a starting point for the newest literature and ambitions: e.g. on the research of the relationship between needs and subjective well-being (pl. Tay – Diener 2011). In general we consider Maslow’s concept on the system and hierarchy of human needs valid, however, at some points we share the views of newer approaches, saying that there are complex needs as well, which might appear on several levels of the hierarchy (Boda 2013). Thus, there are overlaps, some needs coexist and the satisfaction of the given needs does not imply it disappearance (Kenrick et al. 2010). On the other hand, needs considered to be on higher levels can be active when needs on lower level were only partially met. The satisfaction and existence of the needs (awareness), their value and importance can be significantly influenced by the age dimension, cultural and environmental factors (Adair 1997 – referred to by Fodor 2007).

Figure 1: Hierarchy of human needs by Maslow – five-level-model<sup>1</sup>



Source: Author's edition based on Füredi (1999: 15) and Fodor (2007: 211).

1 Maslow's theory is generally pictured as a five-layer-model, but there are six and seven layered variations as well, depending on whether cognitive and esthetic needs are excepted from the self-actualization need.

When researching the basic needs' satisfaction/ dissatisfaction and emergence we proceeded on the basis of the Maslowian system of needs, and accordingly, we approached the system of needs and its measurement in a versatile manner. There were questions considering physiological, material and safety needs just as on belongingness, self-actualization and ruling the environment ("activity needs of higher rank") [Farkas 2004, 29]) or even on the need for information- the opinion on the latter need (Jinil 2014) is that by today it has become as a basic need as food, drink and sleep. The questionnaire used in the research had a thematic block with questions aimed at needs, but several other questions of the questionnaire gave opportunity to explore this question thoroughly, since several questions were indirectly able to present and measure the system of needs. In the questionnaire there were direct questions considering the objective situation, just like questions approaching from subjective direction on self-assessment, attitude and opinion.

At the presentation of the research findings, we outline in detail the questions, which we used to make certain groups of needs measurable; therefore, we leave aside their presentation at this point.

#### *Potential satisfaction of needs in general- renunciation of basic needs*

Answers given to our direct question on the satisfaction of needs show that *one fourth* of the questioned people in Győr is forced to renounce of the satisfaction of some basic physiological, safety, belongingness or other need/needs (e.g. food, shelter, safety, social interaction, pastime activities). This is mostly in line with the picture considering the single types and groups of needs. Due to financial reasons one fifth (!) of all respondents, the majority of the ones suffering need (three-fourth) cannot afford to satisfy their physical, mental or social needs in an appropriate manner, while 12 per cent is forced by his/her health condition, and 10 per cent by the lack of time to do so. Based in our results we can say that financial position has the strongest impact (Cramer'sV 0.431) on the fact whether someone is forced to renounce of a certain needs or not. The majority (67.4 per cent) of the people facing financial problems regularly cannot fulfill their needs completely, while among the ones who cannot be characterized by instable financial position, the proportion of those who are forced to renounce does not reach 10 per cent. A significant, however, not too strong relationship (Cramer'sV 0.149–0.133) can be identified with the educational level and, by a 1 per cent margin of error, with marital status as well. As the level of education increases so decreases the proportion of the ones suffering need, they are unambiguously underrepresented among the university graduates. At the same time, more than the third of the people with basic schooling, divorcés/divorcées and widows/widowers (37–35 per cent) cannot fulfill their needs on a suitable level.

#### *Emergence and satisfaction of needs of different groups*

Since numerous elements and types of needs are linked to needs on other levels of the hierarchy, or they are manifested as so-called complex needs on several levels,

henceforward we are going to present research results considering needs and their satisfaction principally by the main groups of basic needs, however, taking interconnections into consideration as well.

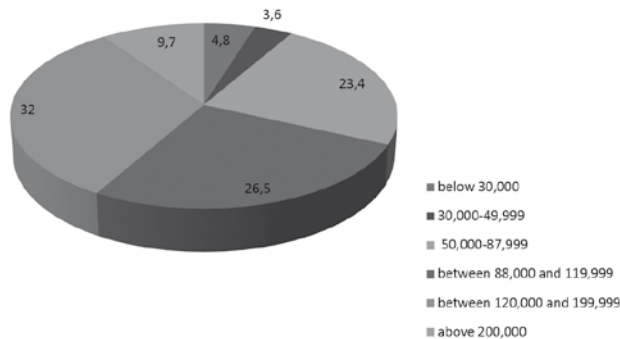
## Physiologic and Safety Needs

*Financial safety: income- savings, investments- obligations, debts*

The satisfaction of numerous basic needs (e.g. food, housing, comfort, obtaining information, pastime-cultural needs etc) is today unimaginable without the possession of financial goods, which were categorized by Maslow as safety needs. They cannot be fulfilled without the “state of being free from – economic - danger or threat“, therefore the description of financial (economic) situation has priority. The factors presented in this subsection (income, savings and debts) stand for the state of being free from any economic threat or they might illustrate the involvement in such situations. Financial position basically determines the individual’s/household’s opportunities to fulfill their needs, the existence of savings increases the feeling of financial safety, while debts may mean a significant risk factor, which could lead to insecurity.

Based on our results, it can be said that in our subjective opinion in one-seventh of the Győr households there is no financial safety at all, however, a further one-fourth of people needs to struggle with financial problems regularly. Subjective assessment of the financial situation can be supported by objective income data as well. Nearly half of the sample (46.2 per cent) answered the question considering their financial situation. As it is shown in Figure 2, only one-tenth of the respondents have higher monthly income, which reaches at least 200,000 HUF, while more than the half (58.2 per cent) live from an income below the average of the sample (118,503 HUF). The group with the lowest income is composed of people, whose income does not reach 30 thousand HUF. Their proportion, along with those who have no income sources at all (2.7 per cent), is approximately 5 per cent, however, another 3.6 per cent is the proportion of those, whose monthly net income is between 30 and 50 thousand HUF. Overall, nearly one-tenth of the respondents have to live from a very low income and this definitely hinders the satisfaction of their basic physiological needs as well. The income of one-third of the respondents does not exceed the minimum subsistence (in 2013 it was 87,510 HUF for adults of working age), which serves as poverty line when determining absolute poverty. Income disparities are enormous, the average income of the persons belonging to the highest deciles (monthly net 268,099 HUF) is more than ten times higher than in the lowest deciles (monthly net 25,840 HUF), which difference is higher than the country-wide difference (in 2012 it was eightfold [Hungarian Central Statistical Office]). This generated further inequalities, since, as we are going to see, the potential satisfaction of the most needs, and the lack suffered – not only in case of physiological, but in case of the other types of needs too - cannot be separated from the financial position.

Figure 2: Distribution of respondents by their monthly net income (HUF), N=1437 ( per cent)



Source: Győr Automotive Industrial District survey – Population survey 2013

Only 47.2 per cent of the respondents had some kind of *savings* (e.g. cash, bank deposit, real estate, securities): a little more than one-fifth (21.5 per cent) had at least one type of saving, more than one-sixth had two types (15.6 per cent), and one-tenth had at least three types of savings.

Based on the results of the survey, it can be said that among university graduates (59 per cent), married people (55.2 per cent), and the ones assessing their financial position as positive (62.7 per cent) the proportion of those with savings is significantly higher, while their proportion is lower among the people with basic schooling (37 per cent), divorcés/divorcées (34.8 per cent), singles (37.7 per cent) and the ones struggling with financial problems (19.7 per cent).

Based on the dominant forms of savings and their proportion we suppose that a large proportion of the people with savings cannot set aside any significant sums. Two-thirds of the respondents (!) were not able to set aside even one forint at the time of the survey (2013), i.e. a group of respondents – one-eighths - had savings from former time periods. The average monthly amount set aside barely exceeds 10 thousand HUF. One-fifth of the respondents had monthly reserves of maximum 20 thousand HUF, and only 3.5 per cent can set aside a sum higher than 50 thousand HUF.

Although, as we have seen, the majority of the Győr households do not have any savings, on the bright side we can say that the majority is not burdened by any debts or credits. One-third of the respondents (31.7 per cent), however, have debts, which increase uncertainty in their lives and which mean significant risk factors. A positive feature, on the other hand, that only 6 per cent is the proportion of those, who are indebted to several institutions (banks, public service providers, local government etc). They are overrepresented among the ones struggling with financial problems (14.6 per cent) and people between 30 and 49 years of age (10 per cent). Indeed, our data show that debts are in significant relationship with the age (Cramer's  $V$  0,219). Among the indebted persons, people belonging to the 30–49 age group are unambiguously overrepresented, while seniors above 60 years of age are underrepresented. Half of the respondent in their thirties and forties - striving for an own house, setting up own life, starting a family - are burdened with some kind of debt, while in the case of the other age groups this proportion varies between 14 and 31 per cent. The most characteristic are debts to banks and other financial institutions, 29 per cent of

the households filling out the questionnaire has some kind of bank loan. Presumably, it is due to the better income conditions in Győr, but debts to public service providers are not really characteristic (2.5 per cent); neither loans/reimbursable grants from the employers or the local government (1.2 per cent, and 3.3 per cent) nor financial assistance from family members and acquaintances (2.5 per cent) are representative.

#### *Satisfaction of Some Basic Physiological Needs*

Based on our results we can say that one-tenth of the respondent can be partially or fully characterized as suffering lack of food, they cannot buy the necessary foodstuffs and their housing conditions are inadequate as well. Nearly one-tenth (8.2 per cent) marked that answer too, that they are regularly forced to borrow money from acquaintances and family members, but for several people (17.2 per cent) paying the utility bills causes also often difficulties. The proportion of those who, even if not frequently, are forced to face these problems is another 15-20 per cent. The dissatisfaction of the above mentioned needs (basic foodstuffs, appropriate housing conditions, paying the bills, financial safety) is getting partially cumulated, i.e. who suffers lack of one, has a high chance to suffer need in other aspects too. The relationship is moderately strong; the strictest correlation was shown by the lack of food and non paying the utility bills (0.651), and these two features are correlated with the need to borrow money (Table 1).

Table 1: Correlation between the satisfaction of some basic needs

	<b>Cannot afford to buy even basic foodstuffs</b>	<b>Regularly forced to borrow money from acquaintances and family members</b>	<b>Paying the utility bills causes regularly problems</b>	<b>No financial problems</b>	<b>Appropriate housing conditions</b>
<b>Cannot afford to buy basic foodstuffs</b>	1	.554	.651	-.311	-.390
<b>Regularly forced to borrow money from acquaintances and family members</b>	.554	1	.578	-.254	-.357
<b>Paying the utility bills causes regularly problems</b>	.651	.578	1	-.426	-.351
<b>No financial problems</b>	-.311	-.254	-.426	1	.289
<b>Appropriate housing conditions</b>	-.390	-.357	-.351	.289	1

Level of significance is lower than 0.01.

Source: Győr Automotive Industrial District survey – Population survey 2013

Based on our findings, it is clear that there are households in Győr, in disadvantageous position, that regularly suffer lack of food, housing and financial safety; their proportion can be around 17.7 per cent. This picture is nuanced by the fact that more than the half of these households, one-tenth of the households in the research, mentioned only the financial aspect, but luckily they did not reach the point where the unfavorable financial position would have lead to deprivation in the satisfaction e.g. of their housing and nutritional needs. However, they are vulnerable, and on the long run their financial problems will end up causing lacks in their basic physiologic needs. *7.5 per cent of all respondents - every 13<sup>th</sup> household- was proved to be multiply disadvantaged, deprived in terms of their basic physiologic and financial safety needs.* In case of the most examined needs there is a significant, however, weak relationship with the educational level, marital status and the district of residence. We did not explore any relationship, which could be evaluated, with either the gender or the age of the respondents. Considering schooling, it can be said that among the people with maximum primary level education the proportion of those who cannot afford to buy basic foodstuffs is twice as high as in the total sample; the proportion of people struggling with paying the utility bills is 2.5 times as high as their representation in the sample. This phenomenon could be explained by the fact that -considering their chances on the labor market and their income - their position is significantly worse than that of the more qualified people. Considering the marital status, divorcés/divorcées and widowers/widows are overrepresented among the people suffering lack.

#### *Stability and Permanence as Needs*

The achievement of permanence, stability and soundness also belong to the safety needs. We attempted to measure the need for this type of safety with statements and questions, which refer to the level of adherence to standard belongings, perception of living in foreign environment and facing of new situations and challenges. Almost three-fourth of the respondents answered that they like stability around themselves, and it is a partially or fully valid statement that they stick to their usual habits and belongings. The majority considered tradition more important than innovation and change (e.g. trying new ideas out, testing new things). Their proportion is significantly higher among the seniors (above 60 years), while it is low among the young people (in the 18-29 and 30-39 age groups). In the light of the high number of the people holding on to their habits it is not surprising, that a determining part of the respondents (42.2 per cent) does not really like it when he/she has to leave his/her comfort zone and has to face new situations and challenges, and they are reluctant to meet innovations. They are in significant majority among the seniors above 70 years and among the people with low level of education. Complete openness to new things is only characteristic for less than one-third (28.6 per cent) of the respondents. They are overrepresented in 18-29 age group and among the university graduates. Besides age and educational level, significant relationship is shown with the level of trust: people, who can be generally characterized as mistrustful (“they do not trust anyone”) are overrepresented among those who do not like new situations.

## Community and Social Needs

To maintain our physical and mental health we need love, understanding, acceptance and social relationships, thus, to our human existence I consider the satisfaction of these types of interpersonal (community and social) needs and the desire to achieve them as crucial as the physiological needs.

### *Love, Support, Relationships of Trust, Communication*<sup>1</sup>

For the majority there is a way to satisfy their need for love, since almost for the total number of respondents it is true that they are surrounded by people who love them. Among the ones reporting on the lack of loving relationships (5.6 per cent), seniors above 70 years of age, people between 30 and 39 years of age, and people who do not live with partners (singles, divorcés/divorcées and widowers/widows) are overrepresented.

A more significant proportion of people suffer from the lack of support: every 6<sup>th</sup>-7<sup>th</sup> (!) respondent considered it to be partially or fully true that they are lonely; every 8<sup>th</sup> respondent confessed not to have any close acquaintances or friends, with whom they could share their problems and on whom they could rely on in case of potential problems. Days go by in the life of 7.7 per cent in a manner that they do not have any contact to others and they do not talk to anyone. These people cannot fulfill their basic social needs. It is mainly the age group of the elderly (above 70 years) who suffer needs in this field. However, people of low education and people, who do not live in family or with partner, are also concerned. The relationship with the marital status and educational level is significant, but weak; however, age does not have any significant explanatory power.

### *Belongingness, Participation in Organizations and Communities*

From the aspect of our belongingness and identity, those communities are also important, which can be found in a clubs, associations – civil society organizations – or other organizations; on the other hand these formal and informal communities provide opportunity for building and maintaining a multifold network of personal relationships, to integrate the individual into the society.

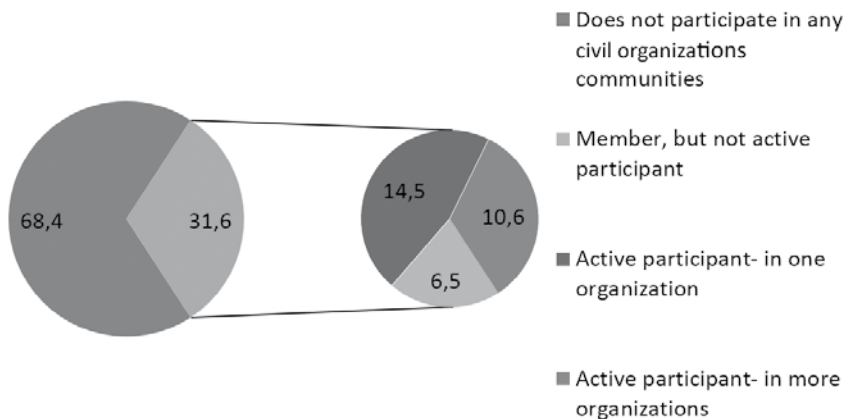
The majority of our respondents are not active considering the participation in different social organizations and communities. Just like in previous researches (pl. Nárai 2008; Nárai – Reisinger 2014), it applies to one-third of the respondents that they participate in such organizations and they belong to formal communities (Figure 3). It is also true; however, that membership in organizations and communities does not always stand for active participation, real activities. Although 6.5 per cent of the

1 The satisfaction and lack of the social needs in this chapter were measured in a four-scale Likert scale: we made the respondents mark how much the given statements on social needs are characteristic/true for them.

respondents (one-fifth of the people who ticked participation in organizations and communities) claim to belong to (one or even more) self-organization initiative(s), but they do not participate in its (their) work (Figure 3). Active participation characterizes only one-fourth of the respondents. These data show well that these types of social bonds are weak; their social integration role cannot prevail in the major part of the population.

Considering the single organization and community types by themselves, the participation rate is maximally 10 per cent in each case, while the proportion of active members approximates 5 per cent. The people of Győr participate mostly in the activities of religions communities (9.9 per cent), informal groups of friends (7.5 per cent), sports clubs, sporting associations (7.0 per cent), professional organizations (6.5 per cent), senior clubs (5.6 per cent), pastime and leisure organizations (5.6 per cent) and trade unions (5.3 per cent). The least common is the participation in the work of national and ethnic associations (1.3 per cent) and political parties and associations (1.9 per cent).

Figure 3: Participation activity in social organizations and communities, N=3026 ( per cent)



Source: Győr Automotive Industrial District survey – Population survey 2013

According to the findings of this research, education and occupation have significant impacts on social engagement; in contrast to other analyses (e.g. Nárai 2008) we did not find any evaluable relationship either with the gender, or with age or marital status. It can be concluded that among the people participating in the work of social organizations and groups the highly qualified people (especially university graduates), thus the intellectual workers and the middle and senior managers are overrepresented. As the level of education increases so augments (to more than double) the proportion of the people engaging in formal and/or informal communities: while less than one-fourth of the unskilled and lower skilled workers (maximally vocational training) show this kind of social activity, among the people with secondary level education this figure is one-third and in case of university graduates it is approximately 50 per cent.



Based on the results of our survey, we can say that for the majority of the people in Győr there is no need to belong to different communities and participate in the activities of different civil society organizations. This is so in spite of the fact that two-thirds of the respondents (68 per cent) considered it partially or fully important that they belong to a group or community. Presumably they meant their family, relatives, friends or perhaps the workplace community, thus, to the fulfillment of this need they do not see perspective in other types of communities e.g. civil society organizations, clubs.

## **The Need of Esteem- Self- Assessment, Respect, Contentedness**

Positive self-image, the need of self-esteem and self-respect are parts of our psychological stability and the integrity of our personality. Furthermore, being accepted and recognized by others is strictly interconnected with our satisfaction with ourselves and the development of our lives. A person who is satisfied by himself/herself, his/her destiny and circumstances is happier, more balanced, his/her self-esteem and self-confidence are higher and the need of self-actualization and community goals and interests might gain ground over meeting the own needs.

### *Self-Esteem, Acceptance*

One-tenth of the respondents do not really care about what others may think about them, one-fourth, however, consider it to be very important. Overall, about nearly three-fourth (72 per cent) of the respondent can be said that they respect the opinions of others and it is important for them how others see them. Thus, the positive esteem of others may also be significant for them. The vast majority of our respondent feel that their acquaintances and colleagues respect them; however, one-tenth suffers a lack in this field. Among the people whose need for the esteem of others is not met the ones struggling with financial problems, people with basic schooling (maximally primary school or vocational training), blue-collar workers, low-level-managers, pensioners, divorcés/divorcées, seniors above 70 years and women are overrepresented. The relationship with the explanatory variables is not significant in each case (e.g. gender, age, marital status)

Considering self-esteem and self-confidence, our results show that a relatively high proportion of our respondents (22.7 per cent, which is more than one-fifth) feel that they are unable to present the “real me”. One-tenth assumes that he/she is not good at anything, while 3.5 per cent have this firm opinion on themselves. Among the unskilled blue collar workers, the people struggling with financial problems, the ones suffering from the lack of support (people who are lonely or do not feel that they are appreciated) the proportion of

people thinking this way is significantly higher. These people's self-perception is damaged; they are weak-spirited and suffer from the lack of self-confidence. This (might) have a negative influence on their success in relationship development, working performance, efficiency and miscellaneous other factors, rendering their situation and self-esteem even worse.

## Need of Self-Actualization- Needs of Higher Level

On the top of the Maslowian hierarchy of needs stands the need of self-actualization, in which the ability of self-expression, creation, the sensation of being useful, the desire for knowledge, the intention to control things around us and esthetic needs (e.g. beauty, harmony, truth, and intellectual goals) are reflected. These needs are already on the level of self-fulfillment, however, they do not serve only the enhancement of personal skills, but they are such "activity needs on higher level" (Farkas 2004, 30), where a person surpasses his/her personal interests and community goals and interests (needs) present themselves: e.g. respect for factors (people, environment) not forming part of their personal life and responsibility for them. People, knowingly striving to voice their opinion and shape their environment, recognize that they are not only responsible for their own lives, but they need to participate effectively in different activities beyond their personal sphere, and they (might) notice that all decisions and acts have impacts on their environment both in broad and narrow sense (Barát 2012). On the other hand, the sensation of dominating our environment might satisfy our need for power, since being aware of the fact that we are able to shape our (and others') destiny and we are able to influence the things around us - not only suffer them -, (might) make a person feel to be in some kind of power position.

On this level of needs we attempted to measure several segments e.g. self-expression, creativity, usefulness, awareness of the local on-goings, importance of expressing opinions, goals beyond personal interest (e.g. actions in the interest of the environment and the community in both broader or narrower sense), intentions to shape the things around us. Many from our statements, which were meant to measure this segment of needs, can be used to measure other segments (groups of needs) as well.

### *Self-Expression, Creativity, Sensation of Being Useful*

The majority of our respondents (77.3 per cent) can be fully or partially characterized by the statement that they prefer to do things by which they can express themselves. Self-expression is mainly successful, since the vast majority (80.3 per cent) of the respondents feels that he/she can really show who he/she really is. Considering creativity, the people in Győr have similarly favorable opinions on themselves: only 3.9 per cent considers himself/herself not to be creative, when nearly the half (45.5 per cent) assume that they are extremely talented and two-thirds (41.2 per cent) see themselves as rather creative.

Helping others can make you feel good and useful. The majority of the people like to share experiences with others, this might be a kind of help too, and still, this is not characteristic

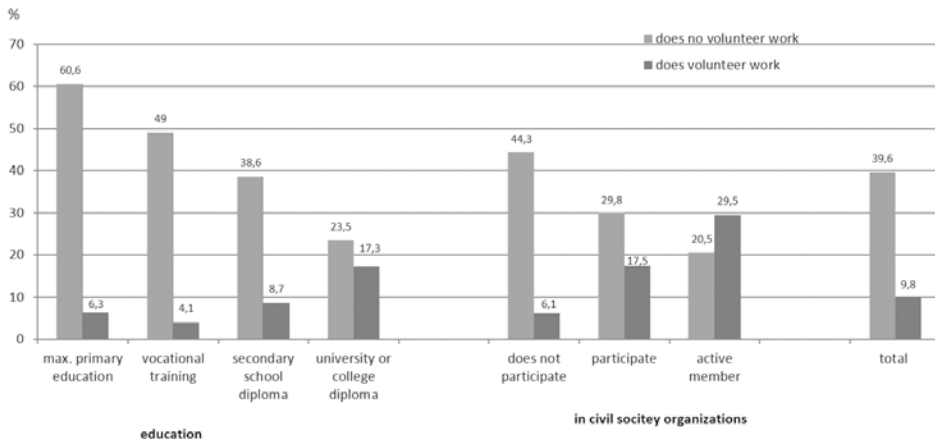
at all or only slightly for one-sixth of our respondents. Those are overrepresented among them who generally distrust others. According to the findings of our survey, our respondents have a positive attitude for helping others: in the subjective opinion of nearly 90 per cent of the people who filled out this section of the questionnaire (N=976) helping others makes them feel happy. But we do not know exactly how many of them do so in real life. We have information on the activities considering volunteer work; this might answer our first question, since one of the most special cases of helping others are voluntary activities. Whoever reaches this level, the importance of social and community values is present in his/her life, even when many are driven by some kind of personal interest (pl. Anheier – Salamon 1999; Czike – Bartal 2004; Czike 2006) when doing voluntary activities. The awareness of usefulness experienced when helping others or doing voluntary and charity work is an important component of our self-esteem, it is a positive and invigorating sensation, which satisfies important spiritual needs (Scitovsky 1990).

One-tenth of our respondents considered the statement “I used to do voluntary work” true, presumably they are the ones, who used to do voluntary work on a relatively regular basis. About a further 25 per cent of the respondents can be said that they have already tried this kind of work out, but mainly in an ad hoc manner, e.g. in the framework of school or workplace programs, at the times of catastrophes, in charity related activities, thus, these activities cannot be considered regular. The majority (66.5 per cent) – not surprisingly – cannot be characterized by these activities at all. There are other researches (pl. Czike 2006; Nárai – Reisinger 2014) whose experiences are in line with our findings.

Based on our results it can be said that among the people in Győr education and occupation (position) have evaluable impacts on voluntary work, but neither the gender, nor marital status or age can serve as explanatory factors. University graduates and intellectuals are overrepresented among the voluntary workers, so are the middle and top managers. Unskilled workers and people with maximum craft certificates are underrepresented. In line with the increase of the educational level increases the proportion of voluntary workers: the proportion of regular volunteers is three or four times higher among university graduates than among people with basic schooling, while the proportion of university graduates not doing volunteer work at all is one third of the respective value of lowly educated people (Figure 4).

It is not only the educational level that has significant impacts on the question whether someone does voluntary work or not, whether he/she is ready to sacrifice time, knowledge, experiences etc, but the other organizational and community activities as well. Similarly to former researches (Czakó et al 2013; Czike 2006; Nárai 2008) our experiences in Győr also support that besides people’s social commitment, volunteering originates in people’s social life: besides family and friendships, workplace and school opportunities and incentives it is in connection with the participation and activity carried out in different civil society organizations and associations. Among the members of organizations and associations the proportion of volunteers is three times as high as among the socially non active people, while in the circle of people living extremely active community life this proportion is nearly five times as high (Figure 4). The majority of volunteers (58 per cent) are composed of the people showing activity in different organizations and associations.

Figure 4: Proportions of volunteers by education and social activity, (N=976) ( per cent)



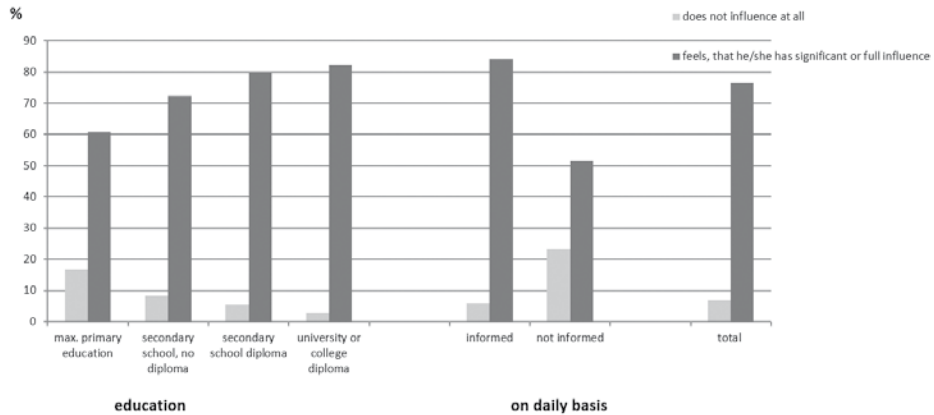
Source: Győr Automotive Industrial District survey – Population survey 2013

#### *Knowledge and understanding – efforts to “rule” and influence our environment*

Active citizenship also implies that the person should be knowingly forming and shaping the life of the local society and community, as well as its ongoings. In order to do so people have to recognize that they ought not to think on personal, but on community level; on the other hand they need to reach a certain level to be able to make use of different forms of participation, facilitating their participation in public matters and development tasks, either in the consultation or the accomplishment phase (Reisinger 2010). The recognition of this fact and the activity confers a certain power to the individuals on influencing their own life, as well as the lives of others, and dominating their broader- narrower environment.

Overall, the majority of the respondents (76.6 per cent) strongly believe that they are the ones, who shape and influence the things around them. Nearly one-tenth of the respondents (7 per cent) feel that they have no influence on the development of the processes surrounding them. Seniors above 70 years (16.2 per cent), unskilled workers (16.8 per cent) and people not well-informed about local affairs (23.5 per cent) were overrepresented among the ones feeling this way (Figure 5).

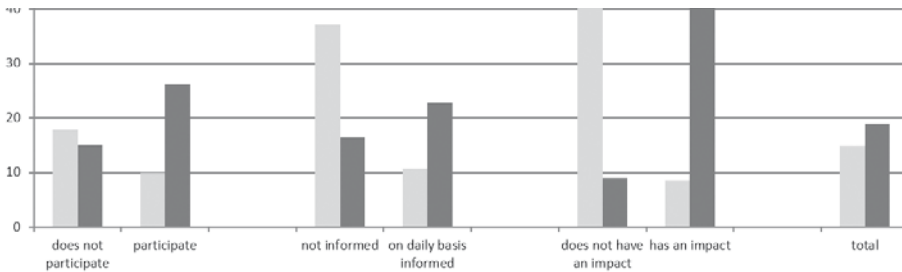
Figure 5: Assessment<sup>x</sup> of the influencing impact on local and social developments by educational level and the level of information on local affairs ( per cent)



<sup>x</sup> „Based on the answers given to the statement: “In my opinion, I shape and influence the ongoings around me”  
Source: Győr Automotive Industrial District survey - Population survey 2013

The major part of those thinking that they are able to influence the ongoings around them are presumably aware of the fact that decisions and actions taken in their personal lives have community and social impacts; however, they most likely do not consider it determining, they underestimate its significance and they do not intend to influence things consciously. The following makes us think this way: it became clear that more than the half (56 per cent) of the respondents feel that they by themselves can only slightly contribute to making the city a better place, and only one-ninth of the respondents assume to be able to do it eminently. On the other hand, the proportion of those is high (44 per cent), for whom voicing their opinion is considered to be not at all or only slightly important. If this latter does not follow, we cannot speak of knowing influence. Unskilled people of basic schooling and seniors (above 60 years) are overrepresented among those, who do not hold the expression of their opinion important at all, while they are underrepresented among the members of the younger generations (age groups 18–29 and 30–39). Besides age and educational level there is a significant and strong correlation with the participation in civil society organizations and communities, the level of information on local affairs, but especially with the opinion on influence (evaluation of the influence impact). The major part of the people who do not feel that they could have influence on the developments around them and they are not well-informed on local questions and affairs do not consider it to be important at all that they could voice their opinion. The proportion of the people thinking this is significantly lower among the informed people and the ones “influencing” their environment (Figure 6). We can conclude that the needs of social activity, leading to active citizenship, are partly interconnected, they reinforce each other and they are interdependent.

Figure 6: Evaluation of the importance of expressing opinion by the other indicators of social activity ( per cent)



Source: Győr Automotive Industrial District survey – Population survey 2013

Based on the results of our survey we can make another very important conclusion: the proportion of the ones not caring about what is going on in their vicinity, who are not well-informed about the local affairs and who feel that they cannot have any influence on the developments, they are only the victims of the circumstances, is a lot higher among the people who suffer lack in their basic needs (e.g. nutrition, housing, financial safety, social relationships) (Table 2). They are rather passive from the aspect of the active citizenship, which forms part of the self-actualization need, and the intentions to master the environment. Although the relations are weak (Cramer'sV 0.1–0.256), they still prevail and they are significant<sup>2</sup>. Dissatisfaction of the basic physiological and social needs hinders not only the satisfaction of the needs on higher levels, but in many cases their emergence and recognition as well.

- 2 Only the importance of the expressing opinion, on which need the lack in basic needs has no significant impact, forms exception. The most significant is the impact in the question whether people are interested in the ongoing in their broad-narrow environment or due to their difficult situation (as well) they focus on their own problems and the survival.

Table 2: Differences in the activity on ruling their environment between people, who do not suffer needs in their basic physiological and social needs and the ones suffering lack ( per cent)

Basic needs	Aspirations for active citizenship and mastering the environment								
	Awareness of local affairs		Interest for local affairs		Assessment of the impact of forming and influencing the environment		Importance of expressing opinion		
	On daily basis	Not at all	Fully applicable	Not at all	Fully applicable	Not at all	Fully applicable	Not at all	
Cannot afford to buy the necessary foodstuffs	Fully applicable	30.0	35.0	35.0	5.0	11.1	22.2	21.1	15.8
	Absolutely not applicable	58.9	8.3	61.3	2.9	31.5	4.4	21.1	14.0
Regularly forced to borrow money	Fully applicable	42.9	28.6	17.9	10.7	11.1	18.5	25.0	25.0
	Absolutely not applicable	58.2	8.3	59.9	3.0	32.1	5.6	20.6	15.1
Paying utility bills is problematic	Fully applicable	31.6	26.3	25.9	5.2	17.2	24.1	20.3	20.3
	Absolutely not applicable	61.2	8.0	61.9	2.9	32.2	5.3	21.4	14.7
Financial problems	Fully applicable	40.3	20.2	45.8	5.3	20.3	22.7	12.1	28.0
	Absolutely not applicable	66.1	8.4	58.8	3.1	41.8	4.0	28.0	13.8
Not adequate housing conditions	Fully applicable	25.0	45.8	37.5	8.2	25.0	16.7	29.2	29.2
	Absolutely not applicable	63.1	6.8	62.3	3.2	34.8	5.5	22.0	19.3
Lack of friendships, relationships of trust	Fully applicable	48.5	24.2	30.3	12.1	21.2	21.2	29.4	41.2
	Absolutely not applicable	60.5	8.2	66.2	2.2	34.7	4.7	21.7	12.9
Loneliness	Fully applicable	33.3	27.8	32.1	7.1	17.0	18.9	18.5	27.8
	Absolutely not applicable	60.6	7.8	65.2	2.4	35.8	5.1	21.6	13.0
<b>Total</b>		<b>56.0</b>	<b>10.0</b>	<b>51.7</b>	<b>3.4</b>	<b>29.0</b>	<b>6.8</b>	<b>18.9</b>	<b>15.5</b>

Source: Győr Automotive Industrial District survey - Population survey 2013

## **General Needs- Satisfying Cultural and Pastime Needs**

In cultural and pastime needs several elements or types of needs (can be) combined, e.g. relaxation, recreation, culture, gaining knowledge, social relationships, but even the desire to enjoy beauty, harmony and estheticism, depending on which goals and motivations are dominant, which ones are emphasized when satisfying cultural and pastime needs. We did not have the opportunity in our questionnaire to approach this group of needs in its complexity, therefore, we attempted to measure the existence of cultural and pastime needs and the attempts to satisfy them by the use/consumption of cultural and pastime institutions and services.

Cultural activities, like going to theater and classical concerts, visiting exhibitions and museums, i.e. the consumption of the so-called high culture is not characteristic for the majority of the people in Győr: in the year preceding the interview, 60.5 per cent was not even once in theater, three-fourth did not visit any museum, and 90 per cent did not even once go to listen to a concerts. The more popular types of pastime activities – like cinema, pop concerts or even sporting events – can be characterized in a similar manner: more than 60 per cent (almost two-thirds) are not used to go to these places. The vast majority of the people (86–93 per cent) do not attend to the events organized by libraries and cultural centers either. Visiting festivals is the most likely, one-fourth of the respondents go every year at least once, while nearly one-fourth (22.8 per cent) visit monthly such events. The favorites are the gastronomic festivals; approximately the third of the respondents (31.5 per cent) visited such an event at least once in the last years. The higher proportion of attendance at festivals is due to the fact that Győr has become a real festival city. Practically, throughout the whole year there are events organized in the framework of a festival. With this in mind, however, the proportion of the participants at festivals does not seem so high any longer, since the majority of the population (52.8 per cent) does not take advantage of these – in several cases free of charge – cultural and/or pastime opportunities.

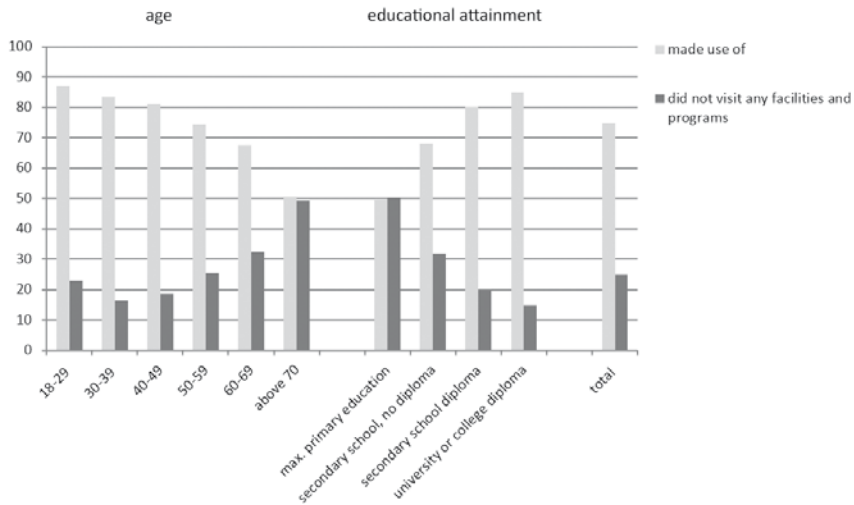
Regular satisfaction of cultural and pastime needs in a form indicated in the survey (at least once in a month goes to the given cultural and/or pastime center, event) is only characteristic for 11-17 per cent of the respondents. The most common activities are sports-related activities and events: one-fifth of the respondents attend regularly to sporting events and approximately one-third (31.1 per cent) do monthly or more frequently active pastime activities (e.g. excursions, doing sports).

We can say, summarizing, that one-fourth of the people in Győr did not make it to any kind of cultural or pastime facility in the year preceding the interview, they did not visit the programs and did not take advantage of the different services provided.

The factors determining cultural and pastime activities the most are the following: level of education, type of employment (position) and age (Figure 7), in some cases marital status might have an influence as well. Gender only influences the attendance at sporting events. It was verified by this research as well that the “use” of pastime and cultural services is lot more characteristic for the better qualified people. They are aware of the fact that there are countless opportunities to fulfill their cultural ad pastime needs and they take advantage of them. They put an emphasis on the more active and substantial satisfaction of their needs of this kind.



Figure 7: Use of cultural and pastime facilities\* by educational level and age (N=3011) ( per cent)



\* Considering all researches cultural and pastime facilities jointly. Made use of: in the years preceding the interview attended at least once to some kind of cultural and/or pastime facility or program.

Source: Győr Automotive Industrial District survey – Population survey 2013

## Summary

We attempted to approach the satisfaction and dissatisfaction of basic human needs in a manifold manner, based on the Maslowian theory of needs; in numerous cases we measured directly the emergence and fulfillment of needs. We managed to seize and describe the emergence and satisfaction of the basic human needs of the people living in Győr. We identified their basic value preferences and our findings made it possible for us to attempt to determine the city's deprivation index (Table 3). It was verified by our research that inequalities are present in prosperous regions, like Győr, as well and in spite of the relative favorable situation there are people suffering lack in their most basic physiological, safety or social-community needs (as well.) As a whole, the *proportion of those who suffer needs regularly, continuously and substantially, i.e. they are deprived on every level of the needs, is around 5-10 per cent*. The results of our research deliver empirical evidence to support the fact that dissatisfaction of basic physiologic, safety and social needs, and the deprivation caused hereby, really hider not only the satisfaction of people's needs on higher levels of the Maslowian hierarchy, but their emergence and recognition as well (e.g. activities on higher level, mastering the environment, expressing opinion).

The multiply disadvantaged people are mainly to find among the people of basic schooling, low income, and higher age. It can be concluded that on the satisfaction and emergence of different needs generally the following factors have significant impacts: educational level, financial status and age; in some cases there is a correlation with marital status and the district of residence as well. Gender is not an explanatory factor.

Table 3: Deprivation index ( per cent)

Features	Percentage of concerned respondents/ households of respondents
Suffers lack in the satisfaction of basic needs	
– total	24.7
– due to financial reasons	19.2
Financial problems (subjective assessment)	13.5 (24.8)*
Net monthly income	
– below the social assistance threshold (28,500 HUF)	4.8
– below 50 thousand HUF	8.4
– below the minimum subsistence level (87,510 HUF)	31.8
Cannot afford to buy basic foodstuffs	2.0 (7.5)*
Paying utility bills is problematic	6.1 (11.5)*
Regularly forced to borrow money	2.9 (5.3)*
No savings	52.8
No adequate housing conditions	2.4 (6.7)*
Does not own any durable consumer goods (see footnote 3)	6.7
Does not own an automatic washing machine	8.2
Does not own a car	38.0
Does not own a computer/laptop	26.4
No internet access	27.6
Was not on holiday throughout the 12 month preceding the interview	52.2
Does not attend to any cultural or pastime facilities	25.0
Lack of vitality – regularly exhausted and tired	12.6 (29.4)*
Suffers from some kind of disease, verified by a doctor	45.3
Lack of social support – no loving people around	1.9 (3.7)*
Lack of social support -loneliness	5.7 (9.9)*
Lack of trust relationships: There are no such acquaintances or friends, with whom he/she could discuss problems, to whom he/she could turn for help	3.4 (8.96)*
Lack of communication – no conversations for days	2.0 (5.7)*
Not member of any civil society organization, community	68.4
Does not trust anybody	4.7 (12.7)*
Lack of appreciation – is not appreciated by acquaintances	2.0 (8.4)*
Lack of self-confidence – does not consider him/herself to be good at anything	3.5 (6.9)*
Not informed on local affairs	10.0 (34.2)*
Cannot influence the ongoings around him/her	6.8 (16.6)*

\* In case of the statements measured in Likert scale, we did not take those in consideration, which meant full deprivation (“Fully applicable/ true” answers), the figures in brackets show the proportion of those who marked the answers “generally applicable/true”. Thus, we do not only provide the minimum number of the people concerned. In our opinion, the presentation of these data represent deprivation in a more authentic manner, since those people suffer lack as well, who are not totally deprived, but who are concerned as well and need to struggle with the given problems.

Source: Győr Automotive Industrial District survey – Population survey 2013

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One of the most spectacular social scientific paradigm shifts of the past two decades is the disappearance of the dominance of national-scale socioeconomic analyses. On the one hand, this process, typical of empirical and analytical studies, was further aggravated by the intensification of globalisation and the increasing influence of the international arena on national economies, which resulted in the prioritisation of international analyses to the detriment of the national level. On the other hand, the increasing role of the local level occurred as the result of the combined effects of several factors, among which, theoretically, the most crucial are the reemergence of regional economics, the recognition of the importance of local knowledge in the production process, the treatment of enterprises, – formerly regarded as entities isolated from their environment – on the basis of local resources and relying on knowledge networks, in their embeddedness in local economy, and the reinforcement of the ideologies of regionalism and federalism. Owing to all these changes, cities and city regions are now more commonly considered as the founding pillars and the engines of global economy.

In harmony with international tendencies, the studies of the present volume provide local-level analyses of Győr, Hungary's most dynamically developing regional metropolis. Since the functioning of the city is not isolated from its environment, the city region appears explicitly in the main part of the research. The analysis of local economy, culture, urban society, local values and traditions, emotions and collective identity constitutes an important part of the research project.