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EDITORIAL

Welcome to another issue of the international, online, peer-reviewed, open-access journal DETUROPE (The Central European Journal of Regional Development and Tourism). This issue compiles selected papers presented at the 15th Annual Meeting of the Hungarian Regional Science Association (HRSA) which was hosted by Széchenyi István University Faculty of Agricultural and Food Sciences in Mosonmagyaróvár, Hungary, on 19 and 20 October 2017. With the overall theme 'The dualities of regional science and studies', the presentations of the meeting offered rich insight into the dichotomies of spatial research.

At the conference, one plenary session in English language and one in Hungarian language was held with the participation of the following plenary speakers:

- *Grzegorz Gorzelak*, Professor at the University of Warsaw;
- *Gunther Maier*, Professor at the Vienna University of Economics and Business;
- *Michael Steiner*, Professor at the University of Graz;
- *Balázs Lengyel*, Research Fellow of the HAS Institute of Economics and Visiting Fellow of MIT;
- *József Nemes Nagy*, Professor at Eötvös Loránd University Department of Regional Science;
- *Ákos Jakobi*, Assistant Professor at Eötvös Loránd University Department of Regional Science;
- *Katalin Mezei*, Associate Professor at Széchenyi István University Faculty of Agricultural and Food Sciences;
- *János Rechnitzer*, Professor at Széchenyi István University, Former President of HRSA.

On the second day of the conference, with almost a hundred presentations, twelve parallel sessions were organised, of which one was held in English language. One-third of the presenters at the HRSA Annual Meeting were offered to submit their manuscripts in the form of journal articles on the basis of the proposals of the session chairs. Altogether 13 papers from 20 authors have been included in this thematic issue providing a brief snapshot of the current directions of spatial research in Hungary.

The range of articles starts with the conference report prepared by *Sándor Zsolt Kovács* and *Szilárd Rácz*, the main organizers of the event. The succeeding papers represent a variety of topics in regional science from policy-related institutional and developmental questions to urban and rural development, as well as climate problems and economic issues.

Balázs Simó, *Tamás Gordos* and *Viktória Józsa* analyse the post-2020 outlook of Hungarian regional development policy from the point of view of the institutional conditions, especially with respect to the regional development professionals. The basic point of the paper is that these actors provide 'hidden' but precious capacities in the preparation process for the

post-2020 period. Next, the article of *László Gere* gives an excellent overview of smart city solutions in the context of urban development. The author introduces its definitions and background, then provides insights into the scientific discourse of the topic and highlights the social development aspects of smart city strategies.

Annamária Uzzoli, *Dániel Szilágyi* and *Attila Bán* address the problem of heat waves in a Hungarian context. They presented that the territorial differences of vulnerability reveal a West-East division of the country, but the centre-periphery relation also plays role, overall, more than forty per cent of the country's territory is severely or extremely vulnerable to the effects of climate change.

The following group of articles is centred around the financial and economic system. The work of *Katalin Döbrönte* investigates the interrelatedness of the location strategies of the advanced producer service firms and the urban hierarchies in the Central European countries based on 36 metropolises. In a similar vein, *Devesh Singh* and *Zoltán Gál* apply empirical methods to analyse the factors behind the location choice in the Indian service and retail sector. Turning towards the analysis of Hungarian economic disparities, first, *Sándor Zsolt Kovács* explored the dualities in the Hungarian banking sector which represent considerable disparities between commercial banks and savings cooperatives, as well as East-West and centre-periphery kind of territorial inequalities. Second, with a methodological focus, a top-down regionalisation approach is presented by *Zsuzsanna Zsibók* with respect to Hungarian long-run, regional-level growth projections. The comparative analysis highlighted that the results point towards increasing regional inequalities and advocate for more policy attention.

The article of *Ozan Kaya* is included in this special issue as a regular paper. The author studies thermal tourism with respect to the food and beverage services, and identifies them as a critical factor in achieving overall hotel satisfaction.

The next two papers take a closer look at Hungarian regional development issues: *István Hoffman* investigates the role of the counties in regional development in Hungary in the light of the past and current administrative reforms and legal changes. *Sára Farkas* studies the impacts of the changes in the financial intermediary system allocating repayable EU cohesion funds, and she concludes that a stronger development banking approach would be needed in order to prevent the increase of regional inequalities.

The final two papers address the broad topic of rural development. The article of *Katalin Mezei*, *Szabolcs Trojján* and *Nóra Lipcseiné Takács* analyses the agricultural strategy of Austria in a comparative perspective. The authors identify the most important factors behind the outstanding relative performance of the Austrian agricultural sector, including the social

perception of agriculture, the product structure, the use of EU resources, and the use of sophisticated tools for rural tourism. Last but not least, rural areas are investigated from the point of view of public transport and social exclusion by *József Pál Lieszkovszky,* which topic is rather under-researched in Central and Eastern Europe. The author examines the overall declining tendency of the demand for public transport and the factors of the possibility of access to cars.

I hope that the articles collected in this special issue give valuable contribution to a broader understanding of the dualities of regional science and studies that seem to prevail in the long run. The Presidency of HRSA herby expresses its gratitude to the Editorial Board of the journal.

Zsuzsanna Zsibók, PhD
Guest Editor

THE DUALITIES OF REGIONAL SCIENCE AND STUDIES – REPORT ON THE 15TH ANNUAL MEETING OF HUNGARIAN REGIONAL SCIENCE ASSOCIATION

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The 15th Annual Meeting of the Hungarian Regional Science Association was hosted by Széchenyi István University Faculty of Agricultural and Food Sciences in Mosonmagyaróvár between 19–20 October 2017. The main theme of the meeting was the polymorphous notion of dualities in spatial research. As usual, the General Meeting of HRSA was held during the first morning. Members became acquainted with the activities of the past year and the realised mid-term programs through the Presidential Report, while the Audit Committee Report highlighted the organisation's continuous financial stability.

Due to the resignation of President *János Rechnitzer* and Vice-President *Imre Lengyel* and the demise of presidential member *Éva G. Fekete*, the general assembly proceeded with the partial re-election of officials, the inauguration of the new President of HRSA, *Zoltán Gál*, senior research fellow of HAS CERS Institute for Regional Studies and professor of University of Kaposvár and its new Vice-President *Attila Varga*, professor of the University of Pécs. The new members of the Presidency include: Tamás Dusek, professor of Széchenyi István University, Balázs Lengyel, senior research fellow at HAS CERS Institute of Economics and György Csomós, professor of the University of Debrecen.

As in previous years, the General Assembly was concluded by book presentations, during which the volume of studies co-edited by Gábor Lux and Gyula Horváth published by Routledge entitled „The Routledge Handbook to Regional Development in Central and Eastern Europe"; the monograph of Gábor Lux published as a part of the Studia Regionum series by Dialóg Campus entitled „Reindustrialisation in Central Europe"; the 14th volume of the Regions of the Carpathian Basin series co-edited by Ferenc Jankó, Attila Fábián and Tamás Hardi entitled Burgenland; and the volume titled „Territorial Capital and its Hungarian

dimensions" under the editorship of Miklós Oláh, Pál Szabó and István Balázs Tóth were presented with the participation of requested contributors, the authors and editors.

Participants at the Plenary Session were greeted by *Éva Szalka*, Dean of Széchenyi István University Faculty of Agricultural and Food Sciences, the Chair of the English-language plenary session was *Zoltán Gál*.

The first lecturer, *Grzegorz Gorzelak*, professor of the University of Warsaw discussed the specific position, successes and failures of Central Europe within the European Union. Through the example of GDP growth, the presenter noted that even on the basis of 2018 estimates, economic growth in Eastern member states post-EU accession and the economic crisis outpaced that observed in the EU18, while Western convergence in countries accessing the EU more recently shows a decreasing trend. The Polish professor highlighted the major risk factors in the Central Eastern European region, namely the negative demographic trends (emigration, ageing), external dependency (fossile fuels, FDI) and the disappearance of low value-added labour. Maverick behaviour is considered as a further risk factor, as demonstrated by the specific attitude of Poland and Hungary towards EU policies.

In his presentation, *Gunther Maier*, professor of the Vienna University of Economics and Business explored an interesting aspect of dualities, namely the evolution of publishing from traditional 'hard copy' journals to Open Access publication forums. In traditional forms of publishing, copyright revenues were transferred from authors to publishers, leading to the rapid multiplication of the number of journals, higher subscription fees and the emergence of an oligopolistic market whose main winners were Springer, Elsevier and John Wiley and Sons with profit rates exceeding 30 percent. Technological development, however, produced cheaper and easier internet access even in laggard or developing continents and countries, creating an opportunity for Open Access. This entailed a significant reduction in publishing fees, since the costs of printing, dissemination and other personal fees were reduced to the charges associated with editing and server services, and the handling of citations and searches was also simplified. There are two main forms of Open Access publishing; „green" and „gold", the former implying that the journal or volume comes out in print, and the author receives distribution rights for its electronic version, while the latter contains only an online version of the scientific work.

Michael Steiner, professor of the University of Graz presented a lecture on the specific problems and prespectives of European regional policy, highlighting the significance of nation-specific responses to the problems of the day. He noted that the dominant trend in Cohesion Policy is that while MSs demonstrate a certain degree of convergence, country-level

regional disparities – economic potential, productivity, revenues – tend to increase. The majority of research examining the efficiency of EU Regional Policy demonstrate positive results to a lesser or a greater extent, nevertheless, one-fourth of these analyses detected a weak or negative impact on growth in the case of EU funds. Remedying this situation requires a new approach: besides fostering stronger ties, particularly in the domain of international cooperation, a shift towards other dimensions (e.g. society, the environment) transcending the mere analysis and consideration of economic factors is strongly encouraged. In the domain of governance, there is a need for a higher degree of decentralisation and a reinforcement of local and regional organisations.

The English-language plenary session was concluded by the presentation of *Balázs Lengyel*, leader of the HAS CERS Institute of Economics, Agglomeration and Social Networks Research Group, who presented his results on the role of social networks in the evolution of agglomeration trends. The population of the globe is increasingly concentrated in metropolises, which, besides generating new problems, is a powerful incentive to economic and technological development due to the presence of agglomeration economies, i.e. the specific benefits related to the concentration of firms in a given sector. According to economic theory, metropolitan environments are more conductive to learning processes between firms and workers than sparsely populated areas. The detection of social networks is fundamental to understanding these learning processes (a source of urban economies), however, we still know very little about networks operating in metropolitan environments.

The Hungarian-language plenary session was presided by *Imre Lengyel,* professor of the University of Szeged. The first lecturer was *József Nemes Nagy,* professor of the Eötvös Loránd University Department of Regional Science. In his lecture entitled *Dualities of the Divided World* he discussed the challenges and tasks of regional science, while profiting from the specific toolkit and results of various scientific disciplines (philosophy, logic, mathematics, psychology, arts). Such complex thinking may facilitate an understanding of the dualities characterising geographical space, regardless of whether they are centered around economic centres and peripheries, poles and axes, global and local approaches. The main foci of the analyses in regional science contain a number of dualities, such as space and society or territorial inequalities and cohesion. The professor concluded his lecture by presenting his empirical results on the dual nature of development in the European Union as well as domestic trends of peripheralisation.

Ákos Jakobi, assistant lecturer at the Eötvös Loránd University Department of Regional Science, began his lecture by presenting the famous „death of geography" thesis related to the

development of information technologies, according to which the development of the internet together with globalisation trends have led to a narrowing of geographical space, enabling firms to manage global-scale production and distribution chains and real-time communication. This led to the proliferation of significant outsourcing destinations across the globe in South-Eastern-Asia, Africa, Latin-America and Central Europe. Nonetheless, man, as a localised being, remains the key element connecting physical and virtual space, which renders untenable the thesis of the disappearance of geographical space. The lecture illustrated the interconnection between virtual space and geographical space on the example of iwiw, the former Hungarian social network, through an absolute and weighted analysis of network-type connections. The conclusion of the results of the analysis presented the duality of physical and virtual space as a core spatial feature of the informational society.

Katalin Mezei, Associate Professor of the Széchenyi István University Faculty of Agricultural and Food Sciences presented dual approaches on the example of the land as a key resource in local economic development. The first such approach concerned land use, whose duality can be grasped along agricultural and non-agricultural usage, however, this classification is currently characterised by a number of diverse typologies. The location of resources, their spatial distribution, natural and market processes exert a powerful impact on territorial development, rendering their evaluation indispensable in a resource-based local economic development model. In the case of land we encounter a new type of duality, namely ecological and economic assessment. While ecological assessment, through qualitative classification, may serve as an instrument of the appropriate organisation and development of production, economic assessment may yield benefits in the realm of funding, market prices and taxation. In the latter case, there is no evidence of a unified international practice, in Hungary the heavily criticised gold crown system is in standard use, which, together with the applied indicators would require a serious re-evaluation.

The plenary session was terminated by the presentation entitled *Dualities of regional science and studies* by *János Rechnitzer*, professor of Széchenyi István University, who summarized the domestic institutions of regional science, devoting special attention to educational-cultural institutions, publishing forums and other civil organisations, as well as introducing the main research directions (spatial theory, spatial policy, social spaces, spatial structure, spatial capital). This was followed by a discussion of the new challenges (the function of the state; the changing dimensions and re-evalution of the role of the space, the post-2020 changes in Cohesion Policy and technological paradigm changes) in regional science ranging from theoretical and methodological research to practical applications and a

re-thinking of the institutional system. The training of a new generation of scientists, increasing visibility, new forms of training, the upgrading of teaching materials and internationalisation are significant factors shaping the future of domestic regional science.

The session was concluded by the ceremony of granting the awards founded by HRSA, including the awarding of the Honorary Certificate for second time to members who, following the Constitution of HRSA, by their outstanding scientific results, exemplary professional and social activities were deemed eligible. The award was granted to Zoltán Andor Végh, retired Director of the Hungarian Central Statistical Office, Szeged Regional Department, former leader of the Southern Great Plain Division of HRSA. The Association announced the call for proposals of the Outstading Young Regionalist Award for the ninth time, which was granted by the HRSA Presidency and Heads of the HRSA Divisions to Zsófia Vas, assistant lecturer of the University of Szeged Faculty of Economics and Business Administration, recognizing her valuable contributions to the progress of regional science.

The second day of the General Meeting of HRSA proceeded by 12 thematic (one English-language) sections. A total number of almost a hundred presentations were delivered in the various sections:

- Theoretical and Methodological Questions of Spatial Analysis (Chair: Tamás Dusek Professor, Széchenyi István University)
- Regional Innovation and Innovation Policy (Chair: Attila Varga Professor, University of Pécs)
- Forms, Tools and Results of Regional Development (Chair: Pál Szabó Associate Professor, Eötvös Loránd University Department of Regional Science)
- Centrum-periphery Relations, Socio-spatial Inequalities (Chair: Attila Korompai Associate Professor (ret.), Corvinus University of Budapest)
- Integration vs. Segregation: Good Practices, Old Innervations in Rural Spaces (Chair: Tibor Szarvák Associate Professor, National University of Public Service)
- Networks in Space – Space in Networks (Chair: János Pénzes Assistant Professor, University of Debrecen)
- Research and Development (Chair: János Rechnitzer Professor, Széchenyi István University)
- Rural and Urban Spaces, Parallels and Oppositions (Chair: János Schwertner President, Academic Society for the Development of the Micro-regions)
- Innovative Community Solutions in Rural Areas (Chair: Frigyes Nagy Retired Minister, Honorary Professor, Széchenyi István University)
- Dualities in Health Inequalities (Chair: Annamária Uzzoli Senior Research Fellow, HAS Institute for Regional Studies)
- Border Studies, Political Geography and Geopolitics (Chair: Tamás Hardi Senior Research Fellow, HAS Institute for Regional Studies)
- Emerging new periphery: Central and Eastern European regions in the multi-speed EU (Chair: Zoltán Gál Professor, Senior Research Fellow, HAS CERS Institute for Regional Studies)

Dualities, polarities are omnipresent, as demonstrated by the thematic structure of the sections extending from centre-periphery relations through inequalities of health to integration and segregation featuring in the presented lectures which are accessible on the website of HRSA: http://www.mrtt.hu/.

Original scientific paper

REGIONAL INSTITUTIONS AT THE DOORSTEP OF POST 2020 COHESION POLICY – STATUS REPORT FROM HUNGARY

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Abstract

'My Region, My Europe, Our Future' (EC, 2017). This is the main message of the Seventh Report on Economic, Social and Territorial Cohesion. In the post 2020 period, the European Commission continues to focus on the compliance with challenges of the knowledge-based economy, and in parallel, stands for a strong territorial approach and increased synergy and coordination of the connected sectoral financial means and measures. The question is if Member States are ready to face the challenges that are specified in the report, such as digital revolution, globalisation, demographic change and social cohesion, economic convergence and climate change. In connection to this basic question, our paper aims to provide an overview about the evolution – rise and fall - of the Hungarian regional level (NUTS2) institutions with a strong emphasis on the state-of-the art, especially regarding administrative capacities. Desk research focused on the era between 1990-2015, while empirical research – in the form of a questionnaire – was conducted in 2017 and 2018 amongst former employees of the former regional development agencies. As there are no institutionalized actors at regional level in Hungary responsible for the implementation of Cohesion Policy any more – with the exception of Central Hungary, that is currently under re-formulation – we hypothesize that former(?) regional development professionals as individuals could play an important role in the preparations for the post-2020 financial period. In case they are involved…

Keywords: Regionalism, Post-2020 cohesion policy, Public administration, Capacity development, Networking

INTRODUCTION

The system change in Hungary, similarly to other CEE countries, brought significant changes in many fields of politics, public law and the economy. The overall political climate was in favor of decentralization and seemed to follow western trends at the beginning. The rapid change regarding the factors of competitiveness, as services became the major driving forces instead of production, also generated the need for structural changes in territorial governance as well. Even though the Local Government Act passed in 1990 created 3000 local municipalities but failed to delegate the necessary resources to secure their proper functioning. Soon it has become obvious that the new law increased the municipalities' vulnerability instead of giving them self-determination (Pálné Kovács, 2007).

Consequently, the territorial midlayer fell under the influence of the line ministries' deconcentrated organs. So even though the restructuring of the territorial governance model was done, the conditions were not set for the long-term functioning (Pálné Kovács, 2015). Certainly, the territorial development institutional system was also affected by these tendencies aiming towards de-concentration.

In the study, we provide a short overview on the theoretical background and the data and methods. Then, the results of the desk research are presented focusing on institutionalization and quantitative indicators from the 2009-2015 period. The empirical survey completed in 2017 and 2018 will provide an in-depth analysis about what has happened to the former employees of the NUTS2 level public administration and will examine whether the concept, principles and methodologies of regionalism and cohesion (regional) policy have survived in Hungary through the professionals as transmitting platforms. Finally, conclusions are drawn for policy makers and practitioners with the aim to exploit these 'hidden' but precious capacities in the preparation process for the post-2020 period.

THEORETICAL BACKGROUND

There are some interesting recent studies available on the effectiveness and impact of Cohesion Policy in the CEE countries, however these studies either focus on the utilisation of EU funds and absorption capacity with a quantitative methodology (Pálmai, 2014), or combine empirical results and statistical data in order to conduct cross-country comparison and identify different patterns and trajectories from the past (Nagyházi, 2015).

Other authors have published works on Central and Eastern Europe about regional dynamics (Palermo and Parolari, 2013), regional development agencies (Halkier et al., 1998), decentralization and transition (Kirchner, 1999) and there are some country-specific essays also for the Czech Republic and Slovak Republic (Nemec & Matejová, 2014), Poland and the Czech Republic (Yoder, 2003), and other works on horizontal partnership and patterns of sub-national governance in Poland, the Czech Republic and Hungary (Dabrowski, 2013), without being exhaustive. When taking a look at Visegrad countries, as a wider geographical scope, we can find different practices for decentralization and regionalization. Slovakia and the Czech Republic are often characterized with a decentralized unitarian model, and Poland with a regionalized one, while Hungary has a unitarian structure (EGTC, 2009). It can be stated that various territorial self-government and regional development systems have emerged in the V4 countries as answers to the requirements of place-specific development of EU Cohesion Policy. According to research results of a study that completed a V4 level

comparison on regional development trends and institutional environment, the Czech Republic could be characterized with a learning process between 2004 and 2006; and a full-scale programme implementation between 2007 and 2013 with an important and growing role of regional self-governments. The territorial differences are the least significant compared to other V4 countries. Slovakia had not implemented ROP in its first cohesion period and has been implementing a single ROP in 2007-2013. Its territorial disparities are among the largest in the V4 group and Eastern Slovakia is still falling back visibly. As regard Poland, in spite of growing regional disparities between 1995 and 2009, recent development processes show relatively stable development disparities apart from a still significant difference between the capital region and the rest of the NUTS II regions (Nagyházi, 2015). It is interesting to point out that while the referred author (using a rather quantitative methodology) recently labelled the Czech Republic and Poland as good examples for consensus-based decentralization processes, Dabrowski (on the basis of empirical research) stated in 2013 that regional programming was undermined by strong central control in these two countries (Dabrowski, 2013). Finally, the regional processes in Hungary from PHARE to Smart Specialisation were also thoroughly analysed and presented in a recent study (Józsa, 2016). The current study is unique in its research focus that examines the potential to exploit the cumulated knowledge, experience and approach of regional development professionals (former colleagues of RDAs) in the implementation of Cohesion Policy during the next programming period, despite the foregoing dissolution of the regional institutional system.

DATA AND METHODS

In order to have an in-depth understanding about the institutional background and the context in which Hungarian agencies have had to perform, a secondary research was conducted about the evolution of the post-socialist Hungarian territorial development. An extensive primary analysis was also done about the most important Hungarian measures and legislative files together with their modifications, which regulated or still regulate territorial development. Nevertheless, in order to have the proper insight to the agencies' portfolio and periodically changing workload, not only data published by national or regional organisations was gathered, but also internal desk research was conducted in case of the agencies' successors and the line ministries, playing a key role in EU fund management. To elaborate the future prospects, the authors relied upon the broad theoretical literature on regional development and knowledge-based economy.

The empirical research was conducted in August-September 2017 in the form of an electronic questionnaire amongst the former employees of the dissolved (6) and the functioning (1, Central Hungary) regional development agencies (RDAs). As a predecessor, a 'regional coordinator' was designated and a prior contact was established, in order to (1) reach as many former colleagues – recently working at numerous and very diverse organisations – as possible, and (2) increase the efficiency of the filling and to enhance the response rate. There have been some regions where specific social media groups are still existing and operating and there were others, where only personal contacts sustained.

As a methodological tool, snowball sampling was applied and we both sent out the e-questionnaire to the private e-mail addresses of the target group and asked the regional coordinator to post the link of the questionnaire on the common group's profile. The sample involved the colleagues ever worked for any regional development agency or council on the basis of either an employment contract or a personal work assignment contract. Based on experts' estimate the whole size of the population (total number of the group) is approximately 1,000 people, so the ratio of the respondents is 10% of the total population (95 received questionnaires) that is relatively high. We do not claim our research as representative, though.

When defining the tool for the empirical research, we took into consideration the characteristics of the sample (young-mid-aged, digitally totally literate, using ICT tools in their everyday work) and we paid special attention to secure anonymity, that was a very important aspect, and in the same time, a crucial expectation from the target group. The questionnaire included several thematic blocks; as sociographic characteristics, experience with RDA, recent employer and work experience, future concept and relation to regionalism. We applied closed and open questions and scales both, and the filling of the questionnaire took about 30 minutes.

Additionally, semi-structured interviews were also carried out in May-July 2018 with professionals having at least 10-year long operative experience at either one of the RDAs or any of the line ministries or governmental organs having fulfilled the Managing Authority role regarding the management of the territorial OPs. These interviews had a focus on defining the added value of the Hungarian RDAs. Questions were raised about the room for manoeuvre given to the agencies within the territorial development system and the policy set by the central government. Targeted conversations were run about the specific features and characteristics of the RDAs to gather information and expert opinions about the differences between the old and the current operative level setup of the territorial development system.

RESULTS AND DISCUSSION

The 90ties: hindering circumstances for regional development agencies' capacity building

In the followings, we present the results of the desk research. In theory, subnational stakeholders could take part in several ways in the fund management pipeline (Bachtler and McMaster, 2007). Although every post-socialist candidate countries' regions were involved to a certain extent in the planning and implementation activities of the Operational Programmes, the territorial institutions were proved to be weak in comparison to the line ministries and governmental organisations of the traditionally centralized countries. It was especially true to the countries without democratically elected assemblies, not having regions with political legitimacy. The lack of regional governments, their fragmentation (Slovenia, Latvia) and inadequate capacities (Czech Republic) also played important role in the abovementioned tendencies. Besides, Blazek and Vozáb (Blazek and Vozáb, 2006) pointed out that these countries were missing those experience, know-how, mechanisms and forums that could have served as a basis for a true dialogue for territorial players. The Hungarian territorial stakeholders were also struggling with these problems.

One major significance of the Act on Territorial Development (1996) was to incorporate the EU's development-statistical layers into the Hungarian legal system. Since there were no strict rules to be applied, the territorial unit that should be defined as a region had become an issue of debate among the parliamentary parties. As a political compromise, the setting up of a NUTS 2 region became an option and not an obligation for the NUTS 3 level counties. County level (NUTS 3) development councils (CDC) had become the corner-stones of the Hungarian regional development system. Not even the regions' exact territories were defined by the first version of the law. This brought unpredictability, while also eroded the regions' identity. Upon that, the Act defined regions as planning and statistical territorial units, that undermined the opportunity for them to become part of a multi-level governance (MLG) system on the long term. With this decision, the Hungarian Parliament created an additional layer in the territorial governance without any executive or legislative power.

Even though the act did not grant democratic legitimacy and executive power to the regions, it empowered the County level (NUTS3) Assemblies to create Regional Development Councils (RDCs). Their tasks were to draft and implement regional development strategies. A majority of the members were delegated by the counties, municipalities and different chambers. At the beginning, the territorial stakeholders outnumbered the centrally delegated ones.

On the other hand, the low representation of the county level indicated from the beginning, that the Hungarian territorial development structure was reorganized in a compact, thematic policy- and not territorially-driven way. The region, in comparison to the other territorial levels, became the weakest one.

Just like the establishment of the regions and the TDCs (territorial development councils), the setting up of the regional development agencies (RDAs) was also optional. The act did not specify well enough their financial background, or their legal and professional requirements. These shortcomings caused significant difficulties in their capacity building (Pálné Kovács, 2003):

- Since the councils were deciding about their size, structure and operative circumstances, they were heterogeneous from qualitative and from quantitative point of view.
- Scarce governmental resources hindered predictability at institutional and employer level as well.
- The financial problems were also hindering the capacity building on such a high extent that in some counties they were fulfilling their tasks as part of the county bureaus.

The major hardship for the institutions was that they had no decision-making power over the state granted decentralized territorial development funds. Until 2001 the allocations were done either by the line ministries or by the counties (Nemzeti Fejlesztési és Gazdasági Minisztérium, 2009, 16. p.).

As a conclusion, it can be stated that the Hungarian governments were not willing to give up their decades-long dominant position when the question of the MLG were raised. Only the accelerating pace of Hungary's EU accession could have brought a slight change. Although the Act on Territorial Development was modified in 1999, and the creation of the RDCs and RDAs became obligatory, the change brought even a more centrally organized territorial development structure. Not only did the centrally delegated members of the RDCs outnumber the territorial ones, but majority vote, instead of the qualified one, was also applied on more issues. Overall it meant that the Hungarian territorial development legislation failed to introduce a well-established decentralized structure, with strong and democratically legitimized regions in its forefront. So, the regions and their organizations were dedicated to fulfill only technical functions (Pálné Kovács, 2016, pp. 76-80.).

Constantly strengthening intermediary body role

Keeping the above described institutional settings in mind, it should not come as a surprise that until Hungary's EU accession, the RDAs' tools could be categorized as traditional ones. They were fulfilling the following tasks:

- coordinative role (mainly planning and project generation);

- administrative tasks related to the distribution of state aids and Pre-Accession Assistance funded grants (mainly the Phare programme).

As decentralized funds for regions granted by the state were doubled between 2003-2006 (Rechnitzer, 2002), and by accessing the EU, Hungary became eligible for approximately 400 million EUR funding from the Regional Operational Programmes (ROPs). Thus, the central government's supervision on RDAs got even stronger. Instead of territorial entities, the National Office for Regional Development, a central government body supervised by the Cabinet of the Prime Minister, was nominated as the Managing Authority (MA) for the ROPs. The RDAs only acted as Intermediary Bodies in the implementation structure, in line with Commission Regulation 438/2001. Their main tasks and responsibilities were the following technical, operative ones:

- dissemination tasks regarding the call for proposals;
- registration of the submitted applications,
- formal and quality assessment of the project proposals;
- advisory desk for the potential beneficiaries in case of project generation;
- preparation of strategic development documents on the regional scale;
- audit activities in case of the implemented projects;
- dissemination exercises in relation of the OPs' achievements.

These tasks were carried out throughout the whole programming period by the close supervision and control of the MA (Miniszterelnöki Hivatal, 2003). The Managing Authority only assessed the performance of the RDAs according to the implementation of the ROPs, since their major income came from the Technical Assistance (TA) budget of the above programmes.

Although they have become substantial part of the EU implementation pipeline, the centralized circumstances were rigid and did not grant them any decision-making power or room for widening the scope of their activities and portfolio. It meant that according to the criteria system set by Halkier and Danson (1996) in the late nineties, the Hungarian RDAs could not have been defined even in the new century as model or potential RDAs:

- Although from the legal point of view they were separate entities but were under the close supervision and control of the central government.
- They were operating by the means of traditional tools. Their consultancy services did not cover assistance in areas such as management, business environment or vocational trainings.
- Never got the task and chance to deal with financial instruments besides the traditional grant schemes.

That doesn't mean that the agencies or their councils would not have had their internal agenda and strategic outlook on how to improve their capacities and widen not only their tools but also the area of expertise and operation. Some RDAs have been active in international cooperation projects (West Transdanubian RDA and North Great Plain RDA), others launched consulting services and spatial planning activities (Pro Régió). Taking the annual work programme for 2004 of the West-Transdanubian Regional Development Council as an example, it clearly states the willingness that the RDAs should cover other tasks than the IB (Intermediary Body) ones:

- strategic planning;
- programme and project generation;
- inter- and intraregional institutional coordination;
- creation and maintenance of international relations;
- economic initiatives such as cluster and industrial site development, cooperation with regional entities in order to foster local innovation.

Only the traditional and conventional tasks regulated in the act would have required much more financial resources for the agency then the amount (EUR 140,000) it received from the state budget in 2004. The low level of state financial subvention clearly indicated the need for the agencies to generate income from other sources than the state budget or the TA (technical assistance) budget of the OPs. Hence this would have had required a clear government policy, with support on capacity building for fulfilling multi-tasking capabilities, and dedication of a strategic role and decision-making power on regional development issues, while providing them with the necessary funding.

However, the tendencies went right to the opposite direction. By having the 2004-2006 EU budgetary period closed, the Hungarian government nominated the state organ National Development Agency (NDA) to be the responsible institution for the harmonization of the regional and line ministerial development policies. It also acted as the MA for the ROPs of 2007-2013.

Above all, as it was written on page 102 of the National Development Plan 'The professional and governmental control over the RDCs' decisions is granted by the government presence in the councils'. The final responsibility for the implementation of the 2007-2013 territorial OPs was laid in the hands of the central government, just like that of the thematic OPs.

On one hand, the hierarchy of the previous programming period was reinforced between the regional and central stakeholders. On the other hand, these decisions pulled the RDCs and the RDAs into a more technical and administrative area in the system of the EU funds'

distribution mechanism (Gordos, 2009). Hence, the above governmental steps guaranteed a comfortable status and financial stability for the agencies in the mid-term. (They managed to make an overall revenue of almost 2.2 million EUR (Baker Tilly Hungary, 2014) between the year 2007 and 2010.) The IB tasks also required additional capacities from the institutional side, in a way that distracted the vast majority of managerial and operative resources. Tab. 1. indicates the rapid growth of the employees from the beginning of the 2007-2013 period while Tab. 2. shows the exponential growth of IB workload in case of the South Transdanubia Operational Programme.

Table 1 Hungarian RDAs personnel (2007-2010)

	2007	**2008**	**2009**	**2010**
Employees of RDAs (in person)	523	710	830	898

Source: data of the Prime Minister's Office

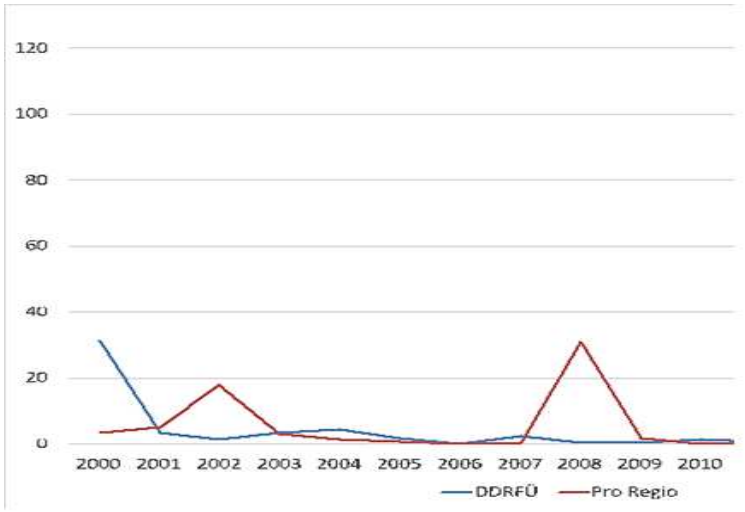
Table 2 The Main Implementation Indicators of The South Great Plain Operational Programme (2009 and 2013)

Task		**2009**	**2013**
Registration/submitted projects (number, applied amount)	number	1 873	3 540
	M EUR	886.8	1 809.72
Granted projects (number, sum)	number	607	1 550
	M EUR	48.49	882.86
Contracted projects (number, sum)	number	466	1 535
	M EUR	240.14	866.07
Payments (number, sum)	number	337	1 426
	M EUR	80.99	644.07
Closed projects (number, sum)	number	0	933
	M EUR	0	481.43

Source: Annual Reports of the South Great Plain Operational Programme, 2009 and 2013

The overwhelming workload and the engaged resources for the IB tasks did not leave room for additional tasks or services. The sources of income had become even more one-sided. Fig. 1 shows two RDAs' (South Transdanubian Regional Development Agency (DDRFÜ) and Central Hungary Regional Development Agency (Pro Regio)) income ratio generated by the business activities compared to the overall revenue. It can be seen how much the IB tasks squeezed out other functions, especially during the periods of rapid growth (2004-2006, 2007-2010).

Figure 1 Income Ratio Generated by The Business Activities Compared to the Overall Revenue of Pro Régió and DDRFÜ 2000-2010



Source: Annual Reports of DDRFÜ and Pro Régió

Further centralization and dismissal

From 2010 the newly entered national government started a general centralization process on state level that also had its effect on the territorial development structure. In 2012 the government took further steps to secure its control over the RDAs and prioritize their IB role by modifying the Act on Territorial Development: the RDCs were dismissed and the RDAs ownership was transferred to the state. By the beginning of 2014, the NDA was also dismissed and the MA role of the ROPs was delegated to the Ministry of National Economy, while certain coordinative roles for the absorption of the EU funds were delegated to the Prime Minister's Office. Having lost many ties for the territorial stakeholders and being controlled by the highest-level organs of the state administration, the RDAs duties were prioritized by the ministries and the absorption rate of the EU funds was among the top of the list. As an illustration Tab. 3 shows that the growth of the income the RDAs received for the IB tasks almost grew six times within seven years (2007-2013).

Table 3 The RDAs income received for their IB role in 2007-2013

							data in EUR
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
IB income	3 471 366	7 785 050	11 368 866	15 795 723	16 308 310	16 746 370	18 839 386

Source: data from the Prime Minister's Office

Although there was no loss of ROP funds due to low absorption rate, the centralization dynamics did not slow down by the end of the previous EU budgetary period: the RDAs Service Level Agreement contracts, that regulated the IB tasks, were not prolonged by the Ministry of National Economy at the end of 2015. Upon that, the Hungarian State Treasury

was nominated as an IB for both territorial development OPs of the new budgetary period (2014-2020). The ownership rights were transferred back to NUTS3 level counties. Lacking the region as a territorial layer (regulatory background) and any financial resources coming from the state, the counties (except for Pest County) decided to dismiss the RDAs and try to build up their own separate capacities for territorial development.

Experience at the RDA

From this point, we present the results of the empirical research based on a questionnaire. Regarding the sociographic characteristics of the respondents, the gender distribution was balanced (females: 51%, males: 49%), while the age distribution was very interesting, as more than 65% of the respondents was born between 1971-1980. More specifically, more than 55% of the respondents was born between 1974-1980. An additional 26% was born between 1981-1990, so it can be concluded that the huge majority of professionals was in its 20s and 30s while being employed at the RDA.

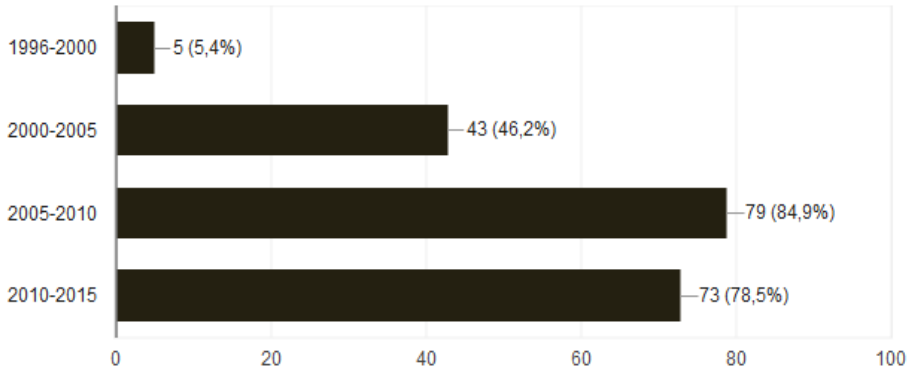
At first, we examined the territorial distribution of the respondents, if they stay at their 'host' region, or if there was a significant brain drain effect towards other regions. It is a positive result from the aspect of territorial cohesion, that most of the professionals could stay and continue their activities in their home region after the fall of the RDAs (78% works in the same settlement/county). Some brain drain effect can be detected towards Budapest and the national level sectoral ministries (6.6%), that is in line with the overall national tendencies in other sectors, and there was also some international migration (2.2%).

As regards the former position at RDA, the majority (61%) of the respondent was a colleague of the Intermediary Bodies (IM), about 6% was working in regional programming and planning and 30% of the respondents was a middle- or strategic manager.

It should be highlighted, that a high proportion (30%) was working as international project manager that underlines the very strong international network and embeddedness of the RDAs.

Most of the respondents were graduates or young professionals, for whom the RDA was the first or second employer. Complementary to age distribution, this fact is also supported by the research result about the period and length of employment at the RDA. More than 82% of the respondents have been working for more than 5 years at the RDA, including more than one-third of the sample working for more than 10 years at the RDA. This result is outstanding in the light of the fact that the 'lifecycle' of the RDAs was 15 years in general, mostly between the second half of the 1990s to 2015. The following graph illustrates well that (Fig. 2) the staff at the RDAs was very stable during their operation period, and a continuous scale-up was typical. It lasted until 2015, when a sudden collapse could be experienced, without prior subsidence or a consciously planned cutback.

Figure 2 Distribution of Respondents based on Employment Period at RDA



Source: own construction based on empirical research, 2018

As reason for exit from the RDA, 65% of the respondents specified the abolition or restructuring of the RDAs, 17% received a better job opportunity and 3% departed to maturity leave. Another 6% defined other causes, for example burn-out, narrowed programming duties, escaping forward, politics, new leadership, or the irreconcilable difference in values. Only 1% specified the establishment of an own consultancy company as the cause of exit.

We aimed to figure out what factors attracted these young, well-educated people to the RDAs as workplaces, and we concluded that the major motivation was the interesting work in connection to the European Union. At the second and third rank, the respondents specified the opportunity to continuous professional development and step forward together with the involvement in decision-making and regional development. The stable, well-predictable income was mentioned only at the fourth place.

Thus, we may conclude that the former RDAs staff was young, committed, strongly motivated, agile, dynamic with a strong responsibility towards shaping the future at regional level. The number and composition of the employees was stable, well until the almost full elimination of the regional institution system (Table 4).

Table 4 Motivations of Respondents for Starting an Employment at RDAs

Main motivation of starting an employment at the RDA	**Ratio (%)**
interesting tasks in connection to the EU	79.6
opportunity to continuous professional development and step forward	57
involvement in decision-making and regional development	57
stable, well-predictable income	37.6
opportunity to use the previously learned foreign language	20.4
networking, other colleagues, friends were working there	20.4
opportunity to travel a lot	11.8
other	2.2

Source: own construction based on empirical research, 2018

“All that the RDA could provide…”

In the next part of the questionnaire we were curious about what exactly these young professionals could have received from the RDAs during their employment period, how did they see their former employers, and if they could recently apply/adapt any of the learned routines or knowledge in their everyday life. At first, we applied a scale from 1-10 (1: very bad, 10: excellent) in order to measure the content of the respondents with the RDAs, whereas more than 92% positioned their years spent at the RDA between 8-10, meaning very good or excellent. It should also be highlighted that there was no value below 5 even from the most critical respondents.

As a second question we aimed to specify the experience, practice and knowledge that the respondents acquired during their years at the RDAs. The most common features (with a minimum 60% of respondents mentioning them) were ‘professional experience’, practice, ‘principles and values connected to EU regional (cohesion) policy’, ‘professional network’ and ‘working culture’. About half of the respondents mentioned the conflict resolution techniques, communication with beneficiaries, theoretical and practical knowledge about strategic programming and the trainings and study tours. Answering one of the basic questions of the empirical research, it can be concluded that the RDAs provided a very diverse knowledge- and skill portfolio to their employees.

Going one step forward and arriving to the present, we analysed whether the previously acquired knowledge has been dissolved with the restructuring of the subnational institutional framework, or if it could survive and was spread over with the transmission of individuals, the former RDA colleagues.

For this purpose, we asked the respondents to specify the knowledge, competences and skills that they acquired at the RDA and still utilise at their current workplaces. Research results provided clear evidence that there is a strong overlapping between the previously acquired and the currently utilised skill and competence portfolio, thus, the components of regionalism and the principles and methods connected to cohesion policy do survive and continue. The range of the organisations currently employing the former RDA colleagues has been significantly widened, and it is not confined to public administration any more. Several beneficiaries, including economic actors, such as large companies and small- and medium-size companies, together with civil sector actors also appeared. One additional aspect occurred in the answers, that was the ‘international approach and mindset’ and openness.

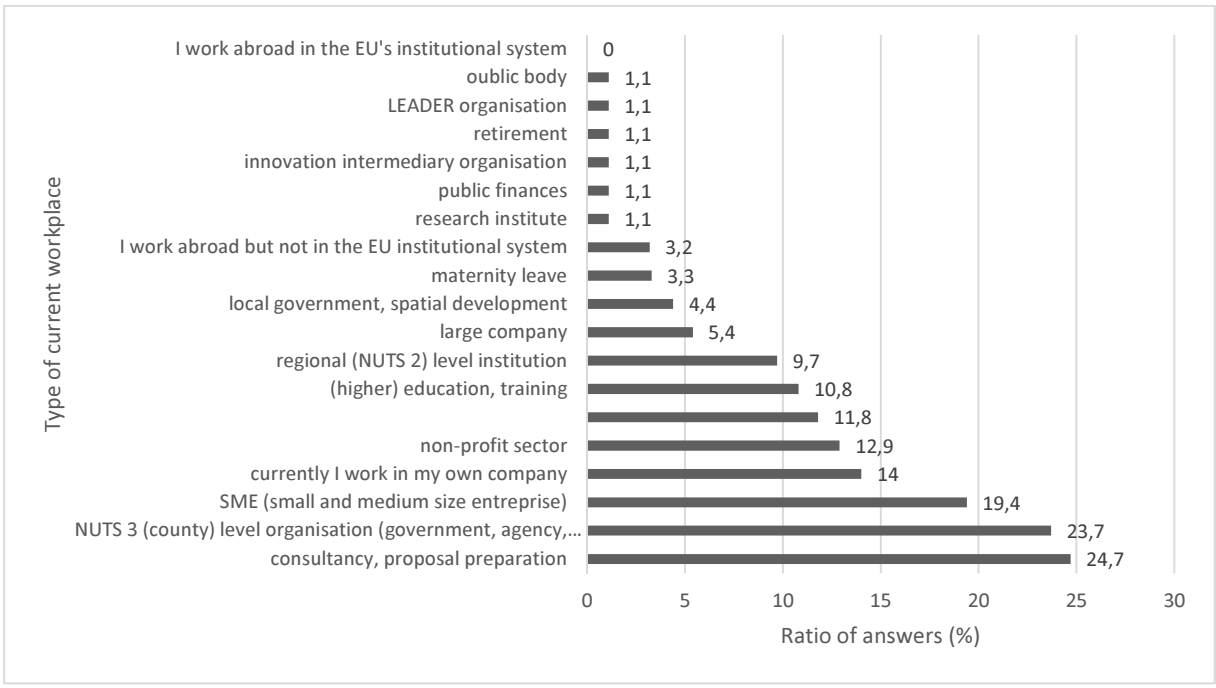
Regarding the first three words that come into the mind of the respondents in connection to the RDAs, the most common answers were: professionalism, teamwork, development and progress, region, partnership, cooperation, decentralisation, fiends, competence, politics and

Europe. It is important to highlight that – with the exception of one or two excessively negative terms – the specified expressions were strongly positive.

'Where are You, Old Friends?'

In the next block of the questionnaire, we examined the current position and workplaces of the former colleagues, if the relocation was hard or smooth, and what are the main differences between the RDA and the current employer. About half of the respondents were 'absorbed' by the consultancy sector (24.7%) and the county (NUTS3) level institutions (23.7%). Adding up to these the national (11.8%) and local (4.4) governments and some regional level institutions (9.7%), we are speaking about 75% of the former RDA employees working still in the field of territorial (regional?) development. Those working in their own companies (14%) or at large enterprises (5.4%) have clearly changed side; they support the beneficiaries of the cohesion policy. A relatively high ratio (10.8%) has transferred to higher education institutions, for which the high number of PhD and MBA degrees formed a sound basis (Fig 3).

Figure 3 The Distribution of Respondents based on Current Workplace



Source: own construction based on empirical research, 2018

Regarding the smoothness of the transition, the up-to-date and highly competitive work experience, competences and professional network clearly advanced the re-positioning. More than half of the respondents (52.2%) found a new job through friends and reference by connections, while about a quarter (24.4%) though advertisements and head-hunters. About 11% answered that they established an own company. If we compare this data with the causes

of exit, we see a tenfold difference. The justification is that while the cause of the exit was not the setting up of an own company, it has become the consequence of it. Thus, these companies could be also considered as 'forced' entrepreneurs. The ratio of the respondents who were relocated to the successors of the RDAs in direct line was only 7.5%.

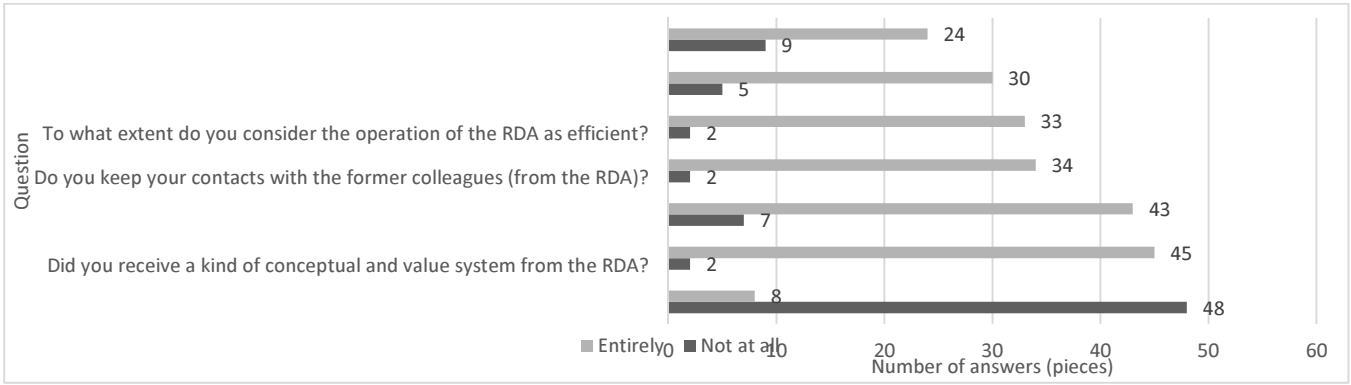
The pace of the transition was also quick, as about 70% of the respondents found a job immediately, 20% within one or two years, and less than 10% is retired or on maternity leave.

When asking the respondents to compare their previous (RDA) and current workplace, 39% answered that there is no significant difference, 37% preferred the RDA and only 15% preferred the current workplace. Some typical answers regarding the specific differences were the transition from the supply to the demand side of cohesion policy; the difficulties of the repositioning and the difference between the former resource-efficient and the current inefficient system; the characteristics of the market- and economic environment with special respect to the international context and the economies of scale; the quality of the workplace and the value-added; the differing territorial level and the current deconcentration versus former relative decentralisation; and the larger freedom and widened competence area that goes along on the other hand with larger personal and financial responsibility.

Future Prospects and Relation to Regionalism

In the last chapter of the questionnaire, we focused on the future prospects of the respondents, and their relationship to regionalism (Fig. 4).

Figure 4 Relationship of the respondents with regionalism



Source: own construction based on empirical research, 2018

It can be summarised that about half of the respondents stated that they received a conceptual platform, and values from the RDA and would happily go back to the RDA if there was a way back. One third of the respondents were influenced by the lessons learned at the RDA when

selecting the new job, and more than a quarter still apply in their everyday routine the concept and values of regionalism and the EU, at their current workplace.

Although more than half of the respondents considered recent processes as not at all pointing to the direction of decentralisation, a significant majority, 83% indicated that they are interested in a social platform where they can contact former RDA colleagues. Almost 60% of the respondents also provided their private e-mail addresses for the purpose that is a very high percentage, with special respect to the sensitivity of the topic. More than 84% considered the research interesting and useful.

Finally, when we asked the respondents to specify the first three word coming into their mind about regionalism, the most commonly mentioned terms were: decentralisation, development, cooperation, local, RDA, partnership, opportunities, EU, subsidiarity, countryside and territory.

CONCLUSIONS TO POST 2020

Recently we are experiencing the debates about the post-2020 financial period, and the challenges of the Cohesion Policy.

One major driving force behind these discussions is the knowledge-based economy, which also shapes the characteristics of the new generation RDAs. The access for information and knowledge has become the driving factor of competitiveness. This tendency is constantly overruling the previous theories in relation to the utilization of the endogenous potential of the different territories (Crevoisier & Jeannerat, 2009). The new challenges of the local and global environment questioned not only the discipline of the territorial development as such, but the RDAs' concepts as well (Cooke & Laurentis, 2010).

In the near future those geographical units will be able to enhance their competitiveness which are not only able to mobilize, but also combine and develop the knowledge gained and internalized from outside. So, the challenge of nowadays is to establish and maintain such institutions that possess the tools. The combinative nature of knowledge-dynamics and innovation require the presence of such institutions which can guarantee cross-sectoral connectivity. RDAs seem a good basis for acquiring new sets of tools because they already have a kind of self-governing and coordinating capability that enables them to autonomously deal with complex problems. Governments and agencies have to play a key role in the establishment and the maintenance of such linkages. Halkier (2012) also highlights the tendency that nowadays the agencies' portfolio related to grant or fund management are shrinking in comparison to the delivery of their institutional and informational resources as a

service. Taking into account what has been mentioned above, it can be concluded that the tendencies are proving the future necessity of well-financed and politically strongly supported territorial development agencies. As a contrary, previous Hungarian governments imposed constant centralization on the development institutional system and are lately dismissing the agencies.

So, it is a main question if the knowledge and competence accumulated in Hungary during the former programming periods, starting from our EU accession in 2004, is wasted away, or if it is efficiently and innovatively exploited by the policy makers. The regional level (NUTS 2) institutional system and public administration formally does not exist anymore in the country, the regionalisation experiment is failed. It is still not clear whether the 19 county level (NUTS3) municipalities and their development companies will be able to fully take over the tasks of former RDAs, and if they could become the driving forces of subnational development in Hungary. Based on the findings of the semi-structured interviews, the majority of the interviewees (especially those still working in the governmental sector) are very sceptical about that. Not only decision-making has become even more centralized, but they see counties as week actors. They describe the IB role of the State Treasury rather as an authority than a mediator with a tutoring attitude towards the applicants and beneficiaries.

According to them, the current institutional setup and hierarchy do not leave enough room for the flexibility that is required for efficient and result-oriented EU fund management. Above all, in parallel with further centralization, the issue of territorial development is not constantly in focus anymore, but follows the cycle of EU programming periods. On the other hand, the concept, values and principles of the EU and Cohesion Policy still exist and survive through the transmission of professionals, the individuals once working at the abolished regional development agencies and councils. Once upon a time, there was a regionalisation attempt in Hungary, we can say.

The real question is if – in the era of digitalisation and networks – institutionalised organisations are the factors that really matter, or if the community of professionals can be strong and socially coherent enough, and the government can be smart enough, to find a mutually beneficial method to collaborate for Our Hungary, Our Europe and Our Future.

REFERENCES

Bachtler, J., & McMaster, I. (2007). EU Cohesion policy and the role of the regions: investigating the influence of Structural Funds in the new member states [Pdf].

Glasgow: The University of Stratchclyde. Retrieved from http://strathprints.strath.ac.uk/7811/ (16.05.2018.)

Baker Tilly Hungária Könyvvizsgáló Kft. (2014). A Nemzeti Fejlesztési Ügynökség és a Közreműködő Szervezetek közötti elszámolások felülvizsgálatának összefoglaló jelentése. [Summary report regarding the audit of the clearing between the National Development Agency and the Intermediary Bodies.]

Blazek, J., & Vozáb, J. (2006). Ex-ante evaluation in the new member states: the case of the Czech Republic. *Regional Studies,* 40(2), 237-248.

Cooke, P., & Laurentis, C. D. (2010). Trends and drivers of knowledge economy. P. Cooke, C. D. Laurentis, C. Collinge, & S. Macneill (Eds.), *Platforms of Innovation: Dynamics of New Industrial Knowledge Flows* (pp. 1-26). London: Edward Elgar.

Crevoisier, O., & Jeannerat, H. (2009). Territorial knowledge dynamics: from the proximity paradigm to multi-location milieus. *European Planning Studies*, 17(8), 1223-1232.

Dabrowski, M. (2013). EU cohesion policy, horizontal partnership and the patterns of sub-national governance: Insights from Central and Eastern Europe. *European Urban and Regional Studies*, 21(4), 364-383.

EGTC (2009). The European Grouping of Territorial Cooperation (EGTC): state of play and prospects [Pdf]. Retrieved from http://cor.europa.eu/en/documentation/studies/Documents/EGTC-state-of-play/EGTC-state_of_play_and_prospects_EN.pdf

Gordos, T. (2009). A területfejlesztés intézményrendszerének és eszközeinek fejlődése és problémái, régiós szemszögből. In: *Falu, Város, Régió* 2009(3), 88-92.

Halkier, H., & Danson, M. (1996). *Regional Development Agencies in Western Europe: A Survey of Key Characteristics and Trends.* Aalborg University: Department of History, International and Social Studies, Aalborg University.

Halkier, H., Danson, M., & Damborg, C. (1998). *Regional Development agencies in Europe* (pp. 13-25). London: Jessica Kingsley Publishers, Regional Policy and Development Series No. 21.

Halkier, H., Danson, M., & Bellini, N. (2012). Regional Development agencies: towards a new generation? In Bellini, N., Danson, N. & Halkier, H. (Eds.), *Regional Development Agencies: The Next Generation?* London: Routledge

Józsa, V. (2016). Regional Processes In Hungary - From Phare To Smart Specialisation, *Deturope – The Central European Journal Of Regional Development And Tourism*, 8(3), 14-32.

Kirchner, E.J. (1999). *Decentralization and Transition in the Visegrad Poland, Hungary, the Czech Republic and Slovakia.* Basingstoke: Macmillan; New York: St. Martin's Press.

Kovács, R. (2007). Helyzetjelentés a Közép-Magyarországi Régióról. [Status Report about the Central-Hungary Region). In T. Kaiser, A. Ágh, & J. Kis-Varga (Eds.), *A régiók Magyarországa I. A regionális intézményrendszer körvonalai* (pp. 157-218). Budapest: MTA Szociológiai Kutatóintézet.

Miniszterelnöki Hivatal (2003). *Ex-ante értékelés – Regionális Fejlesztési Program 2004-2006. [Ex-ante evaluation of the Regional Development Programme 2004-2006]* Budapest: Nemzeti Területfejlesztési Hivatal. Retrieved from www.nefmi.gov.hu/download.php?docID=290

Nagyházi, G. (2015). Regional development trends and the regional development institutions in the Visegrad countries – enabling or hindering institutional environment? *DETUROPE,* 7(2), 28-44.

Nemec, J., & Matejová, L. (2014). Decentralisation and Quality of Governance: Selected Issues from the Czech and Slovak Republic. *BULLETIN OF TARAS SHEVCHENKO*

NATIONAL UNIVERSITY OF KYIV. ECONOMICS, Kyjev: Taras Shevchenko National University of Kyiv. Neuveden, 26-33.

Nemzeti Fejlesztési és Gazdasági Minisztérium (2009). *A hazai területfejlesztési és támogatási rendszer átfogó értékelése (1996-2008). [Comprehensive evaluation of the domestic territorial development system (1996-2008.]* Budapest: NFGM.

Palermo, F., & Parolari, S. (2013). *Regional Dynamics in Central and Eastern Europe, New Approaches to Decentralization.* Leiden, Boston. Martinus Nijhoff Publishers. ISBN: 978-90-04-24231-9 (e-book)

Pálmai, É. (2014). Evaluation of using EU funding sources in the Regional Operative Programmes *DETUROPE*, 6(3), 85-96.

Pálné Kovács, I. (2003). *A területfejlesztés irányítása. [The governance of territorial development.]* Pécs: Pécsi Tudományegyetem Közgazdaság-tudományi Kar, Regionális Politika és Gazdaságtan Doktori Iskola.

Pálné Kovács, I. (2015). *AER Study on the state of regionalism in Europe. Country report on Hungary.* Pécs: Institute for Regional Studies.

Pálné Kovács, I. (2016). A magyar területi közigazgatási reformok főbb állomásai. [Major milestones of the Hungarian public administrative reform.] In I. Pálné Kovács (Ed.), *A magyar decentralizáció kudarca nyomában* (pp. 73-85). Pécs: Dialóg Campus Kiadó.

Rechnitzer, J. (2012). *A területi politika és az új állam. [The territorial policy and the new state.]* MRTT conference, Győr.

Yoder, J. A. (2003). Decentralisation and Regionalisation after Communism: Administrative and Territorial Reform in Poland and the Czech Republic. *Europe Asia Studies,* 55(2), 263-286.

Original scientific paper

AN INTRODUCTION AND CRITICAL ASSESSMENT OF SMART CITY DEVELOPMENTS

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Abstract

The urban development methods in the 21st century focus more and more on the different kinds of IT solutions which are increasingly embedded in the operation of urban functions. Therefore, great attention has to be paid on them during the planning process. The so-called smart city solutions are of key importance from the cities' social-economic development viewpoint, and together with their rapid spread, their scientific analysis is very important as well.

This article deals with the growing importance of cities in the 21st century. Different factors affect this process. The first one is demographic change, the global increase of urban population. The second factor is the technological revolution, which significantly transforms the operation and understanding of our cities. The third one is the increasing economic role as well as the changing governance issues of cities.

After introducing these background factors of the changing urban environment, the article focuses more on the smart city solutions. Firstly, it deals with the differences and uncertainties of its definition as well as the appearance of the related definitions. Secondly, it introduces the scientific discourse of the topic, to illustrate the most important differences, debates and arguments emerging in relation with the smart city developments. The last part of the article highlights the social development aspects of smart city developments, their role in decreasing social inequalities.

Keywords: Urbanization, Urban development, Smart cities, Critical geography, Technology-driven development, Social inequalities

INTRODUCTION

This article deals with the theoretical aspects of the efficiency of 21st century urban development instruments, and especially with the application opportunities of the technological instruments, as well as the methodological issues and aspects that have to be regarded for implementing successful technology-focused developments.

Urban development issues have become increasingly important globally, because of the increasing economic, social, political and geopolitical role of the cities. Many significant factors affect this process, which will be introduced shortly in the following section. The first one is the urban population growth. According to the official statistics, the share of urban population exceeded 50% first time in history at the beginning of the 21st century. For the first

time in human history, more people reside in urban areas than in rural areas, and in the forthcoming decades this increasing trend seems to be continuing. This population growth leads to the growing economic and political significance of the cities as well. Another important factor is the technological boom, the innovations of the latest industrial revolution, which increasingly transform the operation of the cities, the understanding of that operation, and the overall urban management – not to mention the recently emerged, city-related social-economic demands. The growing importance of the urban economic performance as well as the change in urban governance are also among these factors.

After introducing the affecting factors, the article deals with the technological urban development instruments, the so-called smart city solutions in details. It involves the definition uncertainties, appearing in the literature, as well as the introduction of other related concepts. Since smart city developments are implemented through the co-operation of many different areas of expertise, the literature of this topic is very complex and diverse, but in many cases also one-sided. Therefore, the conceptual clarification as well as the underline of the urban development and urban planning point of view is a reasonable aspect to study in relation with this topic.

Following the presentation of the conceptual issues, the article evaluates the technology-based urban development practices. For that purpose, through an introductory literature review, the article would like to illustrate the main questions, arguments and viewpoints of the scientific discourse of smart city developments. Because of the conflicting viewpoints and opinions, this active professional debate also calls the attention for further analysis of this issue.

The final part of the article would like to find an answer to the question how smart city-related instruments and aspects would decrease the social-economic inequalities of urban areas, or at least are aware of the effects of the social factors of smart city solutions. This section underlines the importance of the relation between smart cities and smart citizens, as well as the importance of recognizing that aspect, since the next step of this ongoing research focuses on these issues.

CITIES IN FOCUS

Global demographic, technological, economic and urban management trends

Townsend (2013), while searching for the answer, why now did the application of smart city solutions start to boom, and why now did this area become so important, he finds three

"historical thresholds", and the first is that in 2008 the share of population – first time in history – shifted from mostly rural to mostly urban. Although, cities have always played a significant role in history, definitely not because of their population share. In 1900 only around 13% of the global population resided in urban areas, in 1950 the share of rural and urban population was 2/3 to 1/3. In the following 6-7 decades rapid urbanization has started, and according to the projections, by 2050 the share observed a hundred years ago will have just turned: 66% of the population will reside in urban areas and only 34% will live in urban areas (UN 2015a). All those changes, together with another forecast that by 2050 the number of global population will have reached 10 billion (UN, 2015b), mean that more than 6.5 billion urban residents can be counted instead of the almost four billion today. Since almost 90% of this growth is happening in Asia and Africa (UN, 2018), cities there are facing huge demands regarding basic infrastructure that could be optimized by smart applications.

In the 21st century we are facing significant technological changes which have already begun shaping our lives. It is the so-called fourth industrial revolution, which (similarly to the previous ones) will fundamentally transform our lifestyles, our ways of working and our social relationships as well. According to the expert of this topic, Klaus Schwab (2016), the scale, extent and complexity of this transformation will surpass any of the previous industrial revolutions. In his writing, Schwab also mentions the impacts of the previous industrial revolutions on production: the first industrial revolution used steam power to mechanize production, the second created mass production with electric power, and the third used electronics and information technology to automate production. Now, the fourth industrial revolution, as continuation of the third, will implement the fusion of different technologies through digital revolution, blurring the lines between the physical, digital and biological areas (Schwab, 2016, p. 2).

Technological innovations are increasingly channeling into the cities' everyday life; this process reached a turning point in 2008 according to Townsend (2013), who says that this date designates a turning point for the whole global civilization owing to three factors: the first one, the demographic shift was already mentioned. The second is that in 2008 for the first time the number of wireless internet users exceeded that of those who connected through cable (or to put it in another way, today more people connect to the internet through mobile devices than traditional desk computers). The third factor is that in 2008 the number of internet-connected devices exceeded the number of "connected" people (and the further growth is exponential); in other words, from this date can we speak about the age of the internet of things (IoT).

The technological progress intensifies the already strong economic performance of the cities. Even today, already around 80% of the global GDP is produced by cities (Dobbs et al. 2011, p. 1), and the distribution of the global economy becomes more concentrated. One of the Mckinsey Global Institute's reports (Dobbs et al. 2011) examines the top 600 urban centres by GDP performance, which produce 60% of the global GDP today. The report gives a 15-year forecast, its main results are that the geographical centre of gravity continuously shifts to eastern and southern direction, and by 2025, every third cities from the developed world will drop out of the group, and 136 new cities will join from the developing countries, mostly (100 cities) from China. In addition, the forecast underlines that both the total GDP growth and GDP growth per capita of the top 600 cities will exceed the average global growth. In his book, Khanna (2016) also highlights the economic weight of the cities, for example by mapping the GDP-contribution of the capital cities compared to the national GDP in every country, which illustrates well to which extent can only one city contribute to the economic performance of a given country.

In the 21st century, due to the changing circumstances, the construction and operation of the urban governance has also changed significantly. While the post-WWII period's urban policy systems are described with the term *urban government*, after the political and economic shift of the 1970s, the literature introduced the term *urban governance* (Jelinek-Pósfai 2013, p. 145). The former, the urban government is a closed, hierarchically constructed governance system, with a few and exactly identifiable participants. The latter, the urban governance's main characteristics are the structural economic change, the limited state involvement, as well as the cities' global competition for investments. The decision-making process in this structure is more flexible, multi-stakeholder, and beside the urban municipality's institutional actors, the role of partnership relations beyond the traditional political sphere (Jelinek-Pósfai 2013, p. 145) and the network-like structures (Tosics 2008, p. 5) become more important.

WHAT DOES SMART CITY MEAN?

The antecedents of the term

The smart city concept is one of today's most frequently used buzzwords in urbanism, although its emergence is not even related to the narrowly defined urban development as a profession, and the definition of the term is still unclear.

From a historical perspective, it could be said that smart city is no more than the 21st-century interpretation of the planned (new)towns. In this sense, the antecedents can be originated back in the 19th century, from Ebenezer Howard's (Howard, 1898) Garden City concept, through the French Eugéne Hénard's vision from the early 20th century about "the cities of the future" (Hénard, 1910), to the vision of the also French urban planner, Le Corbusier. Of course, the roots can be originated far back in history, because ultimately, widely interpreted, any kind of utopian urban development concept can be included here, which are practically as old as humanity.

Looking at the emergence of the smart city concept a little bit closer, we can see that it is definitely related to the spread of digitalization and the internet. In this sense, it has antecedents as well, or in many cases it is used parallel to, or as a synonym for other terms. This includes, inter alia, *digital city* or *intelligent city,* that were coined in the 1990s and were used widespread for a long time, as well as many "co-concepts", for instance the *information city*, *innovative city*, *virtual city*, *livable city*, *eco-city*, *green city* and *sustainable city* (Eremia, Toma, & Sanduleac. 2017). These labels are mostly given to the certain cities only to enhance their attractiveness, as well as to make them somehow unique, to help them stand out from the other cities, therefore, complex and hardly understandable terms emerge as well (smart-eco-city, smart-sustainable city), or even those strange labels like „wise city" or „brilliant city" (Lux Research, 2015, cited by Z. Karvalics, 2016).

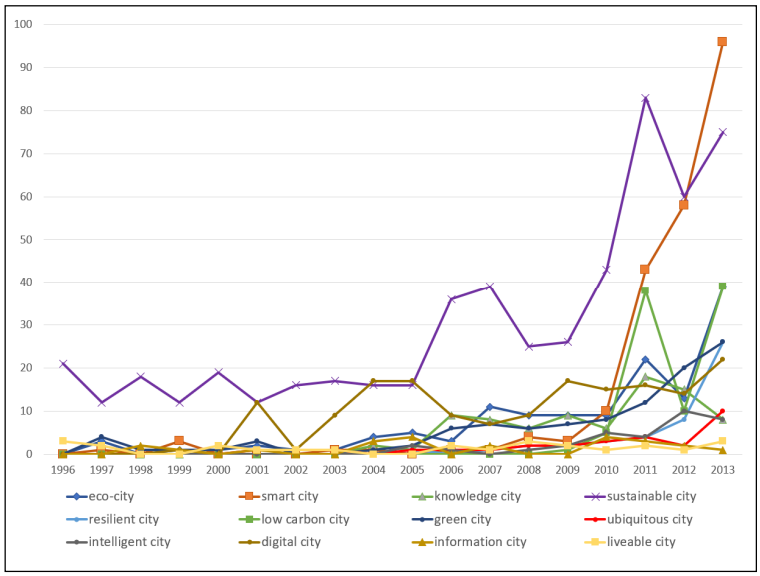
Although the use of the term *smart city* started to spread around a decade ago in the urban development literature (among others), the expression had been coined somewhat earlier (first, not specifically related to cities, but as "smart growth"). According to Harrison and Donnelly (2011), the term started to spread in the late 90s, exactly in relation with a study on smart growth. Then from the middle of the 2000s, many tech-companies (Siemens, 2004, Cisco, 2005, IBM, 2009 etc.) applied the label as a common reference for complex IT systems in urban infrastructure and the operation of public services (Harrison-Donnelly, 2011, p. 2). That time the tech-companies began to create the first divisions dedicated particularly to urban development issues (e.g. IBM Smarter Cities[1], Siemens Smart City[2], Microsoft CityNext[3]).

The popularization of the expression is vividly described by Jong, Joss, Schraven, Zhan, and Weijnen (2015) in the article where they summarized their research on the diversity of

[1] https://www.ibm.com/smarterplanet/us/en/smarter_cities/overview/
[2] http://w3.siemens.com/topics/global/en/sustainable-cities/Documents/smart-cities-en/index.html#/en/home
[3] https://enterprise.microsoft.com/en-us/industries/citynext/

urban labels. There the authors analyzed keywords[4] from the international scientific literature within a particular time period. The results are concluded in this figure below (Fig. 1):

Figure 1 Change in the occurrence of twelve urban "labels" in scientific publications of the Scopus database between 1996 and 2013.



Source: edited by author, data source: Jong et al. (2015)

Although the timeline ends in 2013, the explosive growth of the occurrence of the smart city-related publications is clearly laid out, and by browsing the literature, we can expect this exponential growth to continue.

The difficulties of making a definition

On definition issues, almost every author of this topic points out immediately at the beginning of their articles that there is no unified, standardized smart city definition that would be accepted by everyone (Chourabi et al., 2012; Cavada, Hunt, & Rogers, 2014; Albino, Berardi, & Dangelico, 2015; Calzada, 2016; Z. Karvalics, 2016). There are different reasons for that, but the two most important ones are that on the one hand, we are talking about the combination of tools and systems, therefore, smart city is more like a label, a fuzzy concept, that only helps to avoid having to use complicated circumscriptions (Albino et al. 2015, p. 4). On the other hand, there is a wide range of professionals using this expression, whose

[4] About the methodology: the authors analysed the occurrence of twelve keywords: sustainable city, eco-city, low carbon city, liveable city, green city, smart city, digital city, ubiquitous city, intelligent city, information city, knowledge city, resilient city. From the two large databases, Web of Science and Scopus, the analysis was based on the articles in Scopus, since only that was fully compliant with the timeframe of the analysis (1996–2013). 1430 scientific articles were analysed in total.

viewpoints and aspects may differ significantly, therefore, every area of expertise highlights a little bit their understanding when they are talking about smart city solutions.

Concerning the almost infinite number of definitions, this article chose one that meets the following criteria: it is comprehensive, objective (which means that it is not a definition of any area of expertise, institution or corporation), and it is also known in the Hungarian literature – the author certainly did not want to create a new definition. The standardization and the establishment of an indicator system has already been started to measure and assess the effectiveness of the smart city instruments by the International Standardization Organization[5] (ISO), along with the British Standards Institution, and the article found the latter (BSI, 2014, p. 12.) the fittest to clarify the subject of this writing. According to this definition, the smart city means the "effective integration of physical, digital and human systems in the built environment to deliver a sustainable, prosperous and inclusive future for its citizens".[6]

The building stones of a smart city

Beyond the definition of the smart city concept, one of the most active debates of this issue is the delineation of the development areas, in order to define in which areas the smart city developments can be applied the most effectively. Thus defined exact indicators can measure the "smartness" of the certain cities, they can be comparable and a ranking can be set up among them. Contrary to the diversity of definitions, the so-called "typologies" of subsystems appear unified apart from minor differences. The six main types of smart city developments based on the works of Cohen (2014) are: smart economy, smart environment (including energy issues), smart government, smart living (conditions), smart mobility and smart people[7].

Caragliu et al. (2011, pp. 67–69) summarized the main characteristics of the "ideal" smart cities as well as smart city planning, which has been widely cited in the scientific literature, and often referred to, since its publication:

[5] For more details about the smart city ISO-standards please find the publication of the organization entitled *ISO and Smart City* (ISO, 2017) (http://www.iso.org/sites/worldsmartcity/assets/ISO-and-smart-cities.pdf), as well as the publication of Lechner Knowledge Centre (Lechner Tudásközpont), entitled *Településértékelés és monitoring. Módszertani javaslat (Settlement evaluation and monitoring. Methodological recommendation)* (only in Hungarian language) (Lechner Tudásközpont, 2015) (http://lechnerkozpont.hu/doc/okos-varos/telepulesertekeles-es-monitornig-modszertani-javaslat.pdf)

[6] This definition is also taken by Lechner Knowledge Centre, translated into Hungarian.

[7] This typology is applied also by Lechner Knowledge Centre's Smart City Best Practice Collection (http://okosvaros.lechnerkozpont.hu/en), the EU Smart City Ranking (Giffinger et al. 2007) and the Smart Cities Council Index is also based on this typology.

1. Through its network infrastructure, a smart city can improve its economic and political efficiency and
2. enable the implementation of social-cultural and urban development (in this case the "infrastructure" includes business services, housing, leisure and lifestyle services as well as the ICT infrastructure).
3. There is strong focus on business-led urban developments (Hollands, 2008, p. 308).
4. To achieve equal access to public services for all urban residents is a fundamental objective (social inclusion).
5. The role of high-tech and creative industries in the long-term growth objectives of the cities are decisive (this aspect was a key issue of Richard Florida's [2002] works as well).
6. Great attention is paid to the role of social and relational capital in urban development. The role of continuous learning becomes increasingly important, since urban residents have to be able to use, apply, and in some particular cases, further develop the innovations, to make them really beneficial (UNCTAD, 2016, p. 10). In case this aspect is not given enough emphasis, it will inevitably lead to social polarization. (Therefore, in societies where this social capital is missing, strong emphasis should be laid on its development.)
7. Finally, the last main strategic component of smart cities is the social and environmental sustainability.

THE SMART CITY-RELATED SCIENTIFIC DISCOURSE, A COMPARISON OF DOMINANT VIEWPOINTS

Due to the variety of smart city-related concepts, it is easy to get lost in issues of the exact "parameters" of a smart city or the meaning of a smart city. These issues are addressed in many of the above-cited publications. At the moment – since it is a relatively new phenomenon –, the majority of scientific literature and other smart city-related writings (non-scientific articles, blog posts etc.) are examining this topic in the first place.

Perhaps it stems from this complexity of concepts and interpretations that most publications of this topic, besides definitional issues, deal with the critical analysis of the implementation of a smart city, with the conflicting opinions and viewpoints. This debate is not limited to the academic sphere, because it is a phenomenon that involves everyone as part of this progress; therefore, irrespectively of interests and areas of expertise, everyone becomes

part of the "discourse". The following part of the article tries to systemize these questions and critical remarks and describe them in detail, since taking these aspects into account may serve as a solid background for the preparation of any kind of smart city planning process.

1. Technological utopia vs. technophobia

The first comparison is part of a wider discourse, it is not limited only to the academic sphere, and certainly not just to the smart city instruments, but of course, includes them. In his research, Pintér (2004, pp. 15–30.) presented three different discourses related to the information society that perfectly fit for smart city developments as well; therefore, these three discourses would be presented briefly together.

The subject of the opposing parties' argument is that how the introduction of smart city instruments would impact on the residents' lives. Those who expect utopia through smart city developments, are, on the one hand, tech-companies and smart city-related businesses that are directly involved in (and will have profit from) the widest possible spread of these instruments and solutions (Townsend, 2013). A great number of analyses and estimations have been drafted on the market opportunities of smart city developments. Narrowly counted, it will be a $400 billion market between 2015 and 2020, which can be over $1.5 trillion in the same period (Deloitte, 2014). In addition, the estimations project a further growth after 2020. (The involvement of the tech-companies will be dealt with in detail below.)

On the other hand, to some extent, everybody tends to expect utopia, and in the 21st century, people expect from technology the solution for their challenges. That is what Pintér (2004) writes about as the discourse of futurology-believers (its essence is that based on the technological innovations introduced in the 20th century, the futurology-believers think that in the future, sooner or later, these will offer solutions to all our problems), while introducing the *Athens model*. The Athens model is the paradigm of technophiles, according to which "the technology is liberating and will increase the human well-being, resulted in a new electronic democracy – hence the name of the model: the direct democracy of the Greek city-state 2,500 years ago will make sense again in a new digital agora" (Pintér, 2004, p. 21). The smart city as the next step of human well-being appears also in one of the first smart city studies published in Hungary by the collaboration of HAS Centre for Economic and Regional Studies, West Hungarian Research Department (MTA RKK NYUTI) together with IBM, entitled *„Smart Cities" study* (Lados-Horváthné Dr. Barsi, 2011). In this study, immediately by the definition issues the authors linked *smart city* to *liveable city,* and this approach is

reflected throughout the whole study. It is a common phenomenon that today, concerning any urban paradigms (sustainable, green, eco-, knowledge-, liveable city etc.), they are to some extent about the exploitation of the new opportunities given by technological revolution. And in the broad sense, not only in relation with urban development, but practically, concerning every social-economic process today, according to the experiences with the rapid spread of technological innovation, visions of a better future are more popular than ever[8].

However, besides the belief in the "omnipotence" of technology, there is also some kind of *technophobia*, the reluctance to use technological advances, which might become even more and more intensive. It originates in the fundamental human attitude that most of us fear "from the unknown, the new and from change" (Pintér, 2004, p. 17). This reluctance is not unfounded. Technology raises more and more security issues every day (cyber-security, protection and misuse of personal data etc.), and as technology is increasingly interwoven in city management, operation and monitoring of public services (among others), and more and more automatism is built in, in order to optimize these systems, the vulnerability of them also increases, and there is no guarantee that the control is "in good hands". Pintér (2004, pp. 21–22) refers to that when presenting the *Orwell model* opposite to the *Athens model*, the believers of which claim that the new technology is intended to allow full control, in which humans play only subordinate role.

To reconcile the two extremely opposing viewpoints, Pintér proposes a solution, the so-called *techno-realist approach*, according to which, briefly, "more technology is not equal necessarily to a better, qualitatively improved society" (Pintér, 2004, p. 25); therefore, the solution is on the one hand the citizen's active participation in the innovation process (more details on that issue below), and on the other hand, the more versatile knowledge of the processes (the article hereby would like to contribute to this aim).

2. A quick introduction, or wait and see?

As it was mentioned in the introduction, cities play an increasingly important economic role and their economic performance is intensifying in the 21st century. In addition, the urban residents' consumption exceeds the consumption of those who live in rural areas; therefore, cities mean important markets as well (as always in human history). City management also tends to work like the management of a big company, and cities compete with each other, just

[8] One example for that is Matt Ridley's recently published book, *The Rational Optimist* (Ridley, 2010)

as companies are each other's competitors in the global market. In the operation of a city, cost-effectiveness and innovation are gradually gaining importance.

This discourse, compared to the previous one, has taken one step forward: its starting point (similarly to the author's) is that technological achievements will inevitably make a way for themselves in the cities, this process cannot and should not be restrained. Instead, the question is how this spread could be influenced, controlled or regulated by the cities (according to their own interests). The "pro" viewpoint in this discourse says that the best solution for the cities is to introduce the latest technological achievements as soon as possible so that they can set an example for other cities, and what is even more important, innovations make them more attractive to economic actors. Most of the technology-led new city developments (e.g. Songdo, Masdar City) were driven by that approach, to introduce cutting edge technologies, and thereby stand out from other cities. In the classic models about the diffusion of innovations these actors are the *original innovators* or *early adopters* (Kovács, 2004, p. 54).

On the contrary, the other side of this discourse – the *early* and *late majority* in the diffusion of innovations models (Kovács, 2004, p. 54) – has the position that at the moment cities should rather take time for considering the possible options before making a decision, introducing a certain technology only after proper preparation. The background of this approach is that because in most cases the introduction of new technologies is only a "pilot" phase, after that, those innovations are still revised, improved and developed. Therefore, for cities with limited resources ought to explore international practices, possible solutions, properly assess the local conditions and the exact needs of the residents, together with the expected impacts and results of the development, and only introduce the planned technology after that.

In case of smart city solutions, the continuous development of technology has special importance, there is no ultimate, universal solution (all the more so, because in a city the planning of certain public services has to meet the ever-changing needs, therefore, flexibility is of great importance)[9]. And the certain challenges can be managed differently with the same efficiency, adapted to the local conditions. Furthermore, experience has shown that the

[9] The development of bike-sharing systems serves as a good example for that constant alteration. To store these bicycles, there are basically two models, the docking and the free-floating (you can leave your bike anywhere you want) systems. In Europe, first appeared the docking system, and in Budapest, this model was taken as a basis for planning the city's own bike-sharing service a couple of years ago. Since then, many cities around the world adopted the free-floating model, however, there is still no consensus on which one the optimal solution is. The latter's advantage is its flexibility, users are not limited to docking stations to leave their bicycles - but the argument against it says that in many cities the massive spread and the inappropriate use and storage of these bikes caused chaos in transport, land-use and urban design. (Source: interview with Péter Dalos, product manager of BKK BUBI, 12. 10. 2017)

uncritical adoption and application of uniformed solutions (exactly the same methods and procedures) in different cities is the least effective practice. This is one of the main critical observations against corporate-led developments, that the certain companies tries to apply a universal (or at least, they think it is universal) solution in as many cities as they can (Z. Karvalics, 2017, p. 16). Therefore, the proper preparation and planning, as well as the importance of having further development possibilities is highlighted by many sources (UNCTAD, 2016).

3. The technology-driven vs. city-led/citizen-based smart city developments

Having an extensive literature, this discourse is one of the hot topics in relation with smart city developments, or at least it has been, throughout the first couple of years after the emergence of the concept. The reason certainly is that the corporate sector is far more active in the research (and development) of smart city instruments in line with their profit-orientation, the academic sphere, and it reacts much slower to the processes. But since the advanced co-operation of these two sectors is inevitable for the implementation of proper developments, the discussion already started in the early stages, and there is co-operation between companies and universities as well (e.g. Amsterdam Smart City initiative) (Gere-Czirják, 2016).

However, cities are still quite exposed to corporate interests, so the question arises: is a smart city the 21st-century, high-tech rebirth of Hall and Hubbard's (1996) *entrepreneurial city*, or is it really something more than that (Hollands, 2008)? The definition of smart city always refers to a higher standard of living and the resident's better well-being. However, concerning corporate thinking, they offer solutions to creating a better functioning, better operating city, in many cases absolutely ignoring the residents. Therefore, in the critical discourse, corporate/technology-driven developments always represent the lowest level, the least progressive approach of smart city developments.

Cohen (2015) has established a three-level planning hierarchy to illustrate the differences between the approaches.

The first and lowest level of the hierarchy is *technology-driven development*. In principle, it means that large transnational ICT-companies offer solutions to cities in order to increase their operational efficiency and improve their attractiveness, and the cities adopt them completely (uncritically), basically in order to increase their global competitiveness. On the level of technology-driven developments, companies sell their products, and cities are not yet

fully aware of their actual social effects and their real impact on well-being – the only thing cities know is that they need these solutions. Songdo, South Korea and Masdar City, UAE are among the examples. Both cities are 21st century "new cities" (technically city districts or quarters; Songdo/New Songdo is a new CBD in an existing city, and Masdar City is part of Abu Dhabi). As greenfield investments, they are completely planned, specifically with the purpose of creating cities combining the latest eco-friendly, sustainable, cutting-edge technologies. However, a high standard of living involves high housing costs, and the residents of these cities are rather selected, cannot be considered as "natural composition" in any case; moreover, the whole city works by an inverse logic: people fill in functions that are needed to operate the cities, and not the cities fill in social demands and needs.

In relation to Masdar City, Sassen (2012) wrote that it cannot be regarded as a real place to live at, only a real-time laboratory, where the operation of innovative urban solutions can be examined in lifelike conditions.

Townsend (2013) also writes critically about these kinds of development. His opinion is that the biggest problem of technology-driven futuristic urban visions is that they lose sight of the most important dynamics between the city and its inhabitants.[10]

The second level of Cohen's (2015) hierarchy is *technology enabled, city-led developments*. On this level, the city (led by the mayor and the city representatives) takes the lead in developing its own future, and it decides what role the smart technologies and innovations should play in the operation of the city. The city authority looks at technological innovations as tools for improving the quality of life (it has aims and vision how to use them, beyond their mere introduction). According to Cohen, most of the "leading" smart cities take place on this level (his examples are Barcelona and Rio de Janeiro).

The third and highest level (in this model) is *citizen co-creation*: the new generation of smart city developments. Citizens are actively participating in the development activities, social issues such as affordable housing or gender equality come to the fore. Citizen co-creation is based on equality and social inclusion, everything else is placed behind these principals. The starting point of the whole planning process is completely different as compared to the previous examples. Citizens can contribute to the developments through their ideas or can be involved as investors (for example in the citizen-level exploitation of renewable energy sources). In these cities, sharing-based initiatives are flourishing; however, it does not mean the corporates of platform economy (e.g. Uber or Airbnb) but rather the

[10] A more detailed description of the case of these two cities and their critical assessment can be found in Gere-Czirják (2016).

small-scale initiatives such as neighborhood networks or bike-sharing systems. Examples include Medellín, Colombia besides the cities of the developed world (e.g. Barcelona, Amsterdam, Vienna, Vancouver).

Of course, citizen co-creation contributes to the developments efficiently only in societies that are mature enough for this process. Experience rather suggests that in many cases a citizen's participation is not prepared enough but it is more like a compulsory "task" during a development, and it is either used by NGOs as their tool of resistance (the expression is therefore associated with a negative meaning) or brings so many individual demands and aspects that it will no longer promote but block the given development. Therefore, citizens have to be involved in a coordinated way, in real co-operation with other actors (not as a conflicting group of interest). So far, it is easier to consider in theory than put into practice.

The disadvantages of technology-driven developments are clearly revealed from this hierarchy. Z. Karvalics (2017, pp. 16–20) is even more specific on this issue, as he summarized the problem-groups of the basic orientation of the smart city. Of these, five points are specifically related to the technology-driven developments: centralization-orientation, overrating technology, the – previously discussed – universalism, big city-centeredness, and business-driven approach.

Centralization-orientation refers to top-down developments, which are much more prevalent in relation with smart city developments, strengthening the over-planning and over-regulation. It is a comfortable solution both for corporations and the city management, since their interest is to concentrate as much power in their hands as possible, but it is less desirable for residents, as it strengthens their vulnerability. During a proper smart city development a balance has to be found between top-down and bottom-up approaches (UNCTAD, 2016, Robinson, 2015). *Big city-centeredness* can also be related to centralization-orientation, as it means that companies interested in urban development will be the most active in big cities because of the economies of scale: the smaller a city is, the less it will "worth" to implement developments there. Of course, the demand to introduce smart city solutions is not necessarily related to settlement size; moreover, smart solutions can be applied in villages as well (and there are a lot of examples for rural "smart cities"); however, bottom-up initiatives are much more typical in these settlements.

Besides the ICT-producer and service companies, both the city management and the citizens tend to *overrate technology.* However, the responsibility of companies is bigger in the evolution of this set of problems because they consciously produce the visions, visuals and advertising materials through which they seek to increase the sale of their products and

services, but at the same time often show a one-sided, utopian, unrealistic picture of the real opportunities of smart city instruments for the general (non-professional) audience. As Z. Karvalics writes, "the expectations about technology are not built on their real possibilities but on stereotypes, myths and promises" (Z. Karvalics 2017, p. 16).

Due to the *business-driven approach*, the communal and urban architectural aspects are more subordinate to the large companies and the market interests – claims Z. Karvalics (2017, p. 17). According to Hollands' (2015) argument, the different smart city-interpretations of different actors explain why residential interests are subordinated to corporate interests. Corporate visions imply that everyone will automatically benefit from the urban use of ICT-tools, wealth and well-being will be distributed equally among all. However, it would mean the technological utopia mentioned above, which obviously cannot be realized but covers many social-economic challenges that could be managed only through people-centred, resident-focused initiatives[11]. Robinson (2015) writes that a smart city cannot be left to the market but cities themselves have to shape the market.

4. The importance of social preparedness to introduce smart city tools

The issue of social preparedness, on the one hand, is strongly related to the previous discourse, as its focus was on the comparison of technology-led and citizen-led developments (intentionally speaking less about citizen-led initiatives). On the other hand, it is an independent issue, which is worth paying special attention to. The inequality-raising effect of smart city programmes is a frequently occurring critical remark. In the midst of grand visions and strategic concepts, planners might forget whom they are planning the smart city for. Vanolo (2014) claims that the main problem with smart cities is that they serve only one well-defined group amongst their residents: the well-educated middle class. Far less emphasis is laid on marginalized groups, and that would (especially in the Global South) further increase the inequalities, instead of decreasing them. In addition to that, the observations on the competition between cities have also confirmed that those cities are more successful in the implementation of smart city programmes that have already shown such characteristics (Z. Karvalics, 2017, p. 19). In other words, this means that the already developed will develop faster and the underdeveloped will be lagging behind. Within the traditionally polarized

[11] The realization of one of the most grandiose business-driven smart city vision takes place in India in the framework of the 100 Smart City Mission initiative. More details about its background, and critical assessment in Gere (2017).

societies, the fear of social exclusion increases significantly; among others, the 100 Smart Cities Mission in India is constantly criticized for that by planning experts (Gere, 2017).

The social capital, local know-how and the importance of lifelong learning already appear among the collected components of ideal smart city planning, stressed by many recommendations and guidelines. One of the UN's publications, dealing with smart city infrastructures (UNCTAD, 2016), highlights the existence of proper skills as a special challenge. It points out that implementing a successful smart city development requires proper human resources: "smart citizens" and not just "smart technology". Therefore, during the planning process, first the lack of skills to be supplemented has to be revealed. In education, more emphasis is needed on STEM subjects (Science, Technology, Engineering and Math). Already in primary education, these subjects should be made more attractive because the majority of workplaces will require technical skills in the future. There is a need for multidisciplinary approach in education, and the completion of more flexible, open, online classes and courses should be promoted. In order to train proper workforce, the private sector should co-operate with the public sector; partnership and collaboration is crucial[12].

The same UN publication also draws attention to the threats of social exclusion during the planning process of smart city infrastructures. Many authors dealing with this issue (Pintér, 2004, Cséfalvay, 2017) highlight that there are losers of technological changes, who are not able or simply do not want to apply the latest technology; therefore, they are excluded from the benefits. In our rapidly changing world, this process forms the receivers of innovations into a group that should be managed with high priority, which requires a complex and multidisciplinary approach. Special attention should be paid to not excluding any social classes or groups from the beneficiaries of the developments. For this purpose, participatory governance should be enhanced and citizens should actively be involved in the decision-making process (UNCTAD, 2016, pp. 13–14). Corporate-led developments, in fact, erode this citizen activity, because by offering automated solutions to the problems, self-activity and self-organization decreases, and the spread of community solutions is less active (Robinson, 2015, cited by Z. Karvalics, 2017).

Consequently, it can be concluded that a smart city development can only be implemented successfully under proper technological conditions, advanced ICT-infrastructure and

[12] During the implementation of a smart city project, strong co-operation between the participating actors is important in every phase of the process, as well as the involvement of the citizens as development actors: it is the so-called quadruple helix model, developments through the co-operation of the universities/academic sphere, the industrial players, the government and the civil society/citizens. More about this issue in: Yawson, R. M. (2009), and EU (2016).

technological solutions. The other side, the "users" of smart applications, the urban citizens are just as important players. Further, urban planning could play a decisive role in properly assessing and completely revealing the existing needs of the society, and choose the development instruments in accordance with them.

CONCLUSION

This article aimed to reveal, summarize and evaluate the issues arising in relation with smart city developments. As the first step in this process, it identifies the trends proving why cities are becoming a more important factor than ever in managing the social-economic challenges in the 21st century. It presents the most important demographic, technological, economic and city governance trends that fundamentally shape our cities in the new millennium.

After that, through the broadest possible presentation of the related literature, the article tries to reveal what it exactly means to be a smart city and why it is so complicated to find a definition for this concept. From new towns to other technology-related concepts, it goes over the evolution of the smart city concept, in order to contextualize it and the characteristics of using this paradigm. At the end of this section, the article briefly concludes the different types of smart city developments and some planning aspects.

The second part of the article presents the different mindsets in relation with smart cities through the international and Hungarian literature and reveals the dominant discourses of the issue: the basic attitudes toward smart cities, the possible approaches of the planning actors, the differences of corporate-led and citizen-led developments, and the emphasis of social preparedness. Through these discourses, it tries to illustrate that the views on smart city developments are far from being unified. Although, according to the dominant narrative, these solutions will have positive results in all respects, there are still many doubts about that. Nevertheless, since every participant thinks the final aim should be the achievement of real progress, the debate has a significant role because these developments could become more successful only through learning of as many viewpoints as possible.

REFERENCES

Albino, V., Berardi, U., & Dangelico, R. M. (2015). Smart Cities: Definitions, Dimensions, Performance, and Initiatives. *Journal of Urban Technology*, 22(1), 3–21.

BSI (2014). *BSI Standards Publication: Smart Cities – Vocabulary*. The British Standards Insititution, February 2014.

Calzada, I. (2016). (Un)Plugging Smart Cities with urban transformations: Towards multi-stakeholder city-regional complex urbanity? *URBS. Revista de Estudios Urbanos y*

Ciencias Sociales, 6(2), 25–45. Retrieved from http://www2.ual.es/urbs/index.php/urbs/article/view/calzada

Caragliu, A., Del Bo, C., & Nijkamp, P. (2011). Smart Cities in Europe. *Journal of Urban Technology* 18(2), 65–82. DOI: http://dx.doi.org/10.1080/10630732.2011.601117

Cavada, M., Hunt, D. V. L., & Rogers, C. D. F. (2014). Smart Cities: Contradicting Definitions and Unclear Measures. *World Sustainability Forum 2014 – Conference Proceedings Paper* 1–13. Retrieved from http://liveablecities.org.uk/sites/default/files/outcome_downloads/wsf4_smart_cities_dvlh_mc.pdf

Chourabi, H., Nam, T., Walker, S., Gil-Garcia J. R., Mellouli, S., Nahon, K., …Scholl, H. J. (2012). Understanding Smart Cities: An Integrative Framework. *45th Hawaii International Conference on System Sciences,* 2289–2297.

Cohen, B. (2014). The Smartest Cities In The World 2015: Methodology. [Html] Retrieved from https://www.fastcompany.com/3038818/the-smartest-cities-in-the-world-2015-methodology

Cohen, B. (2015). The 3 Generations Of Smart Cities – Inside the development of the technology driven city. [Html] Retrieved from https://www.fastcompany.com/3047795/the-3-generations-of-smart-cities

Cséfalvay, Z. (2017). *TECHtonic Shifts*. Kairosz Kiadó, Budapest, 2017.

Deloitte (2014). Monitor Deloitte – Smart cities… Not just the sum of its parts. [Pdf] Retrieved from https://www2.deloitte.com/content/dam/Deloitte/xe/Documents/strategy/me_deloitte-monitor_smart-cities.pdf

Dobbs, R., Sven, S., Jaana, R., James, M., Charles, R., & Alejandra, R. (2011). *Urban world: Mapping the economic power of cities.* McKinsey Global Institute.

Eremia, M., Toma, L., & Sanduleac, M. (2017). The Smart City Concept in the 21st Century. *Procedia Engineering,* 181, 12–19. Special Issue: 10th International Conference Interdisciplinarity in Engineering, INTER-ENG 2016, 6-7 October 2016, Tirgu Mures, Romania. DOI: https://doi.org/10.1016/j.proeng.2017.02.357

EU (2016). Using the Quadruple Helix Approach to Accelerate the Transfer of Research and Innovation Results to Regional Growth. [Pdf] European Union, Commitee of the Regions. doi:10.2863/408040. Retrieved from https://cor.europa.eu/en/documentation/studies/Documents/quadruple-helix.pdf

Florida, R. (2002). *Rise of the Creative Class. And How It's Transforming Work, Leisure and Everyday Life.* New York: Basic Books.

Gere, L., & Czirják, R. (2016). Erősítik-e a társadalmi kirekesztést a smart cityk? *Információs Társadalom*, 16(3), 83–100.

Gere, L. (2017). India, a country of change. *PAGEO Geopolitikai Kutatóintézet.* Retrieved from http://www.geopolitika.hu/hu/2017/11/17/india-gazdasagi-es-varosodasi-kihivasai/

Giffinger, R. C., Fertner, H., Kramar, H., Kalasek, R., Pichler-Milanovic, N., & Meijers, E. (2007). Smart cities: Ranking of European medium-sized cities. [Pdf] Retrieved from http://www. smart-cities.eu/download/smart_cities_final_report.pdf

Hall, T., & Hubbard, P. (1996). The entrepreneurial city: new urban politics, new urban geographies? *Progress in Human Geography* 20(2), 153–174. DOI: https://doi.org/10.1177/030913259602000201

Harrison, C., & Donnelly, I. A. (2011). A Theory of Smart Cities. *Proceedings of the 55th Annual Meeting of the ISSS, International Society for the Systems Sciences*, Full Paper, 1–15.

Hénard, E. (1910). *The Cities of the Future.* Royal Institute of British Architects, Town Planning Conference London, 10-15 October 1910, *Transactions* (London: The Royal

Institute of British Architects, 1911, pp. 345-367.) [Html] Retrieved from http://urbanplanning.library.cornell.edu/DOCS/henard.htm

Hollands, R. G. (2008). Will the real Smart City Please Stand Up? Intelligent, Progressive or Entrepreneurial? *City*, 12(3), 303–320. DOI: 10.1080/13604810802479126

Howard, E. (1898). To-morrow: A Peaceful Path to Real Reform. [Pdf] Swan Sonnenschein & Co., Ltd. Paternoster Sqaure, London. Retrieved from https://ia800504.us.archive.org/0/items/tomorrowpeaceful00howa/tomorrowpeaceful00howa.pdf

ISO (2017). ISO and smart cities. International Organization for Standardization. Geneva, Switzerland. [Pdf] Retrieved from http://www.iso.org/sites/worldsmartcity/assets/ISO-and-smart-cities.pdf

Jelinek, C., & Pósfai, Z. (2013). Bevezetés: A városi önkormányzattól a városi kormányzásig. In Jelinek, C., Bodnár, J.. Czirfusz, M., & Z. Gyimesi (Eds.), *Kritikai városkutatás* (pp. 145-154). Budapest: L'Harmattan Kiadó.

Jong, M. de, Joss, S., Schraven, D., Zhan, C., & Weijnen, M. (2015). Sustainable–Smart–Resilient–Low Carbon–Eco–Knowledge Cities; Making sense of a multitude of concepts promoting sustainable urbanization. *Journal of Cleaner Production*, 109, 25–38. DOI: 10.1016/j.jclepro.2015.02.004.

Khanna, P. (2016). *Connectography: Mapping the Future of Global Civilization.* New York: Random House.

Kovács, G. (2004). Innováció, technológiai változás, társadalom: újabb elméleti perspektívák. *Szociológiai Szemle*, 3, 52–78.

Lados, M., & Horváthné Barsi B. (2011). *„Smart cities" tanulmány*. Győr: MTA RKK NYUTI – IBM.

Lux, Research (2015). Cities as Technologies: Using Data and Analytics to Grow From Smart to Brilliant. [Pdf] Retrieved from https://members.luxresearchinc.com/research/report/18361

Pintér, R. (2004). *A magyar információs társadalom fejlődése és fejlettsége a fejlesztők szempontjából.* PhD thesis. Budapest: Eötvös Loránd Tudományegyetem Társadalomtudományi Kar.

Ridley, M. (2010). *The Rational Optimist: How Prosperity Evolves*. HarperCollins Publishers.

Robinson, R. (2015). 6 inconvenient truths about Smart Cities [Html]. Retrieved from https://theurbantechnologist.com/2015/02/15/6-inconvenient-truths-about-smart-cities/

Sassen, S. (2012). *Urbanising technology*. Urban Age Electric City Conference, London 6–7 December 2012, 12–14 [Pdf]. Retrieved from https://files.lsecities.net/files/2012/12/the-electric-city-newspaper.pdf

Schwab, K. (2016). The Fourth Industrial Revolution: What It Means and How to Respond. *Foreign Affairs Special Issue*, 2–11.

Tosics, I. (2008). Nagyvárosi kormányzás: A város és környéke együttműködése. Külföldi példák és a hazai relevancia. *Tér és Társadalom,* 22(1), 3–25.

Townsend, A. M. (2013). *Smart Cities: big data, civic hackers, and the quest for a new utopia*. New York: W. W. Norton & Company, Inc.

UN (2015a). World Urbanization Prospects: The 2014 Revision [Pdf]. United Nations, New York. Retrieved from https://esa.un.org/unpd/wup/Publications/Files/WUP2014-Report.pdf

UN (2015b). World Population Prospects: The 2015 Revision. United Nations, New York.

UN (2018). World Urbanization Prospects: The 2018 Revision [Pdf]. Key facts. United Nations, New York. Retrieved from https://esa.un.org/unpd/wup/Publications/Files/WUP2018-KeyFacts.pdf

UNCTAD (2016). Smart cities and infrastructure. [Pdf] Report of the Secretary-General, United Nations Economic and Social Council, Commission on Science and Technology for Development. Retrieved from https://unctad.org/meetings/en/SessionalDocuments/ecn162016d2_en.pdf

Vanolo, A. (2014). Whose smart city? [Html] Retrieved from https://www.opendemocracy.net/opensecurity/alberto-vanolo/whose-smart-city

Yawson, R. M. (2009). The Ecological System of Innovation: A New Architectural Framework for a Functional Evidence-Based Platform for Science and Innovation Policy. In K. R. E. Huizingh, S. Conn, M. Torkkeli, & I. Bitran (Eds.), *The Future of Innovation. Proceedings of XX ISPIM 2009 Conference, Vienna, Austria*.

Z. Karvalics, L. (2016). Okos városok: a dekonstrukciótól a hiperkonstrukcióig. *Információs Társadalom*, [S.l.], 9–22. DOI: http://dx.doi.org/10.22503/inftars.XVI.2016.3.1.

Z. Karvalics, L. (2017). *Okos városok, kérdő- és felkiáltójelekkel.* iASK – KRAFT könyvek sorozat. Szombathely: Felsőbbfokú Tanulmányok Intézete.

Original scientific paper

CLIMATE VULNERABILITY REGARDING HEAT WAVES – A CASE STUDY IN HUNGARY

A HŐHULLÁMOKKAL ÖSSZEFÜGGÉSBE HOZHATÓ KLÍMASÉRÜLÉKENYSÉG EGY MAGYARORSZÁGI ESETTANULMÁNY PÉLDÁJÁN

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Abstract

One form of climate change vulnerability is the increase in the number, frequency and length of heat waves related to temperature rise. The protection against the health and sanitary risks of heat waves will pose a major challenge at national, regional, as well as local level in the future.
The aim of the study is to present the main results of an assessment of climate change vulnerability conducted in a research project. Through statistical analyses, vulnerability was calculated based on the exposure, sensitivity and adaptive capacity at district level (LAU1), which is a complex information carrier about the vulnerability of population and institutions to heat waves. The territorial differences of vulnerability proved the West-East division of the country, but the centre-periphery relation also plays role in the development of territorial pattern.
Based on statistical examinations it is ascertainable, that, in total, 42.5% of the country's territory, where currently 39.5% of the population live, is severe and extreme vulnerable to the effects of climate change.
The main results of the research can also be used as suggestions for the local decision-making related to the preparation for and adaptation to the health effects and sanitary consequences of heat waves.

Keywords: Climate change, Heat wave, Vulnerability, Health effect, Hungary

Absztrakt

Az éghajlatváltozás okozta sérülékenység egyik formája a hőmérséklet-emelkedéssel összefüggésbe hozható hőhullámok számának, gyakoriságának és hosszának növekedése. A hőhullámok egészségi és egészségügyi kockázataival szembeni védekezés a jövőben jelentős kihívást jelent nemzeti, regionális és lokális szinten egyaránt.
A tanulmány célja egy kutatási projekt keretében elvégzett klímasérülékenység-vizsgálat legfontosabb eredményeinek bemutatása. Járási szinten a kitettség, az érzékenység, az adaptáció alapján definiált sérülékenység komplex módon információhordozó a lakosság és az intézmények hőhullámokkal szembeni sérülékenységéről. A sérülékenység területi különbségei bizonyították az ország nyugat-kelet megosztottságát, de a területi mintázat alakulásában szerepe van a centrum-periféria relációknak is.
A tanulmány három kisebb részből áll. A kutatás során alkalmazott módszertan ismertetése magában foglalja a projekt általános céljainak és feladatainak áttekintését is. A kutatási előzmények leírása

elsősorban a hazai sérülékenységvizsgálatok bemutatására fókuszál. Végül az elemzések eredményeinek áttekintése és összegzése fontosabb következtetések történik meg.
A kutatás fontosabb eredményei javaslatok formájában a hőhullámok egészséghatásaira és egészségügyi következményeire való felkészüléssel és az adaptációval kapcsolatos helyi döntéshozatal számára is felhasználhatóak.

Kulcsszavak: Éghajlatváltozás, Hőhullám, Sérülékenység, Egészséghatás, Magyarország

INTRODUCTION

Numerous studies have already documented that human-induced climate change has increased the frequency and severity of heat waves across the globe in recent decades (e.g. Euroheat, 2017; Trenberth, Meehl, Masters, & Somerville, 2012). It is virtually certain that the length, frequency and intensity of heat waves will increase in the future. A heat wave is generally defined as a period of several days to weeks of abnormally hot weather. Heat waves are associated with decreases in general population well-being and with increases in mortality and morbidity, especially in vulnerable population groups, unless adaptation measures are taken (https://www.eea.europa.eu/; Patz et al., 2007). This increase will lead to a substantial increase in need and use of different health care services. In this case it is necessary to strengthen the preparedness and adaptation in national health care systems as well as national and local social care systems (Klinenberg, 2002).

The number of heat extremes has substantially increased across Europe, but temperature thresholds for health impacts differ according to regions and seasons. Heat waves have caused tens of thousands of premature deaths in Europe since 2000. For instance, in 2003, Europe experienced one of the hottest summer from the second half of the 20th century, and this heatwave event has underscored the need for the development and implementation of public health measures to reduce the health burden associated with extreme high ambient temperatures (Kovats & Kristie, 2006).

The health effects of extreme heat waves regarding climate change with its consequences in health care can also be detected in Hungary. The risk of heat-related illness and mortality exists for the whole population, but there are some vulnerable groups (e.g. elderly or deprived people). Public health measures need to be implemented to prevent heat-related illness and mortality in local community and institutions. The socio-economic consequences can be observed through the changing mechanism of health tourism competitiveness, too (Bozóki, 2015).

The previous Hungarian climate scenarios and assessments of climate change vulnerability identified that on the whole territory of Hungary the frequency of heat wave days will increase by 20 to 70% between 2021 and 2050 based on climate scenarios (Bartholy, Pongrácz, & Torma, 2010; Páldy & Bobvos, 2011). Furthermore, the country's central, Eastern and South-Eastern parts are the most vulnerable regions (Pálvölgyi, 2013).

The aim of this study is to present the most important results of the research project implemented between May 2017 and May 2018 (Uzzoli, 2017). This research focused on the exploration of national public health consequences of climate change, with particular regard to the effects of heat waves on health status and health care system. The study consists of three major structural units. The detailed methodological presentation of the applied assessment of vulnerability is followed by the description of major research history, and finally the evaluation of results contributes to the main conclusions.

The paper is basically dedicated to the possible measuring of the impacts of climate change on socio-economic processes and the review of climate vulnerability assessment regarding Hungarian heat waves.

MATERIALS AND METHODS

A large number of scientific research studies are based on estimating socio-economic impacts of climate change (e.g. Tol 1998; Wolf, 2011). Among them vulnerability is one of the most popular definitions related to climate change (e.g. Pittman, Wittrock, Kulshreshtha, & Wheaton, 2011; Heltberg, Siegel, & Jorgensen, 2009). In the framework of our research, the assessment of climate change vulnerability was implemented at district level (LAU1), by which the territorial differences of vulnerability in Hungary can be interpreted. This study presents the analysis of vulnerability, in the context of exposure, sensitivity and adaptation focusing on comparability (Vincent, 2004; Sullivan, & Meigh, 2005).

The so called CIVAS model (Climate Impact and Vulnerability Assessment Scheme) constituted the theoretical and methodological framework of the assessment (IPCC, 2007). The research further developed the previous experiences of the quantitative climate impact assessment, by which the socio-economic consequence of local climate impacts could be interpreted. Based on the previous research experiences, the territorial impacts of climate change – in connection with heat waves - were defined in the context of exposure, sensitivity, adaptive capacity and vulnerability (Pálvölgyi, Czira, Bartholy, & Pongrácz, 2011).

We used the CIVAS model based on the following methodology, in successive work phases, with the help of mathematical-statistical operations and data-processing techniques:

1) Identification of the level of territorial analysis: we applied the district level (LAU1) according to the administrative territorial division of 1st January 2017 (174 districts + 23 capital districts). The districts of Budapest were merged, and the capital was treated as one territorial unit, because meteorological parameter (daily mean temperature) was not fully available at capital district level in the used climate database.
2) Identification of the relevant climate change risk factors at district (LAU1) level: during this process we defined the public health risks of summer heat waves, which may generate the climate vulnerability of districts in a complex way – in the context of nature, as well as social and economic processes.
3) Definition of exposure: it means the interpretation of climate change based on long time series data obtained from the given climate model (CarpatClim) in the particular geographical location (district).
4) Definition of sensitivity: it means the weather-dependent behaviour of the affected (e.g. human health).
5) Definition of adaptive capacity: it denotes the quantity and quality of responses to the health effects and sanitary consequences of heat waves at district (LAU1) level, it was defined by socio-economic indicators typical of the examined issue.
6) Definition of vulnerability: a complex indicator, integrating exposure, climate sensitivity and adaptive capacity, which considers the expected health effects and sanitary consequences of the heat waves at local level.
7) The evaluation of territorial differences of vulnerability at district (LAU1) level: besides comparative analysis, visualisation of the measurement results (map representation) allowed the delimitation of most vulnerable districts to climate change related heat waves.

Meteorological data for the measurement of exposure originated from the high-resolution CarpatClim database applying to the Carpathian Basin region, which database provides long-term climate data series for the territory of Carpathian region (http://www.carpatclim-eu.org/pages/home/). The research processed daily mean temperature data between 1971 and 2010, and data is available for 1104 grid points covering Hungary (based on a 10 km x 10 km grid). The assessment of the examined problem, the health and medical risks of heat waves, was concluded between 1st May and 30th September, because the heat-effect on the human body is the most effective during this period in comparison with the other months of the year,

and the resulting complaints and illnesses may increase the use of health care. Exposure was ultimately measured with the number of heat days, which denotes the days when the daily mean temperature is greater than or equal to 25 °C.

The daily mean temperature data available for 1104 grid points from the CarpatClim database were assigned to the districts (LAU1): on the one hand we took the grid points situated in territory of the district as a basis, on the other hand we calculated the arithmetical mean of the meteorological data corresponding to these points, thus obtaining the daily mean temperature value for a given day in a particular region.

Sensitivity was determined using a total of 20 socio-economic indicators (Tab. 1.). In their selection we partly considered and also partly developed the previous professional literature (Farkas, Hoyk, & Rakonczai, 2017; Pálvölgyi, Czira, Dobozi, Rideg, & Schneller, 2010), and we also selected indicators providing information on the effects of climate change-related heat waves on human health and on institutional functioning of healthcare at district (LAU1) level. The calculation of the complex indicator of sensitivity was based on indicators with different units of measurement, and we aggregated these indicators using the method of normalization.

The adaptive capacity depends to a significant extent on the individual protection opportunities (e.g. summer travelling, installation of air conditioner, moving out from the city), which are strongly related to the socio-economic development of the given area and the life quality of the local population. On this basis, the definition of adaptive capacity was built on the use of two complex indicators. On the one hand, development was identified with the application of the complex indicator, used in the government decree nr. 290 of November 26, 2014 on the classification of beneficiary districts and measuring the socio-economic and infrastructural development of districts (LAU1). This complex indicator consists of a total of 24 statistical indicators. On the other hand, quality of life was identified with the Human Development Index, which was calculated based on the average life expectancy at birth, the proportion of people with the lowest and highest education level, and the personal income tax base income per resident (UNDP, 2010). Finally, we calculated the complex indicator measuring the adaptive capacity by averaging the socio-economic development and life quality indices.

As the final step of the assessment, the degree of vulnerability was determined by the simple, unweighted addition of the normalized values of exposure, sensitivity and adaptive capacity (Tab. 2.). This approach was previously used by other authors as well (Obádovics, Hoschek, & Pappné Vancsó, 2014; Pappné Vancsó, Obádovics, & Hoschek, 2014; Hahn, Riederer, & Foster, 2009).

When editing the map of vulnerability and the degree of its components, we considered uniformly the categorization based on equal number of elements. The aim was to divide the districts into quintiles based on the given value of the examined indicator. Districts of lower quintile were identified with modest exposure, sensitivity, vulnerability and very low adaptive capacity, while districts of the upper quintile with extreme exposure, sensitivity, vulnerability and very high adaptive capacity.

Table 1 Measuring vulnerability based on applied statistical data

Type of indicator	Applied statistical data	Source of data	Spatial availability of the indicators
Exposure	Heat day: day with mean temperature above 25°C.	CarpatClim database (http://www.carpatclim-eu.org/pages/home/9	10 km x 10 km grid
Sensitivity	Average life expectancy at birth (male, female), Rate of 0-4 and 65+ population, Rate of workers in agriculture and construction, Unemployment rate, Rate of diseases of cardiovascular and respiratory system, Number of permanent vacancies in general practitioner and home visitor nurse services, Rate of general practitioner and home visitor nurse services, Number of local population, Size of urban area, Population density in the urban area and periphery, Green and forest area per capita, Proportion of housing without comfort, emergency and other housing, Proportion of housing built before 1946.	Hungarian Central Statistical Office (www.ksh.hu), National Health Insurance Fund (http://www.neak.gov.hu/felso_menu/lakossagnak), Land Information System (https://www.teir.hu/)	districts (LAU1)
Adaptive capacity	Human Development Index: Average life expectancy at birth, Educational level, Personal income tax base income per capita, Complex indicator used for the classification of beneficiary districts (LAU1): based on altogether 24 statistical data	Hungarian Central Statistical Office (www.ksh.hu)	districts (LAU1)

Source: own work

Note: The indicator of average life expectancy at birth gives comprehensive information about mortality pattern, in practice, it can also refer to the human health consequences of climate change. On the other hand, this demographic indicator is also part of applied calculation method of Human Development Index, which is a commonly used complex indicator in measurement of quality of life.

Table 2 Description of vulnerability calculation

Steps	Exposure	Sensitivity	Adaptive capacity
1.	To use CarpatClim database	To select 20 relevant indicators regarding sensitivity	Adaptive capacity is based on socio-economic development and quality of life – To measure quality of life with the composite indicators of Human Development Index (HDI), while socio-economic development is based on the classification of beneficiary districts
2.	To assign grid points to the districts (LAU1)	To make different groups of 20 relevant indicators such as communal, institutional, local governmental	To select relevant indicators of HDI regarding adaptation (Average life expectancy at birth, Education level, Personal income tax base income per resident)
3.	To calculate arithmetic mean of the meteorological data corresponding to the grid points	To collect statistical data	To collect statistical data
4.	To define exposure level of the districts (LAU1)	To calculate statistical indicators	To calculate statistical indicators
5.		To aggregate all indicators using the method of normalization	To aggregate all indicators of HDI using the method of normalization
6.		To define sensitivity level of the districts (LAU1)	To calculate the complex indicator of HDI
7.			To define adaptive capacity level of the districts (LAU1)
8.	To aggregate three components (Exposure, Sensitivity, Adaptive capacity) using the method of normalization		
9.	To define vulnerability level of the districts (LAU1)		

Source: own work

As a part of the climate research, the assessments of climate vulnerability, which have a considerable history in Hungary, are of great significance. The climate change related socio-economic problems and the applied indicators have appeared in various ways in these assessments.

RESEARCH BACKGROUND

The purpose of climate change vulnerability assessments is to reveal the risk of the regions and/or sectors to climate change, as well as the elaboration of an adequate complex methodology for investigating the research hypotheses. The implementation of scientific

objectives can provide information for decision-making to formulate local adaptation strategies (Pálvölgyi et al., 2011). Vulnerability assessments integrate different socio-economic indicators, mainly at regional and local levels (Selmeczi, Pálvölgyi, & Czira, 2016).

In essence, assessments appeared in Hungary in the middle of the 2000s, and they were initially based on the domestic adaptation of the methodology applied by the international projects (e.g. CLAVIER) (Pálvölgyi, 2008). Applying the so called CIVAS-model, Tamás Pálvölgyi and his research team created the conditions and opportunities for:

- learning about the expected impacts of climate change in Hungary,
- the use of quantitative climate impact assessment at district (LAU1) level,
- the assessment of the relative level of complex vulnerability (including socio-economic indicators among others).

From the 2010s, similar vulnerability assessments have already been carried out not only in the framework of domestic case studies of international projects, but several research teams conducted such researches through national supports (e.g. TÁMOP). Their research results classified the damages caused by the climate change, which also helped in the elaboration of analytical and evaluative methods to identify damage (e.g. Farkas et al., 2017; Kulcsár, 2014). These economic-social assessments of climate vulnerability also highlighted the territorial peculiarities, and, for example, interpreted the role of locality in the vulnerability to climate change in the case of the given territorial units (region, county, micro-region or district, settlement). Jenő Farkas and his co-authors analysed vulnerability by settlement categories in the Southern Great Plain (Farkas et al., 2017), while László Kulcsár and his co-authors investigated the socio-economic impacts of climate change on the forest and agriculture sectors in the micro-regions of Zala (Kulcsár, 2014). Among the vulnerability assessments emphasizing the territorial aspects, a separate group of assessments evaluates the local consequences of climate change at the scale within settlements (e.g. apartment blocks, streets). Vulnerability of roofs to wind storms was measured in Tatabánya, in the framework of the CLAVIER project, using the CIVAS model, in which, predicting the expected impacts, the adaptive capacity of inhabitants was also considered, for example, with the help of social situation and financial resources (Pálvölgyi & Horváth, 2011). In Tata, the environmental impacts were evaluated using local vulnerability assessments (Selmeczi, Csete, & Pálvölgyi, 2015).

Assessments of social and economic consequences of climate change were diversified in Hungary: some research teams analysed the impacts of urban climate (Gál & Unger, 2016),

some authors surveyed the knowledge regarding climate change (Jankó, 2015), while others interpreted the factors of climate-consciousness (Antal, 2015), and some research results predicted predominantly the socio-economic impacts (e.g. Czirfusz, Hoyk, & Suvák, 2015). It is important that these different assessments have increasingly assumed the application of territorial aspects in the evaluation of social and economic impacts, and results have also been interpreted at settlement and/or district (LAU1) levels.

Hungarian experts have dealt with the health-damaging effects of climate change since the end of the 1990s. On the one hand these researches have been based on quantitative analyses, on the other hand, besides the health effect estimation, have provided information on the health and sanitary consequences of climate change by the means of climate change vulnerability assessments related to heat waves (e.g. Páldy & Bobvos, 2014). The assessment of health risks of heat waves associated with the increase of average temperature has been principally emphasized by the professional literature, which has raised the attention to the increased probability of mortality and morbidity related to heat waves in summer time (e.g. Király, 2015). Heat waves contribute to the increase in use of health care services, which entails the growth in patient traffic and supply burdens at all levels of health care supply system. Anna Páldy and her research group examined the relationship of temperature and the daily total, respectively cause-specific mortality in the summer period in Budapest between 1970 and 2000. It was concluded that the rise of daily average temperature of 5°C increased the total mortality risk significantly by 6%, but to the greatest extent – by about 10% - in the case of cardiovascular diseases (Páldy et al., 2004a; Páldy et al., 2004b).

The previous Hungarian professional literature has proved that vulnerability is a quite complex phenomenon from socio-economic point of view, resulting from the multifactorial character of the socio-economic situation (Kulcsár & Székely, 2014).

Vulnerability caused by climatic effects involves significant socio-economic risk, which may intensify the social inequalities, and thus may contribute directly to the increase in territorial disparities (Uzzoli, 2015). The exposure of society and economy to natural hazards and risks implies vulnerability in a complex way, which can be identified by various interactions.

RESULTS

Vulnerability defined in connection with heat waves at district (LAU1) level, as well as the territorial pattern of its all three components, draw the attention to typical differences in Hungary.

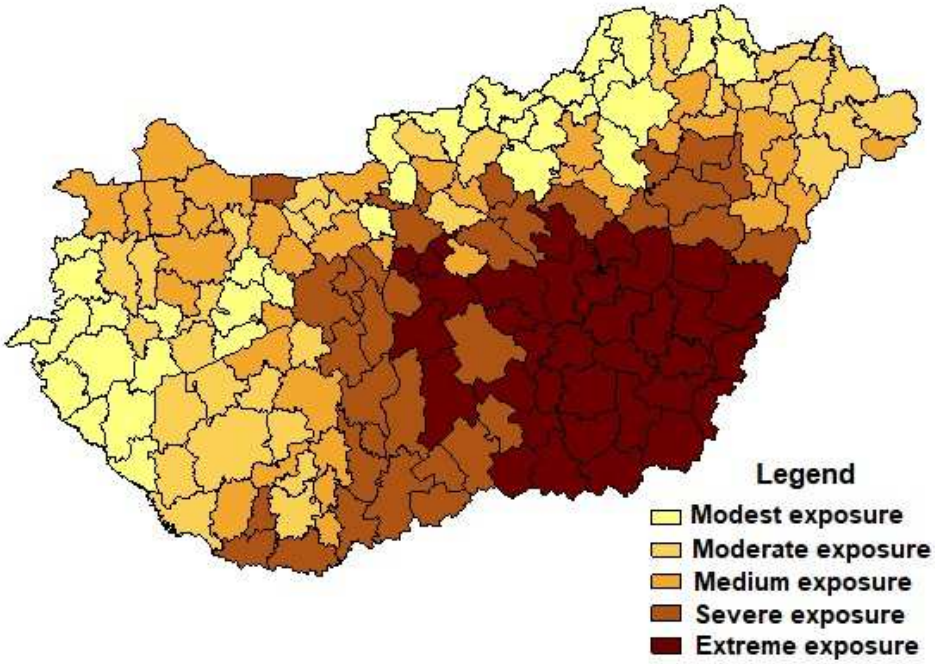
Based on the number of heat days, the South-Eastern part of the country can be principally characterized by greater exposure (Fig. 1.). The least number of heat days are mainly related to the Northern and Western parts of the country. The central areas can be identified by medium exposure. It is ascertainable, that the less number of heat days was reported in the area of central mountains, but the most number of heat days occurred in the central and Southern part of the Great Plain between 1971 and 2010.

The territorial pattern of sensitivity to heat waves shows close connection partly with the degree of built-up area and partly with the degree of urbanization (Fig. 2.). Population living in areas with high urbanisation rate and more densely built-up settlements respond more sensitive to the urban heat-island effect. For this reason, more severe sensitivity can be observed in the central, urbane part of the country, as well as in the metropolitan, highly built-up areas. Sensitivity to climate change is also more severe in disadvantaged areas (e.g. North-Eastern Hungary, South-Western Hungary). At the same time sensitivity is modest and moderate in the Western and North-Western Hungary.

The territorial differences of complex indicator of adaptive capacity provide information on the extent of adaptive capacity of the areas to heat waves (Fig. 3.). The territorial pattern of this indicator greatly confirms the Western-Eastern socio-economic division of the country. The adaptive capacity is very low in the disadvantaged North-Eastern and South-Western areas, respectively high and very high in towns, chief towns of the counties, the capital, and the agglomeration of the capital. As a territorially coherent area, Western Hungary, Central Transdanubia and the area of the capital with its agglomeration can be considered to be in the best position.

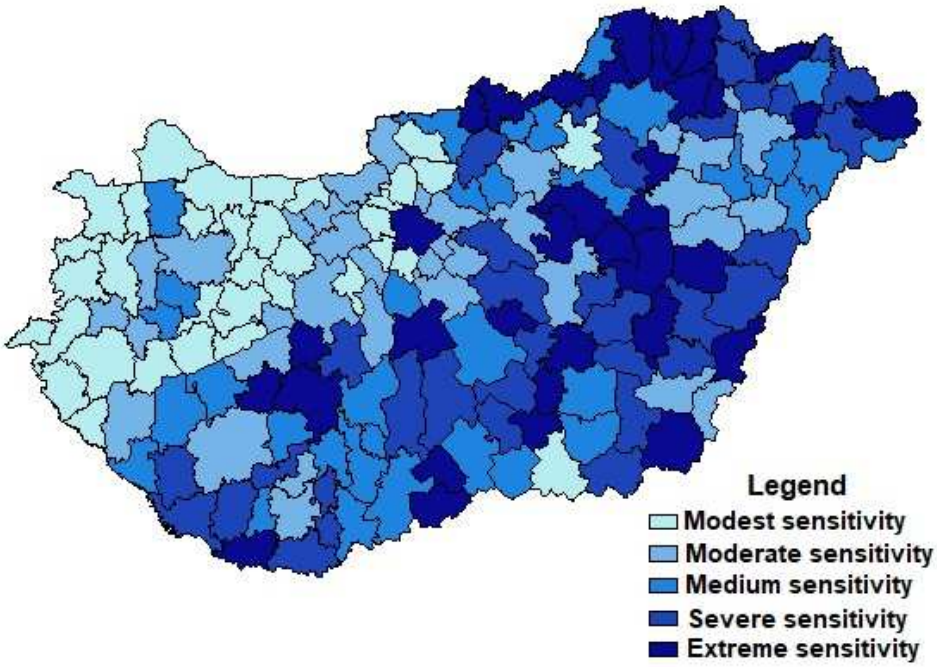
As a result of vulnerability assessments, vulnerability defined at district (LAU1) level provides important information in a complex way on the exposure, sensitivity and adaptive capacity of the areas to climate change and heat waves (Fig. 4.). On the one hand, its territorial pattern draws attention not only to the Western-Eastern division, but also to the centre-periphery relation. On the other hand, the South-Eastern part of the country is the most vulnerable to the risks of heat waves. Thirdly, it can be observed that the urban areas are more vulnerable, primarily due to the built-up areas and the larger population. Fourthly, in the extreme vulnerable districts (e.g. North-Eastern Hungary), the modest exposure is accompanied by higher sensitivity and worse adaptive capacity. At the same time, the moderate exposure can be compensated by the higher level of adaptive capacity in socio-economically more favourable areas (e.g. agglomeration of the capital).

Figure 1 Exposure: Number of days with at least 25°C daily mean temperature in districts (LAU1) between 1st May and 30th September, 1971-2010



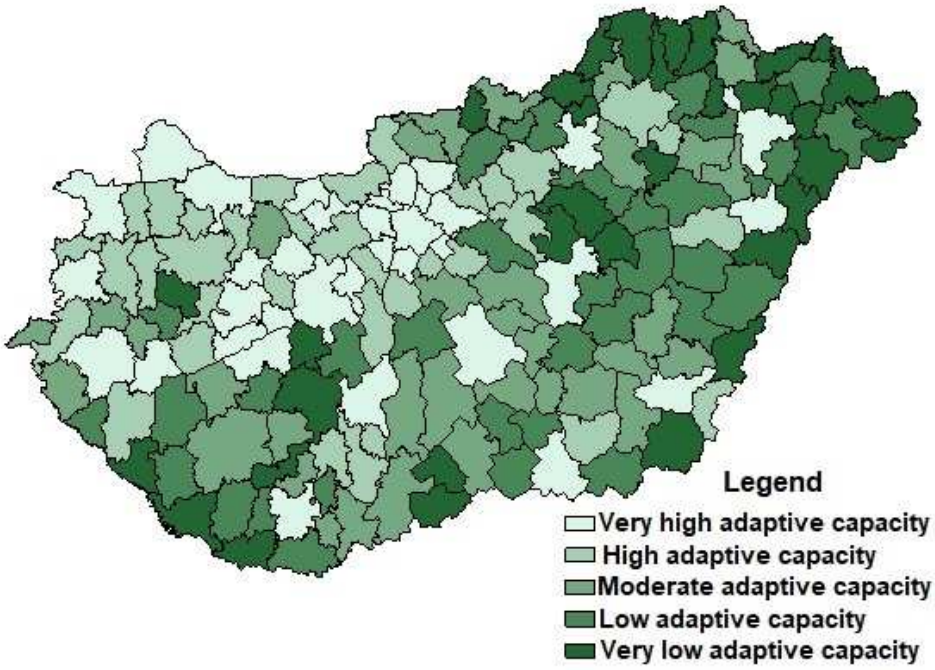
Source: own work

Figure 2 Sensitivity: Complex sensitivity indicator in districts (LAU1) defined on the basis of the arithmetic average of the normalized value of altogether 20 statistical indicators



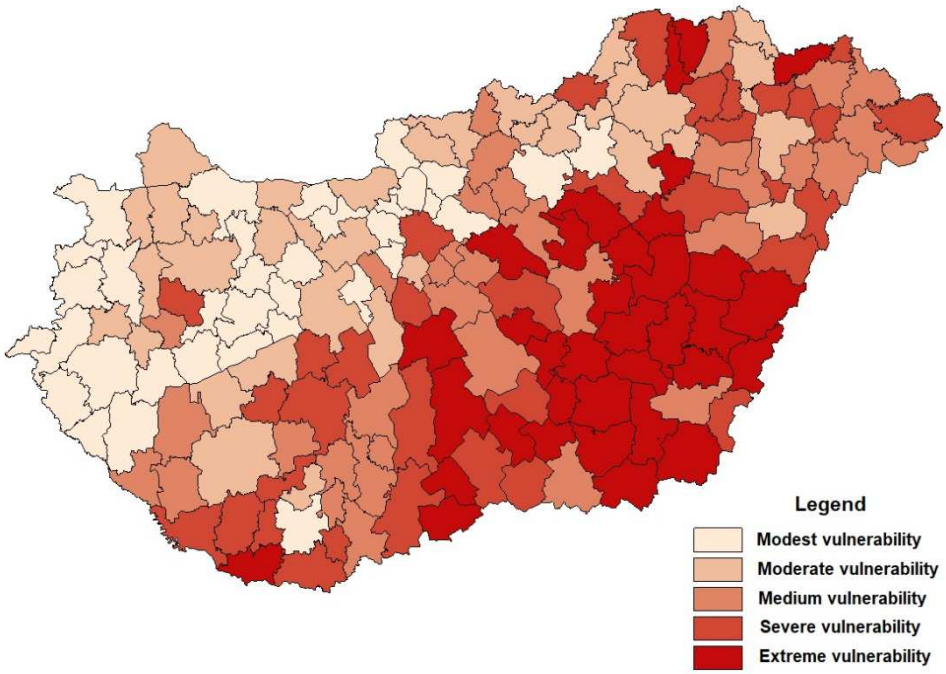
Source: own work

Figure 3 Adaptive capacity: the indicator of adaptive capacity in districts (LAU1) calculated by the arithmetic average of the value of complex indicator applied in the classification of HDI and the beneficiary districts (LAU1)



Source: own work

Figure 4 Vulnerability: based on the sum of the normalized value of exposure, sensitivity and adaptive capacity in districts (LAU1)

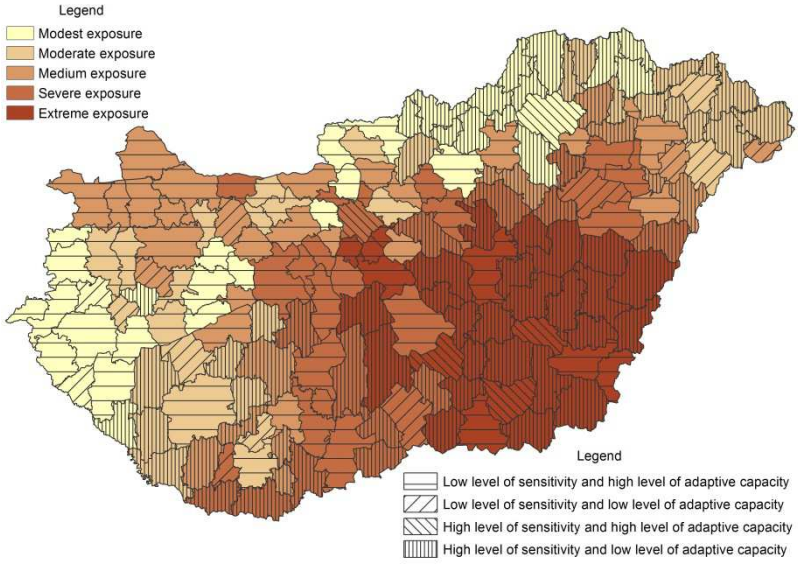


Source: own work

Based on statistical examinations it is ascertainable, that 42.5% of the country's territory, where currently 39.5% of the population live, is severe and extreme vulnerable to the effects of climate change. Overall, it can be concluded, that vulnerability in Hungary is growing from the North-Western part of the country to the South-Eastern part. This result is similar to the previous vulnerability assessments of Tamás Pálvölgyi and his research team (Pálvölgyi et al., 2011).

The economic and social impacts of extreme weather issues such as heat waves influence especially rural and agricultural regions. Analysing the connection between sensitivity and adaptive capacity in the same level of exposure gives comprehensive information about vulnerability (Fig. 5.). Majority of districts with severe and extreme exposure can be detected as districts with high level of sensitivity and low level of adaptive capacity. It is also relevant in many North-Eastern Hungarian where modest and moderate exposure are found. Budapest has an unique position: it can be observed as a city with severe exposure, high level of sensitivity and adaptive capacity. In other words, socio-economic spatial pattern of Hungary can also determine the regional disparities based on the connection between sensitivity and adaptive capacity in the same level of exposure.

Figure 5 Connection between sensitivity and adaptive capacity in the same level of exposure in districts (LAU1)



Source: own work

CONCLUSION

Experiences gained through the implementation of vulnerability assessments help the definition of not only the population vulnerability, but also the vulnerability of institutions,

with the help of which local governments can improve their preparation for and adaptation to the protection against the health risks of climate change.

The starting point for examining the socio-economic consequences of climate change at district (LAU1) level is to identify the effects of the environment, the social and economic processes, in this particular case, related to heat waves. In the future, there is a need to prepare for the intensification of heat waves, which can prognosticate the increase of vulnerability in different parts of the country. Overall, therefore, the appearance of local effects may increase the economic differentiation of the areas, as well as may intensify the social differences, and this phenomenon may also lead to the development of new inequalities (Láng, Csete, & Jolánkai, 2007).

In the future, the aim is to mitigate the health risks arising from climate change during heat waves through national, regional and local measures improving the preparedness and adaptation skills. This basically requires the implementation of multi-stakeholder activities, which can be effective only in a system and network based on coordinated and intersectoral co-operation.

At local level, it is worth paying more attention to the most vulnerable social groups (e.g. children, elders, patients with chronical diseases, disadvantaged people etc.) during the heat waves. In the long term, priority should be given to the climate-conscious management of public services operated not only by national institutions, but also by local governments, which may include the elaboration of defence and health plans against heat waves. There is a need to elaborate suggestions for the health care sector, on the one hand, how preparation for and adaptation to health effects of heat waves can be incorporated in the strategical planning, on the other hand, what kind of capacity planning preparations are required by the increased consumption during the heat waves.

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REFERENCES

Antal, Z. L. (2015). *Klímaparadoxonok*. [Climate paradox.] Budapest: L'Harmattan Kiadó.

Bartholy, J., Pongrácz, R., & Torma, Cs. (2010). A Kárpát-medencében 2021–2050-re várható regionális éghajlatváltozás a RegCM-szimulációk alapján. [Projected regional climate change in Carpathian Basin for 2021–2050 based on RegCM-simulations.] „*Klíma-21" Füzetek*, 60, 3-13.

Bozóti, A. (2015). Health tourism competitiveness – a compelx approach. *Deturope*, 7(2), 157-174.

CarpatClim [website]. Retrieved from http://www.carpatclimeu.org/pages/home/

Czirfusz, M., Hoyk, E., & Suvák, A. (2015). *Klímaváltozás, társadalom, gazdaság. Hosszú távú területi folyamatok és trendek Magyarországon*. [Climate change, society, economy. Long term regional processes and trend in Hungary.] Pécs: Publikon Kiadó.

EuroHeat (2017). Heating and cooling [Pdf]. Retrieved from: www.heatroadmap.eu 8 p.

European Environment Agency [website]. Retrieved from https://www.eea.europa.eu/

Farkas, J. Zs., Hoyk, E., & Rakonczai, J. (2017). Geographical analysis of climate vulnerability at a regional scale: The case of the Southern Great Plain in Hungary. *Hungarian Geographical Bulletin*, 66(2), 129-144.

Ford, J. D., & Berrang-Ford, L. (Eds.) (2011). *Climate Change Adaptation in Developed Nations*. Springer.

Gál, T., & Unger, J. (2016). Városklíma hálózat Szegeden. [Urban climate network in Szeged.] *Egyetemi Meteorológiai Füzetek*, 27, 49-55.

Hahn, M. B., Riederer, A. M., & Foster, S. O. (2009). The livelihood vulnerability index: A pragmatic approach to assessing risks from climate variability and change – A case study in Mozambique. *Global Environmental Change*, 1, 74-88.

Heltberg, R., Siegel, B. P., & Jorgensen, S. L. (2009). Addressing human vulnerability to climate change: Towards a 'non-regrets' approach. *Global Environmental Change*, 1, 89-99.

IPCC (2007). *Climate Change 2007: Impacts, Adaptation, and Vulnerability – Contribution of Working Group II to the Fourth Assessment – Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press.

Jankó, F. (2015). Éghajlatváltozással kapcsolatos tudás a világháló magyar részén. [Knowledgement on climate change based on Hungarian websites.] *Tér és Társadalom*, 29(2), 67-89.

Király, G. (2015). A magyarországi népesség „status quo" morbiditási és mortalitási jövőképe 2016 és 2051 között. ['Status quo' of the Hungarian population based on projection of morbidity and mortality between 2016 and 2051.] In M. Czirfusz, E. Hoyk, & A. Suvák (Eds.), *Klímaváltozás, társadalom, gazdaság. Hosszú távú területi folyamatok és trendek Magyarországon* [Climate change, society, economy. Long term regional processes and trend in Hungary.] (pp. 167-178). Pécs: Publikon Kiadó.

Klinenberg, E. (2002). *Heat wave – A Social Autopsy of Disaster in Chicago*. Chicago: University of Chicago Press.

Kovats, R. S., & Kristie, L. E. (2006). Heatwaves and public health in Europe. *European Journal of Public Health*, 16(6), 592-599.

Kulcsár, L. (2014). *Az erdészeti és agrárszektorban történő klímaváltozás gazdasági-társadalmi hatásának elemzése, monitorozása*. [Analysis on the socio-economic effects of climate change in forestry and agriculture.] Sopron: Nyugat-magyarországi Egyetem.

Kulcsár, L., & Székely, C. (2014). Bevezető tanulmány. [Introduction study.] In L. Kulcsár (Ed.), *Az erdészeti és agrárszektorban történő klímaváltozás gazdasági-társadalmi hatásának elemzése, monitorozása* [Analysis on the socio-economic effects of climate change in forestry and agriculture.] (pp. 8-13). Sopron: Nyugat-magyarországi Egyetem.

Láng, I., Csete, L., & Jolánkai, M. (2007). *A globális klímaváltozás: hazai hatások és válaszok – A VAHAVA jelentés*. [Global climate change: Hungarian effects and responses. The VAHAVA Report.] Budapest: Szaktudás Kiadó Ház.

Obádovics, C., Hoschek, M., & Pappné Vancsó, J. (2014). A társadalom klímaváltozással szembeni sérülékenysége – A társadalom sebezhetőségének komplex vizsgálata a zalai kistérségekben. [Vulnerability of society – Complex examinations in micro-regions of Zala county.] In L. Kulcsár (Ed.), *Az erdészeti és agrárszektorban történő klímaváltozás*

gazdasági-társadalmi hatásának elemzése, monitorozása [Analysis on the socio-economic effects of climate change in forestry and agriculture.] (pp. 25-44). Sopron: Nyugat-magyarországi Egyetem.

Patz, J., Gibbs, H., Foley, J., Rogers, J. V., & Smith, K. (2007). Climate change and global health. *EcoHealth,* 4(4), 397-405.

Páldy, A., & Bobvos, J. (2014). Health impacts of climate change in Hungary – A review of results and possibilities to help adaption. *Central European Journal of Occupational and Environmental Medicine*, 20(1-2), 51-67.

Páldy, A., & Bobvos, J. (2011). A klímaváltozás egészségi hatásai. Sebezhetőség – alkalmazkodóképesség. [Health effects of climate change. Vulnerability and adaption.] In P. Tamás, & M. Bulla (Eds.), *Sebezhetőség és adaptáció – A reziliencia esélyei* [Vulnerability and adaption. Chances of resilience.] (pp. 97-114). Budapest: MTA Szociológiai Kutatóintézet.

Páldy, A., Bobvos, J., Nádor, G., Erdei, E., & Kishonti, K. (2004a). A klímaváltozás egészségi hatásainak vizsgálata: nemzeti egészségügyi hatásbecslés [online abstract] [Examination of health effects of climate change: national health impact assessment] [Html]. Retrieved from http://old.mta.hu/mta_hirei/a-klimavaltozas-egeszsegi-hatasai-felkeszules-a-nyari-hosegre-3251/

Páldy, A., Erdei, E., Bobvos, J., Ferenczi, E., Nádor, G., & Szabó, J. (2004b). A klímaváltozás egészségi hatásai. [Health effects of climate change.] *Egészségtudomány*, 48(2-3), 220-236.

Pálvölgyi, T. (2013). A sérülékenység vizsgálatok a Második Nemzeti Éghajlatváltozási Stratégiában [Conference presentation] [Vulneraility assessment int he Second National Climate Change Strategy] [Html]. Retrieved from http://docplayer.hu/40286143-Serulekenyseg-vizsgalatok-a-masodik-nemzeti-eghajlatvaltozasi-strategiaban.html

Pálvölgyi, T. (2008). Az éghajlatváltozás hatásai az épített környezetre és az infrastruktúrára. [Effects of climate change on built environment and infrastucture.] In I. Fodor, & A. Suvák (Eds.), *A fenntartható fejlődés és a megújuló természeti erőforrások környezetvédelmi összefüggései a Kárpát-medencében* [Connection between sustainable development and renewable natural resources based environment portection in the Carpathian Basin.] (pp. 111-119). Pécs: MTA Regionális Kutatások Központja.

Pálvölgyi, T., Czira, T., Bartholy, J., & Pongrácz, R. (2011). Éghajlati sérülékenység a hazai kistérségek szintjén. [Climate vulnerability in micro-regions of Hungary.] In J. Bartholy, L. Bozó, & L. Haszpra (Eds.), *Klímaváltozás – 2011 — Klímaszcenáriók a Kárpát-medence térségére* [Climate Change – 2011 – Scenarios in the Carpathian Basin.] (pp. 236-256). Budapest: Magyar Tudományos Akadémia, Eötvös Loránd Tudományegyetem.

Pálvölgyi, T., & Horváth, E. S. (2011). A klímaváltozás várható hatásai az épített környezetre. [Projected effects of climate change on bulit environment.] In J. Bartholy, L. Bozó, & L. Haszpra (Eds.), *Klímaváltozás – 2011 — Klímaszcenáriók a Kárpát -medence térségére* [Climate Change – 2011 – Scenarios in the Carpathian Basin.] (pp. 257-262). Budapest: Magyar Tudományos Akadémia, Eötvös Loránd Tudományegyetem.

Pálvölgyi, T., Czira, T., Dobozi, E., Rideg, A., & Schneller, K. (2010). A kistérségi szintű éghajlat-változási sérülékenységvizsgálat módszere és eredményei. [Method and results of climate vulnerability assessment at micro-regional level.] „*Klíma-21" Füzetek*, 62, 88-102.

Pappné Vancsó, J., Obádovics, C., & Hoschek, M. (2014). A társadalom klímaváltozással szembeni sérülékenysége: A sérülékenység vizsgálatok módszertanának fejlődése a kezdeti lépésektől a „Climate Vulnerability Index" kialakulásáig. [Vulnerability of society due to the climate change. Development of climate vulnerability assessment.] In

Kulcsár, L. (Ed.), *Az erdészeti és agrárszektorban történő klímaváltozás gazdasági-társadalmi hatásának elemzése, monitorozása* [Analysis on the socio-economic effects of climate change in forestry and agriculture.] (pp. 14-24). Sopron: Nyugat-magyarországi Egyetem.

Pittman, J., Wittrock, V., Kulshreshtha, S., & Wheaton, E. (2011). Vulnerability to climate change in rural Saskatchewan: Case study of the Rural Municipality of Rudy No. 284. *Journal of Rural Studie,s* 2011/1. 83-94.

Selmeczi, P., Pálvölgyi, T., & Czira, T. (2016). Az éghajlati sérülékenységvizsgálat elemzési értékelési módszertana. [Method of climate vulnerability assessment.] In T. Pálvölgyi, & P. Selmeczi (Eds.), *Tudásmegosztás, alkalmazkodás és éghajlatváltozás – A Magyar Földtani és Geofizikai Intézet kutatási-fejlesztési eredményei a Nemzeti Alkalmazkodási Térinformatikai Rendszer létrehozására* [Sharing knowledge, adaptioan, climate change – project of Natér.] (pp. 25-29). Budapest: Magyar Földtani és Geofizikai Intézet.

Selmeczi, P., Csete, M., & Pálvölgyi, T. (2015). Környezeti hatásokkal szembeni helyi sérülékenység-vizsgálat Tata város példáján, az eredmények alkalmazása a helyi tervezésben. [Local vulnerability due to environmental effects in Tata. Applying results in local planning.] In N. Csigéné Nagypál, & T. Princz-Jakovics (Eds.), *Fenntarthatóság – utópia vagy realitás?* [Sustainability – Utopia or reality?] (pp. 263-274). Budapest: Budapesti Műszaki és Gazdaságtudományi Egyetem.

Sullivan, C., & Meigh. J. (2005). Targeting attention on local vulnerabilities using an integrated index approach:the example of the Climate Vulnerability Index. *Water Science and Technology*, 51(5), 69-79.

Tol, R. S. J. (1998). Estimating socio-economic impacts of climate change. *Studies in Environmental Science*, 72, 199-221.

Trenberth, K., Meehl, J., Masters, J., & Somerville, R. (2012). Heat Waves and Climate Change – A Science Update from Climate Communication [Pdf]. Retrieved from https://www.climatecommunication.org/wp-content/uploads/2012/06/Heat_Waves_and_Climate_Change.pdf

UNDP (2010). *Human Development Report. The Real Wealth of the Nation. Pathways to Human Development*. New York: UNDP.

Uzzoli, A. (2015). Klímamodellek a társadalmi alkalmazkodásban – A sérülékenységvizsgálatok hazai eredményei és tapasztalatai. [Climate models in adaption – Results and experiences of the Hungarian climate vulnerability assessments.] In M. Czirfusz, E. Hoyk, & A. Suvák (Eds.), *Klímaváltozás, társadalom, gazdaság. Hosszú távú területi folyamatok és trendek Magyarországon* [Climate change, society, economy. Long term regional processes and trend in Hungary.] (pp. 109-126). Pécs: Publikon Kiadó.

Uzzoli, A. (2017). Éghajlatváltozás és egészség – A magyar lakosság sérülékenysége a hőhullámokkal szemben. [Climate change and health – Vulnerability of the Hungarian population regarding heat waves.] In T. Cserny, & B. L. Alpek (Eds.), *„Bányászat és környezet – harmóniában"* ['Mining and environment in harmony.'] (pp. 62-65). Pécs: Magyarhoni Földtani Társulat.

Vincent, K. (2004). *Creating an index of social vulnerability to climate change for Africa*. Tyndall Centre Working Paper 56.

Wolf, J. (2011). Climate Change Adaptation as Social Process. In J. D. Ford, & L. Ber-rang-Ford (Eds.), *Climate Change Adaptation in Developed Nations.* Springer.

290/2014. XI. 26. kormányrendelet a kedvezményezett járások besorolásáról [Government Regulation on beneficiary districts]. Retrieved from https://net.jogtar.hu/jr/gen/hjegy_doc.cgi?docid=a1400290.kor

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A MAGAS SZINTŰ ÜZLETI SZOLGÁLTATÓK LOKÁCIÓS STRATÉGIÁINAK HATÁSA KÖZÉP-EURÓPA METROPOLISZAINAK GAZDASÁGI POZÍCIÓIRA

THE IMPACT OF LOCATIONAL STRATEGIES OF ADVANCED PRODUCER SERVICE FIRMS ON THE METROPOLE CITIES' ECONOMIC POSITIONS IN CENTRAL EUROPE

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Abstract

The paper focuses on the interrelatedness of the location strategies of the advanced producer services and the urban hierarchies in the Central European countries based on the 36 metropole cities of the region (9 countries), and focuses on how far the Central European metropolises are integrated into the international networks of the advanced producer service firms (APS firms). Along with the globalization process a transnational urban network is developing in the last few decades, the international flows of networks, information, labour and capital are getting more intense, and the global service sector tends to locate offices where a critical mass of highly skilled labour force and economic performance is present with high level physical and digital accessibility. This strategy favours the capital cities and metropole cities which are in the focus of my study. Which metropole cities can be more attractive for APSs and what are the underlying factors is the main question of my paper. The first part of the paper focuses on the location strategy of APS firms based on three aspects: the service value of a city that identifies the size of the nodal point in the network; the quantity of flows measured by the number of interactions among city-pairs among offices of a certain APS, and the measurement of network relations pointing out the ratio of all APS business interactions in the macro region appearing in a city. A complex APS location index is developed that sets up a hierarchy among the metropole cities of the sample. The second part of the paper searches for justification on the hierarchy set up, and on the underlying factors by analyzing several aspects influencing the position of a city. These aspects include the economic power of the city, the role of the city in business decisions measured by locations of production type of multinational companies, the role of the city in the administrative structure, the accessibility of the city, and other social factors, like knowledge. The paper offers answer on how the location strategies of APS firms affect the position of the metropole cities in the region, whether new division lines or peripheries occur in the macro-region.

Keywords: Advanced producer services, Urban hierarchy, Central Europe, Locational strategy

Absztrakt

A tanulmány a magas szintű üzleti szolgáltatók (APS) lokációs stratégiái és a közép-európai országok városhierarchiái közötti összefüggéseket vizsgálja a makro-régió kilenc országának 36 metropolisz városában, és azt elemzi, hogy a közép-európai metropoliszok mennyiben integrálódtak már a magas szintű üzleti szolgáltatók transznacionális hálózataiba. A globalizáció folyamatával összhangban az elmúlt évtizedekben egy transznacionális városhálózat alakul ki, a hálózatok, információ, munkaerő és tőke nemzetközi áramlása egyre intenzívebbé válik és a globális szolgáltató szektor jellemzően azon

városokban nyit irodát, ahol a magasan képzett munkaerő és a gazdasági teljesítmény kritikus tömege magas szintű fizikai és digitális elérhetőséggel kiegészülve jelen van. Ez a stratégia a fővárosokat és a további metropoliszokat hozza helyzetbe, melyek a tanulmány fókuszát képezik. A tanulmány fő kérdése, hogy mely metropoliszokat részesítik előnyben a magas szintű üzleti szolgáltatók és mik ennek a magyarázó tényezői. A tanulmány első része az APS-ek lokációs döntéseit vizsgálja, a komplex APS lokációs index három szempontot foglal magába, a város mint a hálózat csomópontjának szolgáltatási értékét, a város párokban levő APS irodák közötti lehetséges interakciók számával jellemzett áramlási mennyiségeket, és az adott város hálózati kapcsolatokból való részesedésének nagyságát. Az APS lokációs index alapján állapítható meg a makro-régió metropoliszainak városhierarchiája. A tanulmány ezt követő része a felálló hierarchia magyarázatát elemzi, és olyan tényezőket vizsgál, melyek befolyásolják egy adott város pozícióját. Ilyen faktorok a városok gazdasági súlya, a város pozíciója az üzleti döntéshozatalban, mely a termelő multinacionális vállalati székhelyek lokációi alapján vizsgálható, a város közigazgatásban betöltött szerepe, a város elérhetősége és további társadalmi tényezők, mint a képzettségi szint. A tanulmány választ kínál arra, hogyan hatnak az APS vállalati lokációs stratégiák a régiók metropoliszainak pozícióira, és az APS vállalatok új típusú koncentrációja vajon újabb belső perifériákat eredményez-e a makro térségben.

Kulcsszavak: Magas szintű üzleti szolgáltatók, Városhierarchia, Közép-Európa, Lokációs stratégia

INTRODUCTION

The paper focuses on the relative hierarchy of the metropolises of Central Europe based on the integration level to the world economy, indicated by the location strategies of advanced producer service companies (APS companies). Today, metropolises are the main centres of economic development; the main resources, information, capital and highly qualified labour are concentrated there, and flow through them (Friedmann 1995, European Commission, 2017). Metropolises – depending on their geographical location – fulfill different functions like that of a gateway city, global or macro-regional institutional and control hubs, nodes of different world-wide networks.

Actors of international economic relations can be examined based on their relations to globalization. The international flow of factors and the activities of multinational companies are the main determinants of the world economy. As a consequence of globalization, new markets emerge, global markets of banking, financial, insurance and logistical services develop, new actors appear, and multinational companies integrate their manufacturing and servicing activities world wide, manage and control global production.

In the 1990s, the process of economic globalization accelerated, barriers of international trade were largely liberalized, the development of info-communication technology enabled the real time transmission of information, financial markets have been globalized, thus enabling international transactions, and the global restructuring of international division of labour (Simai-Gál, 2000, Szentes, 2002). All these factors contributed to the restructuring of

the economic system. Besides national economies and governments, multinational companies (MNCs) gained power, extended their geographical scope. The growing complexity of their activities and geographical presence incited advanced producer services to develop as a separate sector, organized as multinational companies, and offering their services to the manufacturing MNCs.

The most important characteristic of globalization in world economy at the end of the 20th century is the primary role of high added value products, top technological solutions and services (Csáki, 2011). The economic distances could diminish by the reduction of transport and communication costs, the development of info-communication network and the development of mobile communication. The financial processes could become global based on these developments, as well, which was a prerequisite to the globalization of the world economy. It should be highlighted that both international capital mobility and international technology transfer works through multinational companies.

Economic globalization offered good positions mainly to cities and primarily to large cities as power centres of world economy (Sideri, 2007). The relation between urbanization and the development level of a national economy is linear, urbanization contributes to the growth of productivity that strengthens the significance of urban areas (Laakso- Kostiainen, 2007). The economic performance of the national economies mainly depends on the performance of urban areas, which concentrate innovation capacity, technology and workplaces (European Commission, 2017). Metropolises strengthened the most, their significance goes beyond national economy, and as seats of the actors of the world economy, that is, as seats of multinational companies, their economic power exceeds other cities' opportunities.

The paper examines the metropolises of Central Europe, namely, the relative hierarchical relations among them. Metropolises are understood according to Eurostat definition in the paper (cities with a population above 100,000 inhabitants are considered metropolises by Eurostat). The central indicator of empirical analyses is the location strategies of APS firms. Although the presence of APS companies already indicates the integration capability of the cities, the level of integration depends on the concentration of APS companies. The larger the concentration of APS companies is, the more important nodal role is fulfiled by the city in the world economy. The paper examines further factors besides APS location as control factors that influence the power centre role of metropolises in the world economy and that are important in the location decisions of advanced producer service firms. These factors are: the location strategies of producer multinational companies as main clients of APS companies,

the main location factors for APS offices, like economic performance, number of population, presence of highly qualified labour, accessibility of the city, volume of production. The administrative role could be an important additional factor, but, as all metropolises are regional, or at least medium level centers of public administration, which means significance in the national urban hierarchies per se, this factor does not influence the relative hierarchy of metropolises, and thus, it is not included. However, it should be stated that it represents also a locational aspect of APS companies.

The paper focuses on nine countries: Austria, Hungary, Slovakia, Czech Republic, Poland, Romania, Bulgaria, Slovenia and Croatia, and refers to them as Central Europe in the paper.

The objectives of the paper:

- Examination of the position of Central European metropolises in APS company networks, and thus, evaluation of their capacity for integration into world economy;
- Analyses of further factors and their relations influencing the Central European metropolises' positions as nodal points in urban hierarchy and APS location: metropolises as seats of manufacturing multinational companies, economic performance and number of population, accessibility, ratio of qualified labour, volume of production;
- Identification of relative hierarchy of metropolises in Central Europe based on their capacity of integration to world economy.

OBJECTIVES AND METHODS

The position of metropolises strengthened related to the new forms of international division of labour. While production is characterized by deconcentration, location of advanced producer services including financial services are characterized by concentration, which also induces changes in the urban hierarchies.

The power division between national economies and metropolises (world cities, Friedmann, 1986, global cities, Sassen, 1991, global city-regions, Scott, 2001, cities in globalization, Taylor et al., 2004) is also reorganized, economic decision-making and control functions densify in metropolises as a consequence of the presence of multinational companies, especially seats of MNCs. These cities possess functions such as production and service centres, nodes of financial transactions and information, offering metropolises a relatively stronger economic significance as compared to nation states (Taylor, 2012).

Metropolises are nodal points of diverse networks, besides their economic role, they act as political, cultural, international organizational, etc. centres, and each function results in a different global network. However, the functioning mechanism within the different networks is similar. The power of metropolises equals the accumulation of the different global networks that connects the city to the global processes (Laakso, Kostiainen, 2007). Metropolises are also important actors on national and regional levels in their countries as a result of their agglomeration capacity. Relatedly they are significant actors in the field of services, regarding both business and public services, and as public administration centres.

Urban hierarchies can be empirically examined either based on infrastructural networks (transport routes, rail network, international airport traffic, info-communication network) or based on the new agents of global economy, that is the multinational company seats and offices (Felméry, 2014). According to the infrastructural approach, the connectedness ensured by the physical infrastructure is the prerequisite for the development of transnational urban networks. According to the other approach, that is, placing MNCs to the focus of examination, the networking relations among the cities depend on the interactions and relations of the multinational seats, offices and venues in the different cities. This approach places the multinational companies' location strategies in the centre of empirical research (Taylor, 2001, Alderson and Beckfield, 2004, Hymer, 1972, Cohen, 1981, Friedmann, 1986 and Sassen, 1991).

The mentioned urban hierarchy theories based on a functional approach appeared since the 1980s and 1990s, before categorization based on the number of population was widespread in the literature. It was Beaverstock et al. (1999), Sassen (1991, 2001), Taylor (2001) who referred to advanced producer services (accountancy, management, legal, advertising and financial services) as functions capable for identifying outstanding economic centres in the world economy.

Metropolises in Central Europe

Central European urban structure differs from that of the Western part of the continent, a sparser urban structure with a few development islands characterizes it (Hardy, 2011). There are smaller countries in size, and relatedly, metropolises with smaller number of population in Central Europe, and medium-sized cities in a Western European meaning are lacking (cities with a population above 500,000) with the exception of Poland. The examination area has a peripheral geographical location, which is also indicated by the GDP level, however, capital

cities and other metropolises emerge from their regions economically, as well. Large differences are to be experienced in the economic performance level of the metropolises, and show a relatively lower performance as compared to their Western European counterparts apart from the capitals and some Polish metropolises. This is due to their Central European location. There are 53 metropolises in the macro-region, but only 36 of them, including nine capital cities, appear as APS company location, however, there are further 34 non-metropolitan APS locations (Döbrönte, 2016, 2018). Thus, the statement is disproved that the metropolis status of a city positions it to a higher level of the urban hierarchy per se in the macro region as regards integration to world economy.

Table 1 APS locations in metropolises

	number of cities with more than 1 million inhabitants	**number of cities with an inhabitant number between 500,000 - 1 million**	**number of cities with an inhabitant number between 100,000 – 500,000**	**sum**
Austria	1	0	4	5
Hungary	1	0	1	2
Czech Republic	1	0	4	5
Slovakia	0	0	2	2
Poland	1	4	6	11
Romania	1	0	4	5
Bulgaria	1	0	2	3
Slovenia	0	0	1	1
Croatia	0	1	1	2
	6	**5**	**25**	**36**

Source: own editing based on www.citypopulation.de data

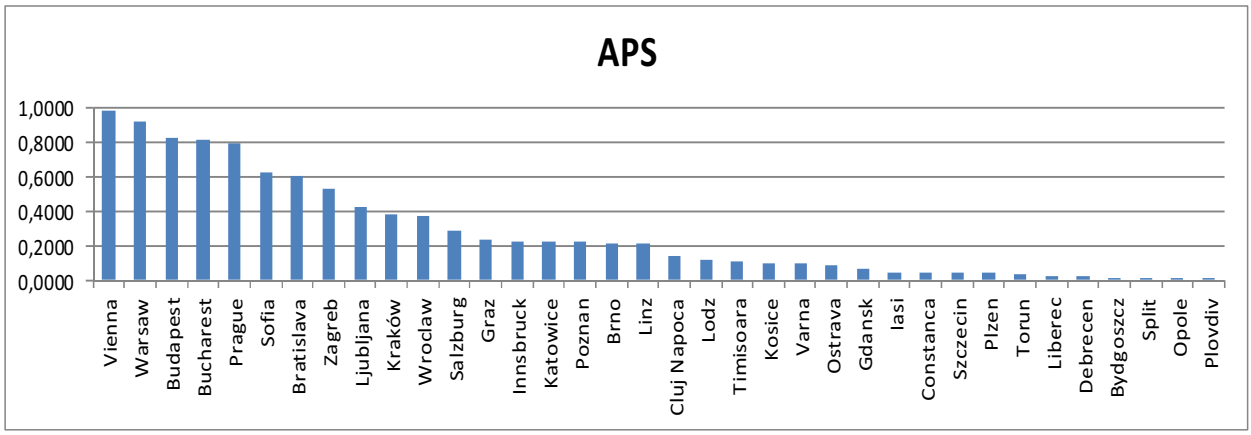
The spread of advanced producer services in the macro-region

As related to economic globalization, the number and complexity of business transactions have multiplied thus increasing the complexity and volume of central functions of manufacturing multinational companies. As a consequence to this process, the expansion of advanced producer services took place. Another important impact of globalization is that service intensity of industrial production grew, and multiplied the demand for business services (Johnson, 1998). In the 1990s the main motivations were the access to new markets, taking advantage of market gaps, taking the benefit of first comers and offering business services. The higher share in volume horizontal investments that is whole scale service providers possess, the higher potential the macro-region in integration to world economic

processes has. Horizontal investments are regarded by the literature (Laakso, Kostiainen, 2007) as demand led investments, in which case a parent company offers the same scale of services on the new market as at its seat and other venues, as the aim is to cover a new market segment.

The location strategies of advanced producer service firms are examined empirically based on the presence of 64 advanced producer service companies placing 36 metropolises out of the 53 in the macro-region to the sample. The objective of the study is not the identification of the global significance of the metropolises, but the analysis of their Central European position, investigating that on what level they are able to join the network of advanced producer service firms. The presence of an APS company already indicates the presence of globalization in the city, and its connection to international economic networks (Csomós, 2011). The starting point of the methodology is offered by Taylor (2001) and the Globalization and World City research network (GaWC) adapted to the macro-region. The paper focuses on the management and accountancy companies. Management consultancies are present in already developed markets, developed economies have a demand for their services, however, accountancies, and also accountancy networks as a special type, already appear in economies with development potential, thereby preparing them for investments of working capital. Thus, the two segments of APSs can be regarded as most relevant in the macro-region offering further aspects for analyses, including which cities are considered to be developed or emerging markets according to location decisions of APS companies. Taylor examined the relation of the APS and the city from basically three aspects: service value of a city identifying the size of the nodal point in the network, the quantity of flows measuring the number of interactions among city-pairs among offices of a certain APS, and the measurement of network relations pointing out the ratio of all APS business interactions in the macro region appearing in a city (Taylor, 2001). The paper analyses the position and relative hierarchy of the 36 metropolises based on the APS locational index formed from the previously mentioned part-indices (detailed calculation and methodology in Döbrönte, 2018).

Figure 1 APS locational index



Source: own editing based on Eurostat data

Factors influencing APS locational decisions explaining the relative hierarchy among the metropolises

The metropolis position and functional nodal role of Central European cities are influenced by further factors: locational decisions of manufacturing multinational companies, economic performance and population concentration, further factors like accessibility, qualification level of labour, volume of production.

1. MNC seat concentration

The spread of multinational companies was motivated by the optimization of international division of labour, making advantage of lower wage costs in certain countries, proximity to resources and markets. These factors had an impact on the present geographical spread of multinational companies. The FDI capital arriving to the macro-region in the 1990s aimed at utilising these advantages. In order to minimize costs and cap profit, multinational companies disintegrated their product chain, and deployed different segments to different countries (Wall et al., 2011). Multinational companies are able to bridge informal trade barriers within their networks, and enable organization of border crossing economic activities in different geographical destinations that offers them independent power centre status. Dunning (1993) mentioned four factors as regards international expansion: market acquisition, increase of efficiency, proximity to resources and strategic asset management, investment. Central Europe is a favourable destination for FDI since the beginning of the 1990s.

Deloitte publishes the ranking of 500 largest transnational companies in Central and South-Eastern Europe based on sales revenues and net income. The ranking is based on consolidated company incomes in financial year 2014. Data on Austria is not included in the ranking. Only

the seats of MNCs as decision-making centres are involved into comparisons that establish business relations with APS companies (Deloitte, 2015).

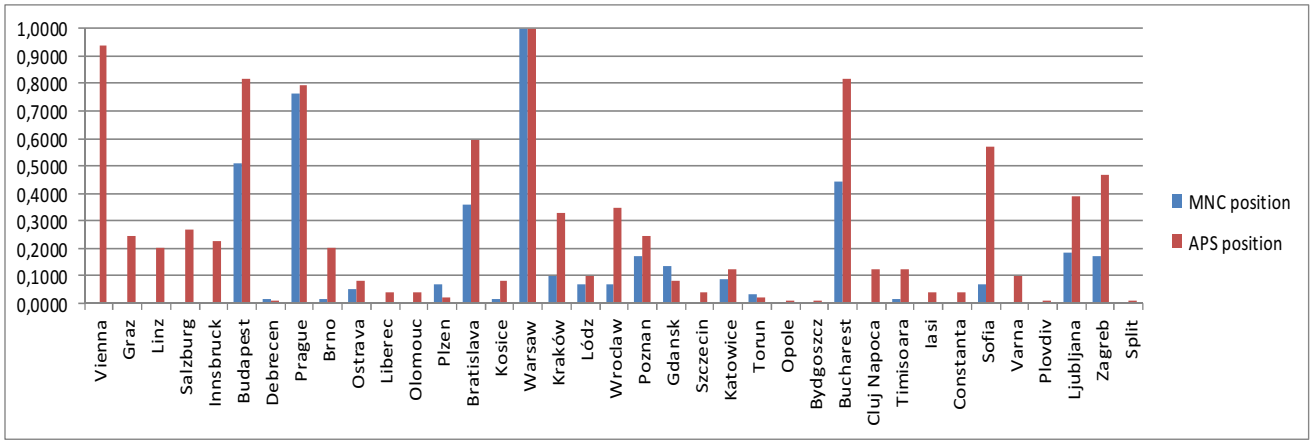
Table 2 MNC indicator values

city	MNC presence	MNC service value	MNC index	city	MNC presence	MNC service value	MNC index
Budapest	31	213	0.5019	**Szczecin**	0	0	0.0000
Debrecen	2	4	0.0108	Katowice	6	48	0.0964
Prague	46	300	0.7311	Torun	3	18	0.0357
Brno	2	12	0.0202	**Opole**	0	0	0.0000
Ostrava	4	22	0.0489	**Bydgoszcz**	0	0	0.0000
Liberec	0	0	0.0000	Bucharest	27	154	0.3987
Plzen	5	26	0.0621	Cluj Napoca	1	8	0.0070
Bratislava	22	130	0.3282	Timisoara	2	8	0.0155
Kosice	2	14	0.0226	**Iasi**	0	0	0.0000
Warsaw	60	428	1.0000	Constanca	1	2	0.0000
Kraków	7	52	0.1095	Sofia	5	34	0.0715
Lódz	5	44	0.0832	**Varna**	0	0	0.0000
Wroclaw	5	36	0.0738	Plovdiv	1	6	0.0047
Poznan	11	76	0.1716	Ljubljana	12	84	0.1895
Gdansk	9	78	0.1570	Zagreb	11	82	0.1786
Gdansk	9	78	0.1570	**Split**	0c	0	0.0000

Source: own editing based on Deloitte data, **no MNC seats from the top500**

The outstanding position of the capitals as seats of manufacturing multinational companies is obvious; the high value is also justified by the sample being the top 500 MNCs of the region. Polish metropolises with a population above 500,000 have 5-11 seats, and six metropolises have no seat from the top 500.

Figure 2 MNC and APS locational positions



Source: own editing based on Eurostat and Deloitte data

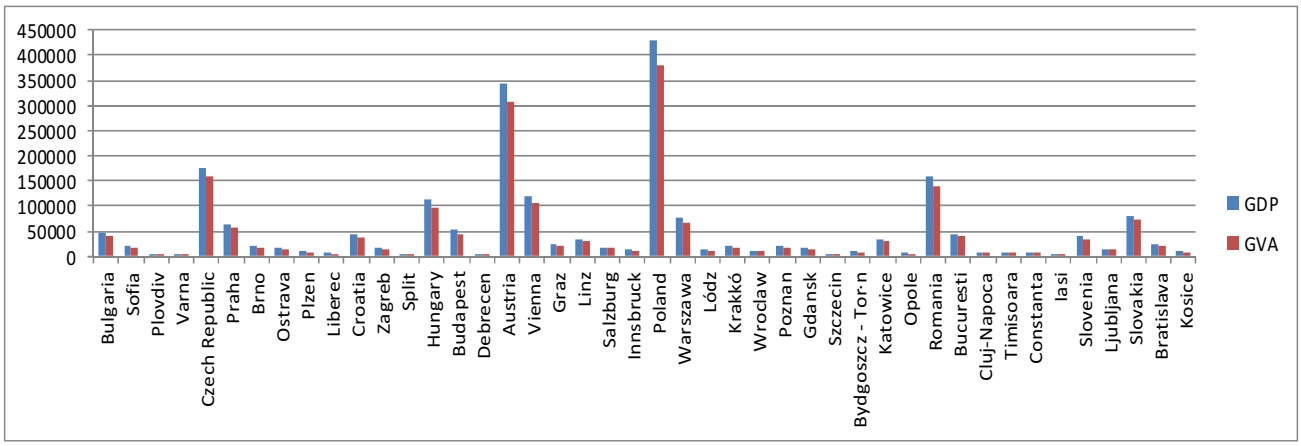
The geographical spread of manufacturing MNCs is more diversified than that of APS offices. 432 MNCs are present in the examined macro-region out of the 500 (others in the Baltic states and Ukraine and in the Western Balkans non-EU countries), and only 280 MNCs in the metropolises of the eight countries (65%). MNC seats operate in 188 cities of Central Europe, five times the number of metropolises with APS locations. However, in cities outside the 36 metropolis sample of the paper only Plock (Poland) and Budaörs (Hungary) locate more than two MNCs, both cities having an agglomerational proximity to the capitals.

On the contrary a regression analyses show a quite high coefficient of determination (R^2 = 0.7195), which can be explained by the outstanding role of capital cities in the location of seats, decision-making centres of manufacturing multinationals. (The sample contains only the seats of MNCs, not further venues.) Apart from the capitals, the Polish metropolises – having a high value also in APS locational index – have a higher presence of manufacturing companies. It is only Plzen and Gdanks that have a higher MNC position value than APS position, showing the industrial character of the cities.

The graph underlines the literature as APS companies realize a strong concentration, utilize location advantages in large cities, and good accessibility ensures business relations and communication with manufacturing MNCs. Relatedly, more APS offices operate in countries with bigger territories in favour of ensuring coverage of activities. The number of chosen locations by APS companies can be explained by the economic performance on the one hand, and thus, more cities are involved into APS networks in Austria, the Czech Republic and Poland, the majority of Polish metropolises located in the more developed South-Western part of the country. On the other hand, the geographical size of the country is a factor in itself for having a higher number of involved cities, this can be seen in the cases of Poland and Romania, however, the difference between the two countries is clear as a consequence of their GDP level. APS offices operate in the largest cities offering a coverage of the whole country, however, with less cities and less presence than in Poland. The larger number of Romanian cities involved is also explained by the presence of accountancy networks induced by the economic development potential in the country, and thus reaching the same level of involved cities as in Austria and Czech Republic.

2. Economic concentration

Figure 3 GDP and GVA values (million EUR) GDP at current market prices, 2016



Source: own editing based on Eurostat data

The macro-region is composed of countries with heterogeneous economic performance. The accumulated GDP is EUR 1439 billion (Eurostat, 2016), Austria representing 21 per cent, and Poland 29 per cent. The remaining three Visegrad countries have a share of 21 per cent, which already shows the overweight of the North-Western part of the macro-region both economically and regarding their role in the APS network.

The cities in the sample are the strongest urban areas of Central Europe in economic terms, however, there are huge differences between their economic performance, and their economic development potential is also rather differing. The maco-region is an economically less developed area, their economic performance can be explained by several factors.

The value of the coefficient of determination in a regression analysis is around 70% (R^2 = 0.7048 for the GDP, and R^2 = 0.698 for the GVA), which is a relatively high value, however, it indicates that besides the GDP and the GVA values, further factors are also determinant in APS locational decisions.

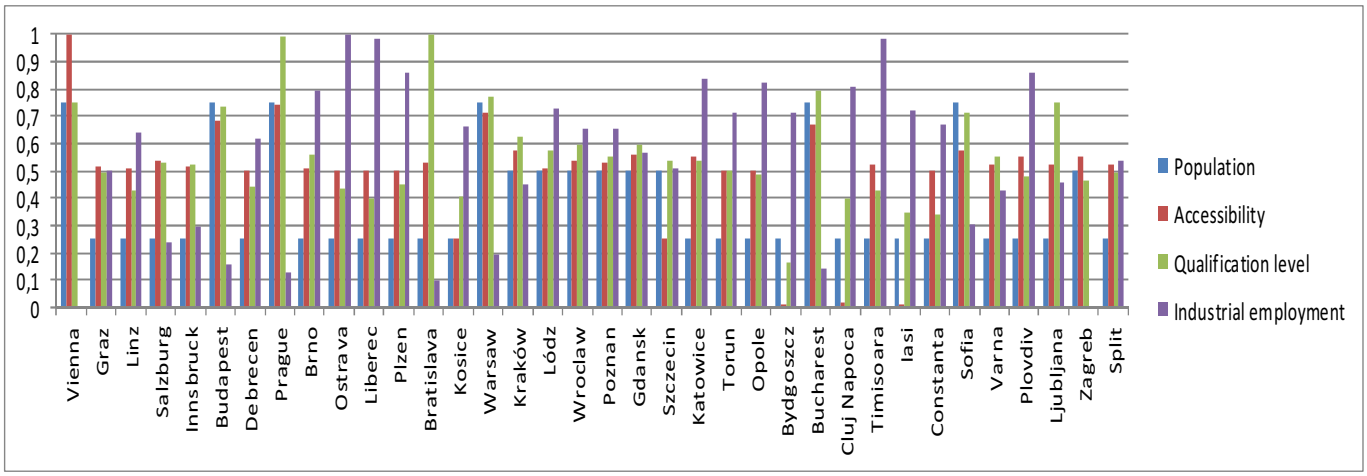
Further locational factors

Besides economic performance, population concentration, accessibility and concentration of highly qualified labour force are important factors in the locational decisions of APS companies. Metropolises are characterized by a high ratio of the service sector, but no data is available on Eurostat. The volume of production proves to be an important factor in the functional nodal position of the metropolises by showing the presence of APS companies' most important business partners. The indicator of employment in the industrial economy is used for this reason.

Indicators:

- capital city status
- number of population
- realized connection to a TEN network
- air transport of passengers by NUTS 2 regions (1000 persons)
- port city status
- higher educational institutional presence
- students in tertiary education (ISCED 5-6) by NUTS 2 regions, % of the population aged 20-24 years
- tertiary educational attainment, age group 25-64 by sex and NUTS 2 regions %
- employment in the industrial economy, by NUTS 2 regions, 2011 (% of the non-financial business economy) Industry: NACE Rev. 2 Sections B–E.

Figure 4 Characteristics of metropolises



Source: own editing based on Eurostat data

The graph shows the own impact of each factor. Regarding population concentration, only the category of above 500,000, and the category between 100,000 – 500,000 is used, and only four Polish non-capital metropolises have a higher number of population than 500,000. The Central European metropolises are less outstanding in the volume of functional centrality due to the average number of population than the Western European ones.

The examined indicators do not confirm the overall significance of capital cities, the distribution of factors suggests a more diverse picture. Regarding accessibility the value of the five most important capitals approaches or passes 70%, other capitals and majority of metropolises have a value above 40%, the accessibility of only Kosice, Szczecin, Bydgoszcz, Cluj Napoca and Iasi is critical. Adding the presence of a port to the analyses Vienna,

Budapest and Bratislava raises among the capitals and Linz, Gdansk, Constanca, Varna, Split among other metropolises.

The qualification index suggests the outstanding importance of the capitals with a value over 70 per cent with the exception of Zagreb. Further Polish and Austrian metropolises have a value between 40 and 60 per cent as an average, and Varna a value above 50 per cent. There is a trade-off between the qualification index and the index of employment in industry, the latter being high in the Czech, Polish and Romanian cities, plus in case of Linz, Debrecen and Plovdiv with a value above 60 per cent.

RESULTS

The paper offers the advanced producer service geography of the metropolises of Central Europe, based on management consultancies and accountancy companies.

Advanced producer service firms concentrate their capacities geographically. If a critical mass of economic performance is present in a city, it becomes a potential venue for APS companies that can further strengthen the city's regional economic position. The capital cities of the macro-region are the primary locations even if they show a relatively weaker economic output as in the case of Ljubljana and Zagreb. APS firms regard countries as basic frameworks for decisions, an opening of an APS office in a secondary city depends always on its relative position to the capital. Besides management consultancies operating in developed economies, accountancy networks operating in economies with development potential include further five metropolises in the sample.

APS company concentration is the highest in the capitals, however, present in all cities with a population above 500,000, and in several cities with a population above 100,000. Among the capitals Vienna, Warsaw, Prague, Budapest and Bucharest can be regarded as global cities, and also the remaining capitals (Bratislava, Sofia, Zagreb, Ljubljana) are getting integrated to the world economic processes ever stronger. Main clients of APS companies are the manufacturing multinational companies, however governments, international organizations, international non-governmental organizations are also important business partners. The outstanding significance of capitals in APS company locations is also justified by this clientele, as the majority of these organizations, institutions operate in capital cities (Csomós, 2017). Further justification for their role is offered by their outstanding number of population as compared to the average number of population of cities in the macro-region,

and by their outstanding economic performance even compared to their high number of population.

Advanced producer service companies have offices in further 27 metropolises in the macro-region, most of them in Austria, the Czech Republic and Poland, which indicates the higher level of integration of these countries to world economic processes, and indicates their higher GDP performance. Another justification for the involvement of higher number of secondary cities to the network is the territory of the country, as in Poland and Romania. The position of secondary metropolises in the other countries is rather marginal.

69 per cent of the macro-region's metropolises are integrated to the APS network, 58 per cent via management and accountancy consultants, while a further 11 per cent only via accountancy networks. This fact projects already the expectations of APS companies for economic expansion in the coming years, and the potential strengthening of the position of the mentioned cities in the level of integration to APS networks and world economic processes. The metropolises are all important public administration centres of their countries (at regional or medium level), central actors of the national urban networks. According to their positions in the APS location strategy, it can be stated that the relationship between position in national urban hierarchy and position in APS location is not linear, however connectedness exists. Further influencing factors include geographical location of the metropolis, economic performance of its wider region, and its position related to the capital city. Further explanatory factor is the lower number of population of Central European metropolises as compared to Western European ones. Thus Central European metropolises cannot offer a critical mass of population and economic performance which would underline the development of a coherent economic development zone in the macro-region. Only the South-Western Polish cities have a potential for it, which is also indicated by the level of the APS locational index following the capital cities (Kraków, Wroclaw, Katowice, Poznan).

The statements of the literature (Sassen, 2005, Taylor, 2012), as the largest cities are venues of APS companies offering outstanding economic performance, a concentration in highly skilled labour and good accessibility are underlined by control examinations in previous chapter also in Central Europe. The number of cities chosen for location can be explained by its economic performance on the one hand, a larger number of metropolises are involved in Austria, Czech Republic and Poland, the majority of Polish cities concentrating in the Southwest. The accessibility factor is rather homogenous among the metropolises in the macro-region, all metropolises (with one or two exceptions) have a good accessibility via

main transport routes and international flights as well. Some metropolises are port cities which is a further locational advantage.

Empirical analysis justifies the relationship between locational decisions of APS companies and general producer multinational companies also in Central Europe as explained in the literature (Alderson and Beckfield, 2010), thus, APS companies have a stronger concentration of offices by utilizing the advantages of large cities, and high level of accessibility ensures personal contacts with the client multinational companies. Producer companies have a wider spread locational pattern according to the special features of their production activities. Although capital cities are further on prioritized venues for manufacturing MNCs, they tend to deploy their decision-making centres in capital cities in high proportion. Further seats for producer MNCs are offered by cities with a traditionally higher volume of production, thus their integration to APS network and world economic processes are ensured.

DISCUSSION AND CONCLUSION

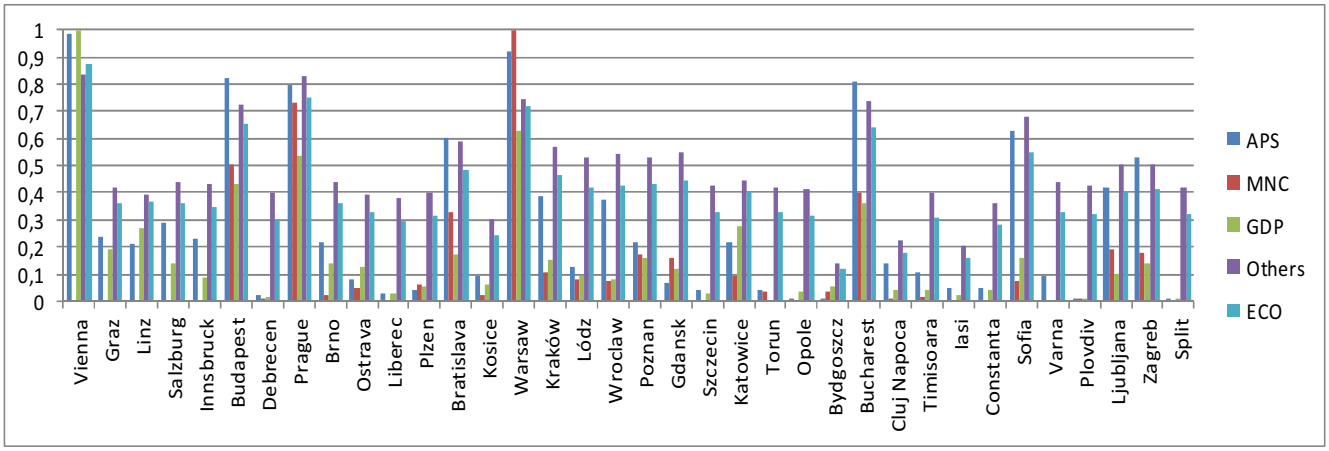
Table 3 Metropolises' classification based on economic index

ECO index	**At least 5 APS company presence**	**2-4 APS company presence**	**1 APS company presence**
0,8	Vienna		
0,7			
0,6	Warsaw, Prague		
0,5	Budapest, Bucharest		
0,4	Linz, Bratislava, Poznan, Gdansk, Katowice, Sofia		
0,3	Graz, Brno, Ostrava, Kraków, Lódz, Poznan, Timisoara, Varna, Ljubljana	Liberec, Plzen, Constanca, Szczecin, Torun	**Opole**, **Split, Plovdiv**
0,2	Salzburg, Innsbruck, Kosice, Cluj Napoca, Zagreb	Iasi	**Bydgoszcz, Debrecen**

Source: own editing based on Eurostat data, metropolises only with an accountancy network

75 per cent of the sample concentrates at least five APS companies, which already represents a critical mass (less than half of all metropolises of the macro-region). Cities with less APS presence have a weaker economic performance and are primarily industrial cities. Here the presence of manufacturing companies justifies the presence of the advanced producer service firms. Five metropolises have only the presence of a network type of accountancy, which indicates an even lower economic performance at the moment, however with a development potential in the near future.

Figure 5 Indicators of metropolises



Source: own editing based on Eurostat and Deloitte data; others: population, accessibility, qualification level, industrial employment aggregated, see Fig. 4.

The APS location examination area is a macro-region with a lower economic performance with capital cities' outstanding economic levels where secondary cities have only a relatively higher GDP in comparison with cities in their region, but not with metropolises in Western Europe. At the same time the metropolises with a regional or medium level public administration center function have high values in indicators like accessibility, level of qualification of labour and number of population that are important location factors for advanced producer services. In case of general manufacturing multinational companies, a capital city concentration can be seen, besides some of the industrial centers of the macro-region appear in the sample, mainly in Poland and Czech Republic, thus strengthening the role of these cities in APS location. The metropolises of the macro-region do not identify a coherent economic development zone, or power center as compared to metropolises in Western Europe, they are not able to act as counterparts, or as an expansion of Western European economic zones, but rather act with a regional role in their surrounding region.

Table 4 Results of regression calculations

Independent variable	Regression equation	Coefficient of determination
MNC	y = 1.0494x + 0.1128	R^2 = 0.7195
GDP	y = 1E-05x + 0.0585	R^2 = 0.7048
GVA	y = 1E-05x + 0.0602	R^2 = 0.698
number of population	y = 1.2272x – 0.1935	R^2 = 0.6534
accessibility	y = 0.9549x – 0.2015	R^2 = 0.3908
index of qualified labour	y = 1.3472x – 0.4676	R^2 = 0.6295
ratio of employees in industry	y = -0.8658x + 0.7561	R^2 = 0.6605
Complex economic indicator (ECO)	y = 1.6331x – 0.3762	R^2 = 0.8145

Source: own editing based on Eurostat data

The complex economic indicator contains indicators of GDP, number of population, accessibility and level of qualified employees with the same weight. Concentration of general manufacturing multinational companies are examined independently. The latter and the indicator of employees in industry is not merged into the complex indicator, as it would distort the results.

While some time ago the statement, the more multinational seat a city has, the more economic power it has in world economy, was still valid, today the picture is more diverse. In many cities the connection is still expressed, however the business centre and venues of production activities do not coincide in regions with an outstanding infrastructure and excellent accessibility. Proximity of markets mean the relative closeness of manufacturing multinationals for APS companies, in which case the same venue is not a prerequisite, however a location is needed, from where a broader scope of markets in a country is accessible, and where travel costs are lower as compared to costs of establishing a new APS office. This interrelatedness is shown by the examination of relations between APS and MNC locations. The high R^2 value (above 70%) is justified by the outstanding values of the capital cities that have a high MNC concentration with decision-making seats.

The macro-region was characterized by a low level of urbanization in the 1950s, level of urbanization exceeded 50% only in Austria, Czech Republic and Hungary, and also today it falls behind the level of Western-Europe by 10% (70% vs. 80%).

Although operative communication is ensured by the info-communication technology, personal strategic negotiations remained part of the business protocol. Communication costs were highly reduced by ICT infrastructure in the daily operation of APS offices, which can be tracked in bandwidth and speed. However, physical accessibility is a decisive location factor in case of APS companies further on. In order APS companies identify the most optimal market coverage and office number, the locations should be accessible via main transport routes and international airports. The indicator of accessibility shows a rather homogenous region of metropolises with a general value around 50%, however the realization of the TEN network shows still large differences, and in many cases it is not sufficient.

The location of higher education institutions in Central Europe is not concentrated, characteristically medium level administration centers are all seats of universities, thus the metropolises of the sample are all locations of higher educational institutions. Regarding tertiary educational attainment in age group 25-64 by NUTS2 regions, a similar tendency can be seen as with other indicators, capitals are at the top above 60%, Polish metropolises in the Southwest of the country follow with 40-50%, and the rest of metropolises have a 20-30% value at an average. Examining the coefficients of determination it can be stated that the individual factors do not explain fully the location strategies, but the high value of the complex indicator, exceeding 80% shows a strong correlation with the aggregated factors.

A different urban hierarchy can be identified based on the complex economic indicator as compared with the urban hierarchy of the APS locational index. As far as the economic

indicator suggests a rather homogenous macro-region as regarded the metropolises with an outstanding value of five capitals, the APS locational index shows a strong concentration. Besides Vienna, Warsaw, Prague, Budapest and Bucharest further two cities, Sofia and Bratislava are able to join the global economic processes, however, Ljubljana, Zagreb, Kraków and Wroclaw have a relatively high value in the sample as well. It can be stated that no direct linear connectedness exists, APS location decisions are influenced by further factors other than complex economic factors. As regards complex economic performance there are five Polish metropolises forgoing the two Western-Balkan capitals, however their central role in the administrative structure offers them priority in the APS locational hierarchy. APS companies make their decisions on a country level, secondary cities appear in APS locational decisions only in relation to the capital cities. This can be witnessed in case of Austria, where the Austrian metropolises' economic indicator level falls behind several Polish metropolises, however overtaking them in APS locational hierarchy. The mountainous landscape in Austria, and relatedly the even spread and good accessibility of the historically developed regional seats explain the values. The factors are more complex in case of Polish metropolises, there are bigger differences in accessibility, and geographical spread of the cities is uneven with a concentration in the South-western part of the country. Romania is less developed, but a country with large territory and number of population within the examined macro-region, with weak in-country accessibility relations. As the capital city location is unfavourable, it is like an island within a less developed area in the South-eastern part of the country, further cities like Cluj Napoca and Timisoara receive a relatively more powerful position in APS ranking.

Geographical and spatial factors as additional locational factors specify APS firms' locational strategies further. Such a factor is the distance from the capital cities, the farther a metropolis from the capital city lies, the more chance it has for getting integrated into a network, however a minimum level of economic development or manufacturing companies' proximity is needed. Kosice in Slovakia, Debrecen in Hungary and Split in Croatia has a market position justified by the distance from the capital, however, the latter two are involved only by an accountancy network.

The geographical location of the capital also influences the positions of other metropolises in the APS network. In some countries, like Austria, Slovakia and Bulgaria the capital city lies in the very East or West of the country, but it can be stated in the case of Warsaw and Bucharest as well that they are located in a less developed area. In such cases secondary cities gain more significance than expected as a consequence.

The APS company locational decisions mirror the poly- or monocentric structure of the countries. The metropolises involved in Austria, the Czech Republic and Romania show a polycentric distribution, however, the GDP level of Romania does not demand the whole polycentric coverage of the country, the main nodal points are the metropolises with outstanding economic performance.

Thus, the main development nodes of the macro-region are: 1) the five global capitals (Vienna, Warsaw, Prague, Budapest, Bucharest), but also the remaining capitals are catching up, 2) Western part of the macro-region showing a better economic performance (Austria, the Czech Republic, the Western part of Poland), 3) the South-western part of Poland concentrating powerful metropolises. Although the new type of concentration does not form new inner peripheries, their dispersion can be said to be even, albeit not with the same density in countries with different economic levels.

REFERENCES

Alderson, A. S., & Beckfield, J. (2004). Power and position in the world city system. *American Journal of Sociology*, 109(4), 811-851.

Alderson, A. S., Beckfield J., & Sprague-Jones, J. (2010). Intercity relations and globalisation: the evolution of the global urban hierarchy, 1981 – 2007, *Urban Studies*, 47(9), 1899-1923.

Beaverstock, J. V., Smith R. G., & Taylor P.J. (1999). A Roster of World Cities*, Cities* 16(6)

Cohen, R. B. (1981). The New International Division of Labor, Multinational Corporations and Urban Hierarchy. In M. Dear, & A. J. Scott (Eds.), *Urbanization and urban planning in capitalist society* (pp. 287-315). New York: Methuen.

Csáki, Gy. (2011). *A nemzetközi gazdaságtan és a világgazdaságtan alapjai*. Budapest: Napvilág Kiadó.

Csomós, Gy. (2011). A közép-európai régió nagyvárosainak gazdaságirányító szerepe. *Tér és Társadalom*, 25(3), 129–140.

Csomós, Gy. (2017). A kelet-közép-európai városok pozícionálása a posztindusztriális gazdasági térben: egy empirikus elemzés az APS cégek irodáinak területi koncentrációja alapján. *Tér-Gazdaság-Ember*, 5(1), 44–59.

Deloitte (2015). Central Europe Top 500 [Pdf]. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/central-europe/CE_Top_500_2015.PDF

Döbrönte, K. (2016). Gravity Centres of Central European Urban Network – Global embeddedness based on advanced producer services, *Deturope Central European Journal of Regional Development and Tourism*, 8(3), 54-72.

Döbrönte, K. (2018). A közép-európai városok pozíciója a magas szintű üzleti szolgáltatók lokációs döntéseiben, *Területi Statisztika*, 58(2), 200-219.

Dunning, J. H. (1993). *Multinational Enterprises and the Global Economy.* New York: Addison Wesley.

European Commission (2017). *Az én régióm, az én Európám, a mi jövőnk. Hetedik jelentés a gazdasági, társadalmi és területi kohézióról*. Luxemburg: Európai Unió.

EuroStat. www.eurostat.eu,

Felméry, Z. (2014). Globalizáció, gazdaságföldrajz és multinacionális vállalati stratégia. In E. Czakó (Ed.), *A globális értékláncok – a multinacionális vállalat, mint globális gyár. Műhelytanulmányok* (pp. 97-109). Budapest: Corvinus Egyetem.

Friedmann, J. (1986). The World City Hypothesis. *Development and Change*, 17(1), 69–83.

Friedmann, J. (1995). The World City Hypothesis. In P. L. Knox, & P. J. Taylor (Eds.), *World Cities in a World System* (pp. 317-331). Cambridge: Cambridge University Press.

Hall, P (1966). *The World Cities*. London: Weidenfeld and Nicolson.

Hardy, J., Sass, M., & Fifekova, M. (2011). Impacts of horizontal and vertical foreign investment in business services: The experience of Hungary, Slovakia and the Czech Republic. *European Urban and Regional Studies*, 18(4), 427–443.

Hymer, S. (1972). The multinational corporation and the law of uneven development. In J. Bhagwati (Ed.), *Economics and World Order from the 1970s to the 1990s* (pp. 113-140). New York: Collier – McMillan.

Johnson, Jr. J. H, Kasarda, J. D, & Rondinelli, D. A. (1998). The Changing Forces of Urban Economic Development: Globalization and City Competitiveness in the 21st Century. *Cityscape: A Journal of Policy Development and Research*, 3(3), 71-105.

Laakso, S., & Kostiainen, E. (2007). *The economic map of Urban Europe. A comparative study of 45 European metropolises*. City of Helsinki Urban Facts, Statistics 2007:42.

Sassen, S. (1991). *The Global City: New York, London, Tokyo*. Princeton: Princeton University Press.

Sassen, S. (2001). *The Global City: New York, London, Tokyo*. Princeton: Princeton University Press.

Sassen, S. (2005). The Global City: introducing a Concept Brown. *Journal of World Affairs*, 9(2), 27–43.

Scott, A. J. (2001). Globalization and the rise of city-regions. *European Planning Studies* 9(7), 813-826.

Sideri, S. (2007). Globalisation and regional integration. *The European Journal of Development Research*, 9(1), online print 38-82.

Simai, M., & Gál, P. (2000). *Új trendek és stratégiák a világgazdaságban*. Budapest. Akadémiai Kiadó.

Szentes, T. (1999). *Világgazdaságtan*. Budapest: Aula.

Taylor, P. J. (2001). Specification of the world city network. *Geographical Analysis*, 33(2), 181–194.

Taylor, P. J. (2004). *World City Network. A Global Urban Analyses*. London: Routledge.

Taylor, P. J. (2012). Interlocking network model. In B. Derudder, M. Hoyler, P. J. Taylor, & F. Witlox (Eds.), *International Handbook of Globalization and World Cities* (pp. 51–63.). Cheltenham, UK: Edward Elgar.

Wall R. S., Burger M.J., & Knaap van der G.A.B. (2011). The geography of global corporate networks: the poor, the rich and the happy few countries, *Environment and Planning*, 43, 904-927.

Original scientific paper

INDUSTRIAL AGGLOMERATION AND LOCATION CHOICE IN THE SERVICE AND RETAIL SECTOR: THE CASE OF INDIA

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Abstract

Behind the selection of location choices for services and retail sector, many factors work in conjunction. This research tried to determine which factors had an influence on location choice and agglomeration and which factors worked together to decide the location choice. This study empirically tests location determinant hypothesis. Our findings suggested that infrastructure, corruption and law, labour law and workforce had a significant effect on location choice. Other factors such as trade regulation, competition, sales and supply, access to land and permit, access to finance, institutional administration and political constraint had the insignificant effect on location choice. Our research used the 2014 World Enterprise Survey data from World Bank, and it included the 2116 registered companies sample responses.

Keyword: Location choice, Agglomeration, Methodological challenges

INTRODUCTION

India liberalized its economy in 1991, and from 1991 until 2018 India's economy performed very well (World Bank, 2018). To achieve this growth, since the 1990s, mergers and acquisitions (M&A) have become a more important component of inward and outward FDI (Beule & Duanmu, 2012). The question arises where to locate these industries and what is the major critical factor that encouraged the establishment of enterprises of firms in the local area. So, this research discusses the attractiveness of regional institutions, market accessibility, the stability of an area and easiness of access to regional resource in retail and service sectors, because there is very limited research on the federal and state level in India.

Fewer amounts of studies examined the agglomeration effect at the national and sub-national level industries and their location selection. Most of the studies focus on the location choice determinant of foreign MNEs' investments (Gál, 2014). In this paper, we try to examine the agglomeration and location choice by the national companies working in the retail and service sector. The research examines the Indian firms' location choice both at the national and sub-national level rather than to focus on particular states in India. This research

took a wider sample approach and tried to find the location choice impact in India. The data were gathered from the World Enterprise Survey (WES) 2014 conducted by the World Bank. This study focusses on the services and retail sectors in India and perform binary logistic regression on 2116 enterprises' responses. In this research, binary logistic regression took a dependent variable "Is this city main business city" which is dichotomous in nature with two-point scale, from WES 2014 survey question number A3C, and twenty-two other independent variables from Tab. 1. Our research used the IBM SPSS 25.0 statistics version tool to analyse the data with enter methodology in binary logistic regression. The enter method in analysis gives an opportunity to consider all important variables and utilize the variables' potential for the betterment of research output.

This study is organized as follows: first, it describes the selection process for variables and categorizes the variables for a methodological approach using the literature support and establishes the hypotheses for location choice and agglomeration effect in India. In addition, at the end, it describes the research implications and results.

THEORETICAL BACKGROUND

Lösch (1938) argues that the world consist equally fertile flat homogeneous plane with disrupted resources, and another central place theory stated that cities and shopping areas have traditional economies in which smaller towns serve as agricultural population. This theory explains two economic areas: first, non-market places like worship and post office, and second, areas like market of local goods and services such as hairdresser, newspaper, doctor and dentist, grocers and movies. Central place theory backed the hypothesis of higher economic growth and development for cities, argues according to a city's rank size, and the distribution of central places is varied within the system of cities. West, Von Hohenbalken, & Kroner (1985) found that internal growth and decline of shopping centers are associated with the changes of their market areas. However, central place theory didn't explain the logistics location and examine the pre-industrial revolution urban system. Central place theory ignores the supply channels within the system.

Loveridge (2008) argued that firms' groups initially proximate together to take advantage of internal economies of scale by selling to large market or minimize transportation costs. When they are proximate together and make a cluster, industries benefit from the lower cost that is not passed from outside the cluster. When this happens to clusters, firms are benefiting from agglomeration economies. The proximity of the firms around triggers two types of

agglomeration: localization and urbanization. The presence of firm clusters in the area generates agglomerated economies. Both urbanization and localization economies impact specialized resources, labour supply, and technology spillover. Agglomeration benefited from a lower cost of doing business and increased the chances of technology spillover effects (Pavlínek & Žížalová, 2014). Marshall (1920) identified three types of externalities generated by spatially concentrated firms. The first type of industries attracts a pool of specialized labor. The second generates sustained and specialized firms that concentrate production process and cause to form a big cluster. These clusters decrease the production costs for the other local firms within the industry. Firms that locate next to each other minimize the transportation costs. Firms which locate next to input suppliers takes advantage of backward linkages (or firms that produce upstream products) and firms located next to their market benefit from forwarding linkages (or firms that produce downstream products). With the consideration of city location choice and agglomeration, the following hypotheses are specified.

Infrastructure

Higher Internet broadband connection penetration, spectrum density, and penetration of telecom signal to subscribers increase the chances to choose the location as investment destination. Electricity is the critical part of any industrial infrastructure, India's ambitious development goal and expansion of mobility between industries show high electricity demand. According to the International Energy Agency (IEA), since 2000, India requires ten percent of the global energy demand. In the retail sector, closer availabilities of storage and warehouse facilities are beneficial for industries and minimize the wastage of raw materials and reduce the cost for the retail sector. To sustain the economic growth, infrastructure development is necessary (Sahoo & Dash, 2009). Summarizing the impact of infrastructure on agglomeration and location choice in the retail and the service sector, the listed hypothesis is identified:

H1: The higher the infrastructure availability is, the higher the probability of selecting a location for investment is, and the higher the chances of agglomeration effect are.

Trade regulation

Controversy between the relationship of trade policy and economic performance is an impressive aspect, but in general, countries with a more open trade directed toward faster growth through the time (Krueger, 1997). Free flow trade is necessary for industrial growth, in addition, the controlled trade regulation makes the hindrance between consumers and suppliers to the firm's location in tradable or non-tradable sectors; firms in the non-tradable

sector had higher job growths. Transport costs and congestion costs explain the relationship between international trade and industry location (Hanson, 1994). There is an increasing influence of regional impacts of trade policy and recent theoretical developments, some regions develop at a different rate than others (Fujita, 1988; Miyagiwa, 1992). Jain (2017) shows that trade liberalization nowadays is considered to be the engine of economic growth.

H2: The lower the obstacles in trade regulation are, the more likely it is to select the location for investment and higher the chances of agglomeration effect are.

Competition

Agglomeration of industries and localization of economies incorporated the market size for extension of cities and industry for a central place's business organization activities to maximize the profit (Krugman, 1993). Profitability is dependent on market size, and big market size can tolerate the high competition. Although it is not necessary that higher competition can produce hindrance for location choice, the market can adopt the new competitor until the scope for market demand is remaining, but lesser competition in an informal sector is more profitable. So, until the market demand fulfills, the agglomeration effect increases. It decreases when the market demand is fulfilled and there is no chance of profitability. To summarize this factor, our research identified the following hypothesis.

H3: The lower the competition in the informal sector is, the more likely it is to select the location for investment and higher the agglomeration effect is.

Sales, supply and land permits

Inhospitable business environment (difficult to get the land permit and law order situation) affects the difficulty in access to inputs. Inefficient and less productive firms can’t survive in these conditions (Dollar & Kraay, 2004; Lall & Mengistae, 2005). The supply chain can be divided into three levels: operational, tactical and strategic (Qi, Shen, & Snyder, 2010). Operational decisions include the routing management fleet and quantity of shipment, strategic decisions include the number and location of facilities. Tactical decisions deal with the location and quantity of inventory (Berman, Krass, & Mahdi Tajbakhsh, 2012). Easier land acquisition leads to smooth creation of warehouse for supply management. Availability of land within the city is different from city to city within the country. So, cost and availability of land may differ considerably among cities in the same country (Essaadi, Grabot, & Fénies, 2016). To summarize this factor, our research identified the following hypotheses:

H4: The lower the obstacles in sales and supply are, the more likely it is to select the location for investment and higher the agglomeration effect is.
H5: The lower the obstacles in land and permit acquisition are, the more likely it is to select the location for investment and higher the agglomeration effect is.

Corruption and law

Sabic-El-Rayess and Mansur (2016) shows that corruption can be monetary favor as well as the reciprocal favor with other benefits. Elected representatives from people are the key figures in the professional bureaucracy and handle the bureaucratic matter. Paul and Sukhtankar (2013) presented that marginal rates of corruption are an important input into policy-making. They provided the first empirical analysis of marginal leakage. This study was focused on India's National Rural Employment Guarantee (NREG) scheme, which is a large social welfare and protection scheme; in summary, the study shows that corruption negatively effects on city location choice for investment in India. To summarize this factor, our research identified the following hypothesis:
H6: The lower the level of corruption is, the more likely it is to select the location for investment and the higher the agglomeration effect is.

Institutional effect and financial availability

Institutions play a vital role in shaping the business either they are sub-national, national or regional institutions. Institutions provide an advanced, powerful framework for the business environment. Literature predominantly bestowed, poor institutions cause additional risks, and increase the risk of doing business, in addition, poor institutions extended toward the red tapism, political instability, corruption in bureaucracy or the overall quality of the legal and administrative system (Daude & Stein, 2007; Wei, 2000; Wheeler & Mody, 1992), therefore, Indian institutional system is also affected by this symptom.
According to Tiebout (1956), investors are not only attracted by an area's natural amenities but also influenced by local fiscal policy. Natural amenities with local fiscal policies affect land values in single jurisdiction. Property taxes at a higher rate in neighboring areas resulted from the demand for land in that jurisdiction to decreases and, alternatively, land prices will fall. Therefore, in this way, a regional tax is capitalized into the land values. However, if regional spending is efficient and provides services, then the residents prefer value-added service. This causes an increase in the demand for land in that jurisdiction and soaring land values. To summarize this factor, our research identified the following hypotheses.

H7: The lower the obstacles in financing are, the more likely it is to select the location for investment and the higher is the agglomeration effect.

H8: The lower the obstacles in institutional administration are, the more likely it is to select the location for investment and the higher the agglomeration effect is.

Political constrain and labor availability

India's position in ease of doing business is continuously improving by political effort, but compared to its counterparts, it is still too far from the most-favored nation to do business activities. The average rate to acquire the land for business activity in India is approximately six years due to political constraint. The majority of studies utilized the conceptualized institution perspective at the national level. However, regional institutions vary from region to region to subsidize fiscal incentives such as tax, holiday, local labour law conditions and reporting (Flores & Aguilera, 2007).

Loveridge (2008) found that easy availability of services in the urban area decreases the labor costs compared to rural areas. However, rural manufacturing firms may need to operate their own fleet of trucks to deliver the product in the central market. Women and immigrants emerge as the labor supply for city industrialization, which facilitates the imposition of low wages. Authors MacCarthy and Atthirawong, (2003) found that location decisions are generally influenced by costs, infrastructure, labour characteristics, government and political factors and economic factors.

H9: The greater the political obstacles are, the less likely it is to select the location for investment and the lower the agglomeration effect is.

H10: The lower the obstacles in labour availability and workforce are, the more likely it is to select the location for investment and the higher the agglomeration effect is.

Mega cities are different from international cities so global cities are classified as (1) High level of advanced service producers (2) High degree of interconnectivity of the universities with the local market (3) Cosmopolitan environment and varied local business, which leads to increased return and gives the opportunity to raise diversified externalities and increases the urbanization (Beaverstock, Smith, & Taylor, 1999; Sassen, 2012). Global cities increase the agglomerated industries, where all industries compete with each other to keep nearness to the global city centre.

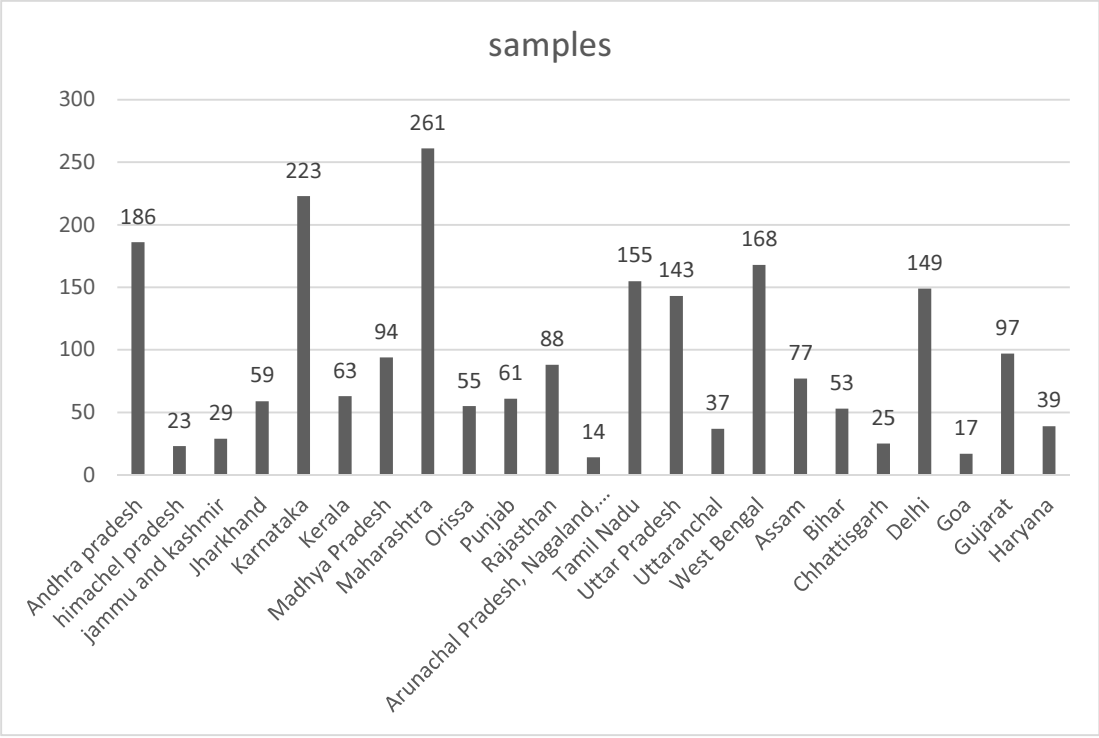
DATA AND METHODS

The research database was sourced from the World Bank's WES 2014 Indian survey. In order to make these data satisfy the research objective, first, we filtered the data and took only Likert scale responses. It included 2116 samples across the Indian services and retail

industries. Belkhodja, Mohiuddin and Karuranga (2017) analyses determinants such as land, wages, education, gross regional product, infrastructure and intellectual property rights in China, based on a data set of 1218 observations and used the logit regression methodology. Research results indicated that the gross regional product, investments in education, agglomeration economies and protection of intellectual rights affect the location choice.

Fig. 1 shows the state-wise sample distribution: the number of respondents from Maharashtra, Karnataka and Andhra Pradesh is higher due to the presence of economic capital, silicon-valley and cyber-city. Binary logistic regression was used to match the research objectives. The dependent variable is a dichotomous variable and has only two possibilities of occurrence for location choice. Our study uses the sample question "Is this city the main business city?" from WES Indian survey 2014. So, it has only two possibilities: yes or no, which makes this variable dichotomous on a two-point scale.

Figure 1 Research sample distribution in the states of India



Source: WES 2014, India, compiled by author.

From Tab. 1, the third column shows the reference of the question numbers which were taken from the WES India survey 2014, all questions were asked on a seven-point Likert scale from the Indian retail and service enterprises. The documented date of the data collection in WES is June 2013 and December 2014, India (World Bank, 2014).

Table 1 Location choice variables and WES survey question classification

Category	Variables	WES* survey question number	Data form
Infrastructure	Electricity (IV)	C30A	Likert scale
	Telecommunication (IV)	C30B	Likert scale
	Transport (IV)	D30A	Likert scale
	Availability of storage facilities, including cold storage facilities and warehouses (IV)	SARD31F	Likert scale
Trade Regulation	Customs and trade regulations (IV)	D30B	Likert scale
Competition	Practices of competitors in the informal sector (IV)	E30	Likert scale
Sales and Supply	Access to inputs and supplies (IV)	SARD31B	Likert scale
	Logistic Price increases chain due to fuel (IV)	SARD31E	Likert scale
Land permits	Access to land (IV)	G30A	Likert scale
Law and order situation	Crime, theft and records (IV)	I30	Likert scale
	Corruption (IV)	J30F	Likert scale
	Courts (IV)	H30	Likert scale
	Partiality and uncorrupted court (IV)	H7A	Likert scale
Finance	Access to finance (IV)	K30	Likert scale
	Currency exchange rate (IV)	SARD31D	Likert scale
Institutional administration	Tax rate (IV)	J30A	Likert scale
	Tax administration (IV)	J30B	Likert scale
Political constraint	Business licensing and permits (IV)	J30C	Likert scale
	Political Instability (IV)	J30E	Likert scale
Labor availability and workforce	Labor regulation (IV)	I30A	Likert scale
	Inadequately educated workforce (IV)	I30B	Likert scale
	Lack of an ISO certification (IV)	SARD31A	Likert scale
City	Is this city the main business city (DV)	A3C	Likert scale

*Refers the WES Indian survey conducted in 2014.
Source: WES survey 2014, World Bank

RESULTS

This study took 2116 samples, which particularly focused on retail and services industries. A total of 22 questions were extracted from the WSE 2014 survey in India. The research took nationwide responses from Indian states, see Fig. 1 for the distribution of samples within the states. The respondents in this research didn't know the purpose of the research, when concurrently filling the questionnaire. This type of limitation is positive for our study because respondents answered randomly with no biased nature. In this research the number of outliers is carefully checked before the analysis to make the research error-free for concrete and conclusive results.

From the equation below, between 17.4 to 41.2 percent of the variance is the dependent variable explained by the model.

$$\chi 2(123, \mathrm{N} = 2116) = 404.232, \mathrm{p} < 0.001 \qquad \text{Eq. 1}$$

Equation 1 presents a chi-square value of 404.232 with a degree of freedom 123 from the Omnibus test model of the coefficient. According to the Hosmer and Lemeshow Test, the model is a significant at level 0.183 with a degree of freedom 8.

An excellent model always has a the decent efficiency, our model predictability is 92.292. Therefore, gaps between the observed and expected value are very little. So, our model efficiency is sufficient to predict the final hypothesis.

Tab. 2 shows the hypothesis testing results, to select the best-fit model, their results were compared with several other logistic models. The optimum fitted model is selected based on a maximum likelihood ratio Exp(B). Overall best fitted model results are shown in Tab. 2., which gives parameter estimates and their significance levels for each level of each categorical predictor and for each continuous covariate, if any, and it also gives odds ratios. The overall influence of Infrastructure facility viz. electricity, telecommunication, transport and availability of storage facilities, including cold storage facilities and warehouses are significant. Another determinant, the overall situation of corruption and law has significant influence on location choice in India in the service and retail sectors; the variable included in this determinant are crime theft and records, corruption, courts' partiality and uncorrupted court. Labour and workforce availability is also significant for location choice; this determinant is defined by the following variables: labor regulation, inadequately educated workforce and lack of an ISO certification.

Table 2 Hypothesis testing

Models	B	S. E	Wald	df	sig.	Exp(B)	Variables group
Model 1	-4.224	1.890	4.994	1	0.025	0.015	Infrastructure
Model 2	-0.459	0.997	0.211	1	0.646	0.632	Trade regulation
Model 3	1.881	1.230	2.338	1	0.126	6.562	competition
Model 4	17.955	17929.888	0.000	1	.999	62762099.806	sales and supply
Model 5	16.071	4521.209	0.000	1	0.997	9542470.039	Access land permit
Model 6	20.220	57579.252	26.154	6	0.000	604394383.570	Corruption and law order
Model 7	15.779	40196.503	0.000	1	1.000	7120663.945	Access to Finance
Model 8	11.578	95621.485	0.000	1	1.000	106672.611	Institutional Administration
Model 9	15.172	90658.941	0.000	1	1.000	3883705.973	Political constraint
Model 10	18.223	14720.381	13.771	5	.017	82079976.932	Labour and workforce availability

Source: own processing in SPSS

DISCUSSION

Hypothesis H1 Influence of infrastructure

The variable infrastructure has significant but negative impact. Every unit change in infrastructure causes that it is 0.015 times less likely to invest in a city and reduce the agglomeration effect. The negative effect of infrastructure indicates that government needs to improve the infrastructure to attract the enterprises. A developing country with the adequate logistical system can attract more investment in cities by improving logistic infrastructure viz. road and highways. However, Blyde and Molina (2015) presented positive relation between

investment and logistic infrastructure. In India there is a huge gap between supply and demand of cold storage facility. Another factor like good infrastructure is necessary condition for movement of raw materials and products, from one location to another. Adequate infrastructure encourages investors to select a city for investment, in addition, this further leads toward the agglomeration effect and this agglomeration could be between the same types of industries or mix of core and supplier industries. Therefore, the logistic location near the production facility works as the tranquilizer.

Hypothesis H2 Trade and regulation

Trade and regulation policies don't support the logistic regression analysis. The determinant has a negative impact on city location choice in India. Therefore, city location selection is not driven by the trade and regulation determinant. By considering the odds ratios and log likelihood output, the research result indicates that trade and regulation are big obstacles in India. The study of Hanson (1994) shows that trade liberalization has strong effects on industry location, in addition, transportation costs in state industries' agglomeration have mixed effect. The lack of clarity between the government rules and regulation for the retail and service sector market create nervousness in investors. Alternatively, this regulation causes hindrance to select the location for investment and negatively impacts the industrial agglomeration. So, Indian states that have complex trade regulation have to ease trade law to promote the industrial agglomeration. Large agglomeration shows positive impact on companies' location decision. Adhikary (2011) presented that the degree of trade openness has negative but diminishing influence on growth rates.

Hypothesis H3 Competition in the informal sector

Competition has positive but insignificant effect in city location choice. So, city location choice for investment is not driven by the "competition in the formal sector". The risen market competition is the main factor to invest in location and continue until the market has a potential to earn profit. Conventional multinational firms arise due to highly imperfect market with the support of lower level of institutional and technological development. In this process, mainly, home country's location is benefited from in early stage activity. So sometimes the domestic enterprise on national and sub-national level is working on the background support for logistic supply (Kogut, 1985; Rugman, 2010). Results show that competition in the informal sector doesn't support the city location choice variables, and competition in the informal sector directly doesn't cause the agglomeration effect.

Hypothesis H4 Sales and supply

The variable 'sales and supply' has insignificant and positive effect on city location choice. The Beta coefficient for sales and supply chain indicates a positive impact on city location choice. The availability of adequate logistic infrastructure increases the investment and allows production material goods more easily to the production house and helps in matching the demand and supply gap. Logistic price fluctuation due to increasing fuel price is a major obstacle. Tab. 2 depicted the odds ratio and maximum likelihood probability for sale and supply. Sales and supply hypothesis result suggested that it is not an attracting factor for national and sub-national level investors. Therefore, sales and supply are not a significant determinant for city location choice and agglomeration of industries in India. However, we can consider logistic supply as a main important factor in decision making to select the location choice (Bailey & De Propris, 2014).

Hypothesis H5 Access to land permit

Our analysis shows that land and permit have insignificant and positive impact on city location choice. The result suggested that land and permit are not the significant factors in the city location choice. Land acquisition has always been the hard task in India, there is no favorable provision for the acquisition of land for industrial development and it followed the old industrial land acquisition act from 1894 till 2011 excepting the state Jammu and Kashmir. The proposed 2011 land acquisition bill inflated the business cost for infrastructure, metal and mining sectors. Land acquisition centre can advise the states about priorities for land acquisition. But since land acquisition is under state law, state government cooperation is important to ensure the required land proposed for industrial development in India (Sahoo & Dash, 2009, p. 313).

Hypothesis H6 Corruption and law

Corruption and law are positively significant for the city location choice in India and causes successful agglomeration. From Tab. 2 every unit increment of corruption and law causes 20.220 times more likely improvement of city location choice and industrial agglomeration in retail and service sectors. A bureaucracy may tell a company that there are no rules but it should use unidentified regulations to justify a negative decision, to tackle this problem, local investors supported the corruption. The effect of corruption for public welfare has always been an interesting theme for economists (Bardhan, 1997; Jain, 2001). Corruption positively increases agglomeration of industries in India, and has a favorable effect for private firms

only when the efficiency of private players is higher than that of the average public bureaucrat (Buia & Molinari, 2012). Other studies showed that India generally has a moderate to large problem with corruption as a whole country (Quah, 2008).

Hypothesis H7 Finance facility

Considering the 'access to finance' variable, it is insignificant and its beta value is positive. The finance has a positive impact on city location choice. The odds value for the finance variable is very high: 7120663.945 times more likely. Instead of going to the financial institution, the local investors prefer to finance by self in India. Industrial agglomeration in India doesn't depend on the public financial institution. Merz, Overesch and Wamser (2017) presented that capital requirements negatively affect location probabilities. According to Martí, Alguacil and Orts (2017), agglomeration effects, skilled labour and financial risk are important factors for location choice in transition economies. In India, the adequacy of financial facility is not necessary condition for industrial development. Retail industry is not relying on exchange rate and access of finance availability. Overall, this research found, investment in a city is not driven by the finance facilities of the local area.

Hypothesis H8 Institutional Administration

The variable 'institutional administration' is insignificant. It doesn't play a significant consideration in location choice by Indian firms. In India, only three percent of population pays taxes. Although, the institutional administration variable's likely value is high, this is because the local investor considered the tax is an important factor. In India, different states have different tax structures, but very fewer tax collectivities. The odds value for the institutional variable is positive. Some literature supports that the tax is an important factor to attract the new firms by providing the tax incentives. So, the possibility of agglomeration of an existing firm can be increased (Glaeser & Gottlieb, 2009; Greenstone, Hornbeck, & Moretti, 2010; Kline & Moretti, 2013). Location-based tax is insensitive for employment and industrialization at the local level in India, it is an empirical question (Chaurey, 2017). With the reference of other research and results of this research, the hypothesis concerning institutional administration concluded insignificantly valid for this research.

Hypothesis H9 Political constrain.

Consideration of the political constraint is insignificant with positive effect. Beta value for political constraint is positive for selection of location choice. Political constraint didn't play an adequate role to choose the city location. Agglomeration of the firms in India doesn't

depend on the political constraint. In India all 28 states elect the local government, this government contributes to local industrial policy-making for the state. So, political constraint in India differs state-wise, but the overall impact of politics was found insignificant. According to Dunning (1977), OLI (ownership, location, and internationalization) political perspective on location choice is worth exploring as it explicitly contributes to a non-market strategy. Political instability would increase uncertainty, discouraging investment and eventually hindering economic growth, alternatively, economic activity can be explained by agglomeration (or centripetal) forces and dispersion (or centrifugal) forces (Krugman, 1993).

Hypothesis H10 Labour and workforce

The variable 'labor and workforce' has positive and significant effect and the beta coefficient for labor regulation is positive. The analysis result showed that simplicity in labor regulation can increase the chances to select the city as investment destination. Results showed that the labour regulation in India at the national and sub-national level means no obstacles for an investor. According to Essaadi et al. (2016), a host country's overall labor market potential depends on the availability of qualified labor workforce based on hiring and firing practices and wage determination. Tab. 2 depicts that every unit increase in the determinant labor and workforces increased the chances to select the city as investment location 82079976.932 times more likely. Clear and simple rules for labor workforce increased the chances to agglomerate the firms toward the city. In India, distinct states have different wage criteria, but our study shows that the overall effect is positive for city selection and agglomeration. Employees with industry-specific skills form clusters, and these clusters open the door to a large pool of specialized labor for firms. Another instance of agglomeration economies is the one which accumulates around the industries. This inter-industry proximity of labour is beneficial for complimentary services (banking, advertising and publishing) through the availability of a large labor pool with multiple specialization, so other industries can also be benefited from this clustering of labour (Lall, Shalizi, & Deichmann, 2004)

CONCLUSION

Our study suggested some key determining factors for location choice and revealed the determinants which cause the agglomeration effect in the retail and service sectors in India. Results showed that infrastructure, corruption and law, workforce and labour law had a significant effect on location choice. These factors successfully caused the agglomeration of industries in India. Cities which had good infrastructure like telecommunication and transport

infrastructure and reliable electricity provision increased the firms' productivity and reduced the cost of operation which we found to be evident in this research in the context of Indian national firm location choice. Indian national investors select the city which is good in infrastructure. Corruption positively contributed in India's city location selection and agglomeration of industries. Other factors such as trade regulation, competition, sales and supply, access to land and permit, access to finance, institutional administration and political constraint were insignificant on location choice. Central institutions play a major role in industrial policy-making, but the policy implementation at the ground level is state government responsibility. Due to political limitation, firms cannot locate facilities closer to the city and to sell land and asset without authorization from the state government permission, which is a complicated task due to large paperwork (Lall et al., 2004). So, state government should consider easing the law and promote local investment in the retail and service sector. Storage facility is directly related to the land. So, industry site selection preference would be improving by the availability and quality of infrastructure. So, in the absence of infrastructure, firms de-concentrate and bear a high operation cost.

This research has policy implications for state and central governments: both the state and central governments can consider these research variables for policy making. Our results suggest to policy makers in which field they are lagging behind to attract the investors. This research also has an implication for firms and decision-making authorities: the hypotheses help the managers to acknowledge the city location.

Research had some limitations with respect to data collection: respondents didn't know the purpose of data collection, and the collection process didn't utilize the full potential of surveyor knowledge. The Indian geography is diversified, so further state-wise study is suggested for the future. However, with this constrained research we successfully contributed to the literature of Indian retail and service sector industries' agglomeration by producing novel evidence that the location choice of national Indian enterprises is positively related to various sources of agglomeration determinants (infrastructure, corruption and labour workforces' condition).

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REFERENCES

Adhikary, B. K. (2011). FDI, Trade Openness, Capital Formation, and Economic Growth in Bangladesh: A Linkage Analysis. *International Journal of Business & Management*,

6(1), 16–28. https://doi.org/10.5539/ijbm.v6n1p16
Bailey, D., & De Propris, L. (2014). Manufacturing reshoring and its limits: The UK automotive case. *Cambridge Journal of Regions, Economy and Society*, 7(3), 379–395. https://doi.org/10.1093/cjres/rsu019
Bardhan, P. (1997). Corruption and Development: A Review of Issues. *Journal of Economic Literature*, 35(3), 1320–1346.
Beaverstock, J., Smith, R. G., & Taylor, P. J. (1999). A Roster of World Cities. *Cities*, 16, 445–458. https://doi.org/10.1016/S0264-2751(99)00042-6
Belkhodja, O., Mohiuddin, M., & Karuranga, E. (2017). The determinants of FDI location choice in China: a discrete-choice analysis. *Applied Economics*, 49(13), 1241–1254. https://doi.org/10.1080/00036846.2016.1153786
Berman, O., Krass, D., & Mahdi Tajbakhsh, M. (2012). A coordinated location-inventory model. *European Journal of Operational Research*, 12(17), 500–5008. Retrieved from https://www.sciencedirect.com/science/article/pii/S0377221711008678
Beule, F. De, & Duanmu, J. L. (2012). Locational determinants of internationalization : A firm-level analysis of Chinese and Indian acquisitions. *European Management Journal*, 30, 264–277.
Blyde, J., & Molina, D. (2015). Logistic infrastructure and the international location of fragmented production. *Journal of International Economics*, 95(2), 319–332. https://doi.org/10.1016/j.jinteco.2014.11.010
Buia, R. E., & Molinari, M. C. (2012). Corruption and positive selection in privatization. *Research in Economics*, 66(4), 297–304. https://doi.org/10.1016/j.rie.2012.05.002
Chaurey, R. (2017). Location-based tax incentives: Evidence from India. *Journal of Public Economics*, 156, 101–120. https://doi.org/10.1016/j.jpubeco.2016.08.013
Daude, C., & Stein, E. (2007). The quality of institutions and foreign direct investment. *Economics and Politics*, *19*(3), 317–344. https://doi.org/10.1111/j.1468-0343.2007.00318.x
Dollar, D., & Kraay, A. (2004). Trade, Growth, and Poverty. *The Economic Journal*, 114(493), F22–F49. https://doi.org/10.1111/j.0013-0133.2004.00186.x
Dunning, J. H. (1977). Trade, Location of Economic Activity and the MNE: A Search for an Eclectic Approach. In Ohlin, B., Hesselborn, P. O. &, Wijkman, P. M. (Eds.), *The International Allocation of Economic Activity* (pp. 395–418). London: Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-03196-2_38
Essaadi, I., Grabot, B., & Fénies, P. (2016). Location of logistics hubs at national and subnational level with consideration of the structure of the location choice. *IFAC-PapersOnLine*, 49(31), 155–160. https://doi.org/10.1016/j.ifacol.2016.12.178
Flores, R. G., & Aguilera, R. V. (2007). Globalization and location choice: an analysis of US multinational firms in 1980 and 2000. *Journal of International Business Studies*, 38(7), 1187–1210. https://doi.org/10.1057/palgrave.jibs.8400307
Fujita, M. (1988). A monopolistic competition model of spatial agglomeration: Differentiated product approach. *Regional Science and Urban Economics*, 18(1), 87–124. https://doi.org/https://doi.org/10.1016/0166-0462(88)90007-5
Gál, Z. (2014) Relocation of business services into Central and Eastern Europe: (evidence from trade and location statistics). *Romanian Review of Regional Studies*, 10(1), 67–78.
Glaeser, E. L., & Gottlieb, J. D. (2009). The Wealth of Cities: Agglomeration Economies and Spatial Equilibrium in the United States. *Journal of Economic Literature*, 47(4), 983–1028. https://doi.org/10.1257/jel.47.4.983
Greenstone, M., Hornbeck, R., & Moretti, E. (2010). Identifying Agglomeration Spillovers: Evidence from Winners and Losers of Large Plant Openings. *Journal of Political Economy*, 118(3), 536–598. https://doi.org/10.1086/653714

Hanson, G. H. (1994). *Regional Adjustment to Trade Liberalization* (No. 4713). NBER Working Paper No. 4713. Cambridge, MA: NBER. https://doi.org/10.3386/w4713

Jain, A. K. (2001). Corruption: A review. *Journal of Economic Surveys* 15(1), 71-121. https://doi.org/10.1111/1467-6419.00133

Jain, H. (2017). *Trade Liberalisation, Economic Growth and Environmental Externalities:An Analysis of Indian Manufacturing Industries*. Springer Nature Singapore. https://doi.org/10.1007/978-981-10-2887-8

Kline, P., & Moretti, E. (2013). *People, Places, and Public Policy: Some Simple Welfare Economics of Local Economic Development Programs* (No. 19659). National Bureau of Economic Research Working Paper Series. Cambridge, MA: NBER. https://doi.org/10.3386/w19659

Kogut, B. (1985). Designing global strategies: Comparative and competitive value-added chains. *Sloan Management Review*, 26(4), 15–28. Retrieved from https://search.proquest.com/docview/206798958?pq-origsite=gscholar

Krueger, A. O. (1997). *Trade Policy and Economic Development: How We Learn* (NBER Working Paper Series No. 5896) Cambridge, MA: NBER. https://doi.org/10.3386/w5896

Krugman, P. R. (1993). On the Relationship Between Trade Theory and Location Theory. *Review of International Economics*, 1(2), 110–122. https://doi.org/10.1111/j.1467-9396.1993.tb00009.x

Lall, S. V, & Mengistae, T. (2005). *The Impact of Business Environment and Economic Geography on Plant-Level Productivity: An Analysis of Indian Industry* (World Bank Policy Research Working Paper No. 3664).

Lall, S. V, Shalizi, Z., & Deichmann, U. (2004). Agglomeration economies and productivity in Indian industry. *Journal of Development Economics*, 73(2), 643–673. https://doi.org/https://doi.org/10.1016/j.jdeveco.2003.04.006

Lösch, A. (1938). The Nature of Economic Regions. *Applied Economics*, 5(1), 71–78. Retrieved from www.jstor.org/stable/3693804

Loveridge, S. (2008). Regional and Urban Economics and Economic Development: Theory and Methods by Mary E. Edwards. *Journal of Regional Science*, 48(4), 844–845. https://doi.org/10.1111/j.1467-9787.2008.00591.x

MacCarthy, B., & Atthirawong, W. (2003). Factors affecting location decisions in international operations – a Delphi study. *International Journal of Operations & Production Management,* 23(7), 794-818. https://doi.org/10.1108/01443570310481568

Marshall 1842-1924, A. (1920). *Principles of economics; an introductory volume*. Eighth edition. London : Macmillan. Retrieved from https://search.library.wisc.edu/catalog/999933078602121

Martí, J., Alguacil, M., & Orts, V. (2017). Location choice of Spanish multinational firms in developing and transition economies. *Journal of Business Economics and Management*, 18(2), 319–339. https://doi.org/10.3846/16111699.2015.1013980

Merz, J., Overesch, M., & Wamser, G. (2017). The location of financial sector FDI: Tax and regulation policy. *Journal of Banking and Finance*, *78*, 14–26. https://doi.org/10.1016/j.jbankfin.2017.01.001

Miyagiwa, K. (1992). Geography and trade: by Paul Krugman, Cambridge: The MIT Press, 1991. *International Review of Economics & Finance*, 1(4), 389–391. Retrieved from https://econpapers.repec.org/RePEc:eee:reveco:v:1:y:1992:i:4:p:389-391

Paul, N., & Sukhtankar, S. (2013). Corruption Dynamics: The golden goose effect. *American Economic Journal: Economic Policy*, 5(4), 230–269. https://doi.org/10.1016/j.visres.2014.10.009

Petr, P., & Pavla, Z. (2014). Linkages and spillovers in global production networks: Firm-level analysis of the Czech automotive industry. *Journal of Economic Geography*, 16(2),

331–363. https://doi.org/10.1093/jeg/lbu041
Qi, L., Shen, Z.-J. M., & Snyder, L. V. (2010). The Effect of Supply Disruptions on Supply Chain Design Decisions. *Transportation Science*, 44(2), 274–289. https://doi.org/10.1287/trsc.1100.0320
Quah, J. S. T. (2008). Curbing Corruption in India: An Impossible Dream? *Asian Journal of Political Science*, 16(3), 240–259. https://doi.org/10.1080/02185370802504266
Rugman, A. M. (2010). Reconciling internalization theory and the eclectic paradigm. *Multinational Business Review*, 18(2), 1–12. https://doi.org/10.1108/1525383X201000007
Sabic-El-Rayess, A., & Mansur, N. N. (2016). Favor reciprocation theory in education: New corruption typology. *International Journal of Educational Development*, 50, 20–32. https://doi.org/10.1016/j.ijedudev.2016.04.005
Sahoo, P., & Dash, R. K. (2009). Infrastructure development and economic growth in India. *Journal of the Asia Pacific Economy*, 14(4), 351–365. https://doi.org/10.1080/13547860903169340
Sassen, S. (2012). Cities: A window into larger and smaller worlds. *European Educational Research Journal*, 11(1), 1–10. https://doi.org/10.2304/eerj.2012.11.1.1
Tiebout, C. M. (1956). A Pure Theory of Local Expenditures. *Journal of Political Economy*, 64(5), 416–424. https://doi.org/10.1086/257839
Wei, S.-J. (2000). How Taxing is Corruption on International Investors? *Review of Economics and Statistics*, 82(1), 1–11. https://doi.org/10.1162/003465300558533
West, D. S., Von Hohenbalken, B., & Kroner, K. (1985). Tests of Intraurban Central Place Theories. *The Economic Journal*, 95(377), 101–117.
Wheeler, D., & Mody, A. (1992). International investment location decisions : The case of U.S. firms. *Journal of International Economics*, 33(1–2), 57–76. Retrieved from https://ideas.repec.org/a/eee/inecon/v33y1992i1-2p57-76.html
World Bank (2014). World Bank Enterprise Survey of Business Managers. Retrieved December 24, 2018, from http://www.enterprisesurveys.org/data/exploreeconomies/2014/india#finance
World Bank (2018). GDP growth (annual %) | Data. Retrieved December 8, 2018, from https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=EG-IN

Table 3 Predictive capacity of model Contingency Table for Hosmer and Lemeshow Test

		Is this city the main business city? = yes		**Is this city the main business city? = no**		**Total**
		Observed	**Expected**	**Observed**	**Expected**	
Step 1	1	212	212.000	0	0.000	212
	2	213	212.990	0	0.010	213
	3	210	211.363	2	0.637	212
	4	212	211.222	1	1.778	213
	5	204	208.548	8	3.452	212
	6	209	206.122	3	5.878	212
	7	202	202.032	10	9.968	212
	8	194	194.701	18	17.299	212
	9	182	178.315	30	33.685	212
	10	113	113.708	93	92.292	206

Source: own processing in SPSS

Original scientific paper

DUALITIES OF THE HUNGARIAN CREDIT INSTITUTE ACTIVITIES

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Abstract

The centre-periphery relation is a dual model (Nemes Nagy, 1998), several meanings of which can be defined, like locational, development or social dualism. This paper is meant to analyse one example of the manifestation of development – in other words: economic – dualism: this is the spatial realisation of access or exclusion that can be experienced in case of credit institute activities.
An important starting point for the issue is the business philosophy and operational distinction of Hungarian actors in the credit institute market (a segment of the representatives of global commercial banks and locally embedded savings cooperatives), and the analysis of the geographical range of their activities (Kovács, 2014a; 2017), and also the survey of their relationship to developed centre regions and lagging peripheral areas.
I analysed this questions with the functional distance indicator, which is a relatively new approach of the financial proximity in the evaluations of the Hungarian banking sector. This indicator uses some social, economic and physical data for the explanation of dualities between commercial and cooperative banks.

Keywords: urban–rural, density of bank branches, access, network of finance institutes, credit institutes

INTRODUCTION

Role of the Finance Sector in Modern Economy

In the theoretical literature of economics the role of finance sector and intermediate financial institutes is unquestionable, as they are deeply embedded into the global production and supply systems, and each of the economic activities needs the operation of the finance sector in some way (Gál, 2010), which is underlined also by a significant amount of empirical facts. In the literature on economics there is no consensus on whether the condition of a nation state, its growth potential and the finance sector that evolved in the framework of the national economy are in interdependencies and if so, what is the direction of this relationship (Mérő, 2003; Demirgüç-Kunt, 2010). The three main elements of this professional discourse can be briefly summarised as follows:

1) The financial intermediate sector has no measurable impact on the growth of the national economy – say important theory experts, and defend this idea using the empirical findings from the United States (Lucas, 1988; Stern, 1989; Chandavarkar, 1992; Levine, 1997).

2) Robinson (1952) is less sceptic, in her study we can detect the cause and effect relationship between financial mediation and growth, inasmuch as economic growth, the development of the businesses and their needs for finance create a demand for the actors of the bank sector, which then have a follower, dependant position in the system of the national economy.

3) The writer of this essay shares a third cause and effect relationship – which is given the most publicity, anyway – that realises a relationship just opposite than the previous one. We can read it already in the entrepreneurship theory of Schumpeter that a modern bank offers operational resource and opportunity for the businesses to develop and innovate, which in turn has an impact on the growth of the economy (Schumpeter, 1912). This train of thought is developed further by Hicks during the examination of the industrialisation of England (1969), demonstrating that the finance sector played a dominant role in the growth of the economy by its capital mobilising and financing activities (Mitchell, 1970; Bekaert, Harvey, & Lundblad, 2005; Beck, Demirgüç, Kunt, & Martinez-Peria, 2010).

We can see thus that financial service institutes are present in contemporary economy – among other things – as actors of external financing, they are important factors in local processes and development, and so in my paper I will analyse the correlations between them theirs, using the examples of dualities.

Theory of the Territorial Analysis of the Network of Finance Institutes

The neoclassical theories founding the framework conditions for financial globalisation argue in favour of the integrated national banking systems, emphasising their advantages in the economies of scales and focusing on the fact that not only the operation of the market is optimal but so is the distribution of finance institutions, and capital flows always act in the direction of the equalisation of territorial disparities among regions (Kohn, 1998). In this system, equilibrium prices and resource allocation will emerge regardless of institutions and institutional structures of financial services so the centralised decision-making and management can be a good solution too. (Merton and Bodie, 2005).

To the contrary, the post-Keynesian approach argues in favour of the institutional system with local and regional embeddedness, saying that this better serves the interests of a given territory (municipality, region) than the local branches of a national commercial bank, and uneven financial flows are interpreted as a basic characteristic of the financial markets (Chick and Dow, 1988). They argue that the redistribution of finances flowing from the peripheries

into the centres shows significant backwardness, as sales at the more remote points of the network of branches are coupled with higher transaction and monitoring expenses (McKillop and Hutchinson, 1991). The surveys by Berger and Udell (1995) proved that larger universal banks are less interested in crediting riskier smaller businesses (and municipalities and private persons) in the peripheries, and so locally operating banks remain as the main channels in satisfying the financial needs of these actors (Gál, 2012).

Considering their basic philosophy, one of the goals of the local-regional banking systems is retaining the financial resources of the regions, the slowing down of the outflow of capital; however, they are strongly dependant on the economy of the respective region, more susceptible to crises and parts of the development of their regions. A local institution is better embedded into the economy and society, and so in this case the so-called functional or operational distance is smaller (Torluccio, Cotugno, & Strizzi, 2011). This means that the finance institution knows the space where it operates, and has a significant amount of social capital. Evidently, the more a centralised banking system dominates in a given country, the larger the functional distance in addition to the operational one. Parallel to the increase of functional distance, local knowledge is decreasing, the organisation is not embedded, so a more centralised organisational structure is more detrimental for regional economic development (Alessandrini, Presbitero, & Zazzaro 2009; Cotugno, 2011). Cole, Goldberg, and White (2004) verified with their research the role of local banks in the crediting of SMEs in more backwards regions, and so in the development of the economy of the respective area: they demonstrated that the crediting decisions of local finance institutes were not exclusively based on quantitative (hard) information also applied by international commercial banks: *soft* factors coming from local knowledge and personal interactions also play significant role. Surveys also verified that locally bound and social network based banking is also an effective tool for the decrease of informational asymmetry (Boot, 2000), the decline in the distance between the client and the bank positively affects the crediting willingness of the bank (Ferri and Messori, 2000; Guiso et. al., 2004; Elyasiani and Goldberg, 2004).

On the other hand, a centralised banking system has better chances of survival in crisis periods and economic downturns, but the autonomy of the branches and their access to information are more limited than in the regional model and the outcome of this dependence may be worse performance (Gál, 1998). The post-Keynesian criticism of less regionalised banking systems under national control reminds us to the fact that in times of regional recessions it is always the rationalisation of the branch networks of peripheral regions, in a backward situation anyway, that happens first (Dow, 1994).

METHODOLOGY OF THE TERRITORIAL ANALYSIS OF FINANCE INSTITUTE NETWORKS, DATA USED

The aim of this paper is the analysis of the duality that can be seen in the Hungarian financial services sector, in addition to their regional relevances. Taking into consideration the routing tables of the National Bank of Hungary, responsible for the supervision of the intermediate financial sector, the paper maps the presence of the credit institutes of different types (savings cooperatives and commercial banks) at various levels of the settlement network.

As regards the types of distances that are interpreted in the field of financial services, the indices of physical distance and operational distance were demonstrated by Kovács (2014a, 2017), and so now we want to present new results in relation to functional distance (Alessandrini et al., 2009). Functional distance takes into consideration, in addition to the simple physical branch–centre (and decision-making) distance, the disparities of the socio-economic indices (participation willingness, development level of non-governmental sector, housing conditions) of the respective territorial units, and also the diverse economic structures (breakdown of employees by sectors). Thus, besides the physical distance component (FDj^1) the index also analyses the level of social capital of the territorial unit (region) that gives home to the respective bank branch and its centre (FDj^2), and also the differences between the economic structures of the two regions in question (FDj^3). It is clear that in an optimum case the two regions are the same, the volume of functional distance is zero, while its increase leads to a growing number of financing limits in the respective region. Functional distance has a positive correlation to the financial assets of the businesses, the cash-flow sensitivity of investments and correlates negatively to the possibility of indebtedness or overdrawing according to the result of Alessandrini et al. (2009). The following formula can be used to calculate its value:

$$FD_j^1 = \frac{\sum\left(branch_j \times \ln(1 + KM_{jz}\right)}{number\ of\ braches_j}$$

$$FD_j^2 = \frac{\sum\left(branch_j \times \ln(1 + \left|SC_j - SC_z\right|)\right)}{number\ of\ branches_j}$$

$$FD_j^3 = \frac{\sum\left(branch_j \times \ln(1 + \sum_{h=1}^{m}\left|W_{hj} - W_{hz}\right|)\right)}{number\ of\ branches_j}$$

$$FD_j* = FD_j^1 * FD_j^2 * FD_j^3$$

Variables in the formulas are as follows:

$branch_j$ is the analysed bank branch, the analysis to be performed with all of bank and savings bank branches

$j = 1 \ldots z$ is the index used to indicate the respective territorial units, in this case provinces

KM_{jz} – distance between the centre of the operational area of the given bank branch and the centre of the territorial unit home to the bank directorate, in kilometres

SC_j – value of the social capital typical for the respective territorial unit

W_{hj} – weight of respective sectors in the given territorial units, in per cent, where $h = 1 \ldots m$ indicates the respective economic sectors.

It is visible that the data demand of this complex index exceeds that of the simpler indicators, and so in addition to the already cited data series by the National Bank of Hungary we also used the data of the Hungarian Central Statistical Office (HCSO), the National Regional Development and Spatial Planning Information System and the National Election Office (Országos Választási Hivatal, OVH). As the adaptation of the model of functional distance in Hungary is still in its infancy, we are only able to demonstrate in this place the findings that we achieved from the data filtered for Baranya County.

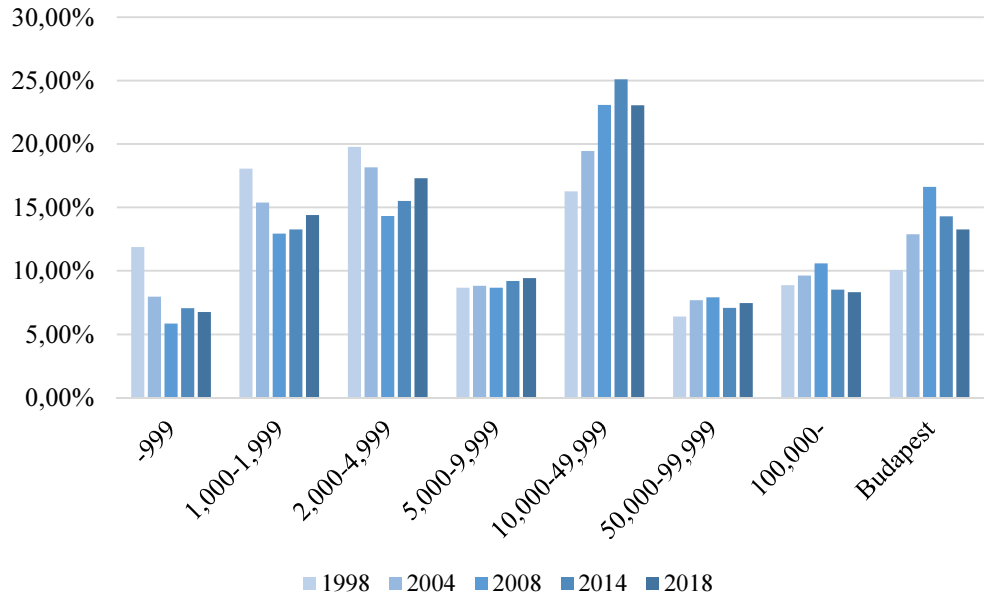
FINDINGS

Direct access to the operation of credit institutes, to basic products cannot be an expectation, due to the character of the service (Beluszky and Győri, 2006; Kovács, 2017), it is obvious then to examine what services we find at the certain tiers of the settlement hierarchy. The analysis started with the emergence of a new institutional structure, which can be approximated by 1998. Fig. 1 reveals several pieces of information: we can see, on the one hand, the significant decrease in the number of bank and savings cooperative branches in the examined period in smaller settlements (with less than 5,000 inhabitants), as opposed to the tendencies of growth visible in settlements with more than 10,000 inhabitants. On the other hand, the effect of the recession going on since 2008 can also be seen, as the proportion of branches decreased by 2018 both in Budapest and the big cities of Hungary, due to the branch closures generated by the crisis reactions mentioned before.

The main reason behind the slight growth in the share of settlements with less than 10,000 inhabitants is rather the significant decrease in the number of branches in the big cities, and not so much the increase of the service units present in smaller settlements. If we also take the breakdown of the population by settlement hierarchy level into consideration, we can see that

both the smallest settlement category and Budapest are underrepresented in the network, as the proportion of the branches within the total network is below the proportion of the residential population within the total population of Hungary, whereas an opposite tendency can be seen e.g. in the settlement category with 1000–1999 inhabitants where the occurrence of branches exceeds the weight of this settlement category in the total population of Hungary.

Figure 1 Distribution of the branch network of credit institutions by settlement size, 1998–2018 (%)



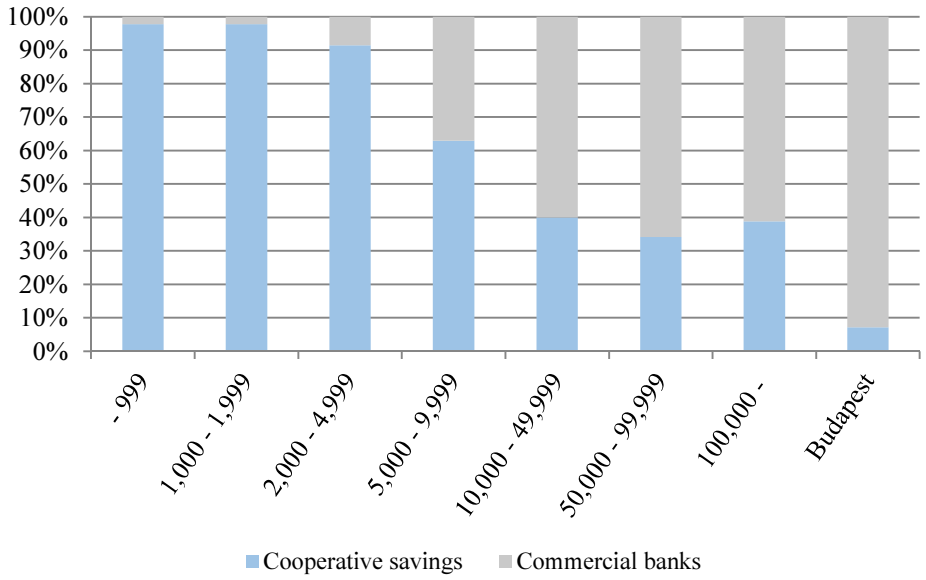
Source: edited by author with Kovács, 2017

If we break down credit institutes into commercial banks and cooperative credit institutes working on the principle of association, we can gain further information that is demonstrated in Fig. 2. A long process started in the 1990s as a result of which the number of credit institute branches and agencies in Hungary significantly increased, but as we can see, this concerned settlements with larger numbers of inhabitants in the first place (regional centres, county centres, middle towns). To the opposite, central organisations of savings cooperatives were usually located in small towns or big villages and by their agencies they reached the smaller settlements as well (Rajnai, 1999).

It is palpable that the network has continuously developed over the last 25 years, adapting to the regulations and economic environment. For the rural businesses, farms and municipalities, these cooperatives are the only financial service providers now. This exclusive financial service provider function seems to be justified, as both former empirical findings (Gál, 2009; Kovács, 2011) and an analysis of the network of branches of commercial banks

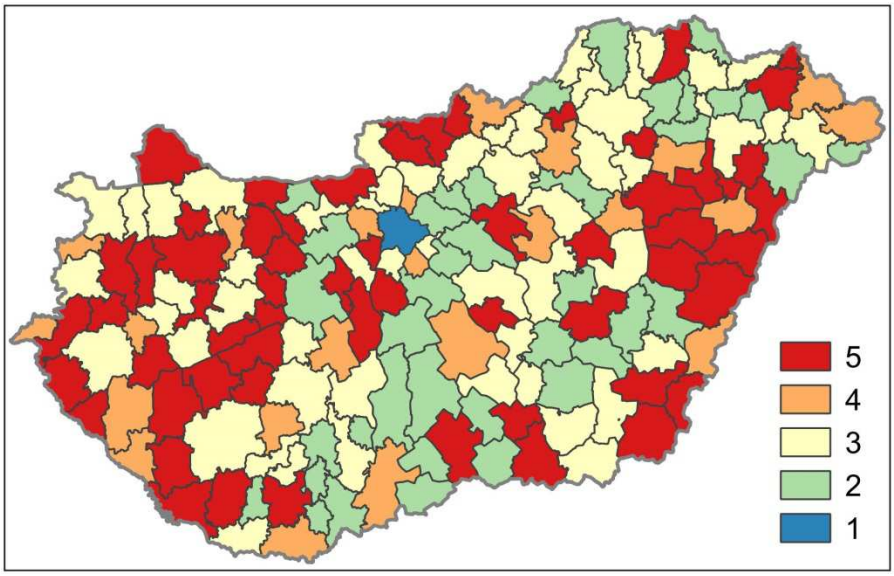
and savings cooperatives in 2014 demonstrated that one-fifth of the Hungarian population lived in settlements where the only financial service provider is some local savings cooperative.

Figure 2 Presence of banks and savings cooperatives in different settlement size categories, 2017 (%)



Source: Kovács (2017)

Figure 3 District level values of the functional distance, 2018

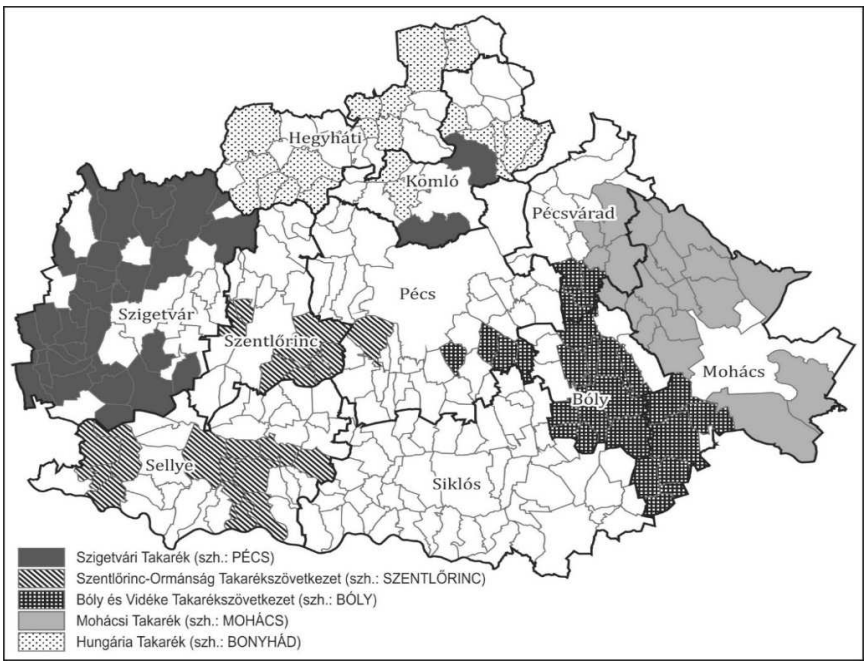


Legend: 1 – Budapest; 2 – FD < 60% of the national average; 3 – 60% of the national average < FD < national average; 4 – national average < FD < 140% of the national average; 5 – FD > 140% of the national average
Source: edited by the author, using data by the National Bank of Hungary and HCSO

Using the index of functional distance at district level we can see that those districts feature higher values that have no centre of any financial institute, and also in those areas on the average where we find centres of both commercial banks and savings cooperatives. In the latter case it is typically the districts of county centres and larger settlements. A territorial disparity can be seen, with the higher indicator values of the western and the eastern edges of Hungary, besides the relatively positive values of the regions in the central part of Hungary. The smallest values of functional distance can be seen in Budapest, as most of the commercial banks operate their headquarters in Budapest, also, a large proportion of the units operating locally belong to these organisations (Fig. 3).

Approaching the narrower region of our analysis, Baranya County, we looked at which settlements chose smaller savings cooperatives, more embedded locally, as their primary financial partner. Of the total of 301 municipal self-governments of the county, 116 (38.5%) chose as their account keeping financial institute one savings cooperative of the five such institutions operating in Baranya county before their integration in 2017. We have to remark that the cooperatives still operate, but with a smaller number of institutes after their union, with the same network of agencies but under different names. Of the five savings cooperatives, the largest one as regards the number of their municipal clients is the Szigetvár Savings Cooperative (31 municipalities), and the smallest one is the Mohács Savings Cooperative (18). The service zones for municipalities are shown in Fig. 4.

Figure 4 Municipality clients of savings cooperatives operating in Baranya County



Source: edited by the author, using data from the websites of savings cooperatives

In Baranya county, we can see that in addition to the five cooperative credit institutes mentioned before there are eleven commercial banks that operate branch(es) in the county, and so Baranya demonstrates values around the national average in matters in operational distance (Kovács, 2014b). Analysing the indicator of functional distance at the level of branches and then aggregating it by institutions we can see (Tab. 1) that cooperative credit institutes demonstrate smaller average values than commercial banks do, but the latter are more homogeneous as regards the values. This is due to the fact the settlement of their headquarter is almost exclusively in Budapest, and the county branches of the major financial organisations are in harmony with the values in Figure 1 only in the county centres, maybe in the towns of the second order.

Table 1 Values of functional distance of credit institutes in Baranya County, 2017

Commercial banks	Value of FD	Savings cooperatives	Value of FD
Budapest Bank	10.39	Bóly és vidéke	3.84
Cofidis	13.49	Hungária	4.52
CIB	13.49	Mecsekvidéke	3.85
Erste	8.83	Mohácsi	3.52
FHB	13.49	Szentlőrinc-Ormánság	3.47
K&H	9.31	Szigetvári	3.24
MKB	13.49		
Növekedési Hitel Bank	13.49		
OTP	8.68		
Raiffeisen	13.49		
Unicredit	13.49		
AVERAGE	**10.04**		**3.74**

Source: edited by the author, using data by the National Bank of Hungary and HCSO

This evidences are similar, so the average FD-value of commercial banks is higher than the cooperatives' in some counties (Bács-Kiskun, Békés, Borsod-Abaúj-Zemplén, Csongrád, Jász-Nagykun-Szolnok and Szabolcs-Szatmár-Bereg counties). In other ten counties, this differences are smaller but perceptible. The commercial banks have slightly smaller average FD-values in Nógrád and Vas counties. The largest advantage of the commercial bank is realised in Budapest because of distributions of the branches of the capital city (see in Fig. 2.). The average FD of commercial banks is 0.11, and the cooperatives' is 7.43 in Budapest.

SUMMARY

On the basis of the findings we can say that despite the recent changes in the market conditions and in the interests of the actors on the market of credit institutes, considerable

disparities can be seen between commercial banks in the ownership of global banking groups and savings cooperatives working on the principles of association in how much they see the respective levels of the settlement hierarchy as market targets. In this sense we can talk about a dual situation, coming from the roots of the foundation of the cooperatives, on the one hand, according to which the goal was to improve the situation of financing in the rural areas; on the other hand, there is an economic reason: this is limitation. Such credit cooperatives are usually small; their chances in big cities and at large companies are usually limited by the smaller balance sheet and other budget ceilings. The integration of cooperatives started with Act No. CXXXV of 2013 is meant to remedy this situation (Bodnár, Delikát, Illés,, & Szepesi, 2015), and the creation of regional cooperatives, as a result of which, 12 regional, integrated, better capitalised savings cooperatives remained after mergers and fusions by 2017 (Gál and Kovács, 2018). The main goal of the integration is that a strongest, integrated credit institution should be created by the fusion of these 12 regional cooperatives by 2020, and the new market player will reach approximately 10 per cent market share by 2023 (Nagy, 2018).

Taking a closer look at regional distribution we could see the duality of the two types of institutional networks at the survey of the values of functional distance carried out in Baranya County; also, national data show a kind of east-west and centre-periphery duality.

Our previous findings and the results of this paper demonstrate that despite the approach of the operation of commercial banks and associative savings cooperatives, some territorial disparities have remained visible in the system. The present and the future changes of the cooperatives are still a lot of question marks from the fields of operation and regional roles.

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REFERENCES

Act CCXXXVII of 2013 on Credit Institutions and Financial Enterprises

Alessandrini, P., Presbitero, A. F., & Zazzaro, A. (2009). Banks, Distances and Firms' Financing Constraints. *Review of Finance*, 13(2), 261–300

Beck, T., Demirgüç, A., Kunt, A., & Martinez-Peria, M. S. (2005). Financial and Legal Constraints to Firm Growth: Does size matter? *The Journal of Finance*, 60(1), 137–177.

Bekaert, G., Harvey, C. R., & Lundblad, C. (2005). Does Financial Liberalization Spur Growth? *Journal of Financial Economics*, 77(1), 3–55.

Beluszky, P., & Győri, R. (2006). A magyar városhálózat funkcionális versenyképessége. In Horváth, G. (Ed.), *Régiók és települések versenyképessége* (pp. 236–293). Pécs: MTA Regionális Kutatások Központja.

Berger, A., & Udell, G. (1995). *Universal Banking and the Future of Small Business Lending* (Working Papers No. 17). Philadelphia: Wharton School Center for Financial Institutions, University of Pennsylvania.

Bodnár, L., Delikát, L., Illés, B., & Szepesi, Á. (2015). Takarékszövetkezetek + integráció = hatékonyabb pénzforgalom? *Hitelintézeti Szemle*, 14(3), 122–146.

Boot, A. W. A. (2000). Relationship banking: What do we know? *Journal of Financial Intermediation*, 9(1), 7–25.

Chandavarkar, A. (1992). Of Finance and Development: Neglected and Unsettled Questions. *World Development,* 20(1), 133–142.

Chick, V., & Dow, S. (1988). A post-Keynesian perspective on the relation between banking and regional development. In P. Arestis (Ed.), *Post-Keynesian Monetary Economics* (pp. 219–250). Aldershot: Edward Elgar.

Cole, R. A., Goldberg, L. G., & White, L. J. (2004). Cookie-cutter versus character: The micro structure of small business lending by large and small banks. *Journal of Finance and Quantitative Analysis*, 39(2), 227–251.

Cotugno, M., & Stefanelli, V. (2011). Bank Size, Functional Distance and Loss Given Default Rate of Bank Loans. *International Journal of Financial Research*, 2(1), 31–44.

Demirgüç-Kunt, A. (2010). Finance and Economic Development the Role of Government. In A. N. Berger, P. Molyneux, & J. O. S. Wilson (Eds.), *The Oxford Handbook of Banking* (pp. 729–755). Oxford: Oxford University Press.

Dow, S (1994). European monetary integration and distribution of credit availability. In S. Corbridge, R. Martin, & N. Thrift (Eds.), *Money, Power and Space* (pp. 149–164). Oxford: Blackwell's.

Elyasiani, E., & Goldberg, L. G. (2004). Relationship lending: a survey of the literature. *Journal of Economics and Business*, 56(4), 315–330.

Ferri, G., & Messori, M. (2000). Bank-Firm Relationships and Allocative Efficiency in Northeastern and Central Italy and in the South. *Journal of Banking and Finance*, 24(6), 1067–1095.

Gál Z. (1998). A pénzintézeti szektor területfejlesztési kérdései Magyarországon. *Tér és Társadalom*, 12(4), 43–71.

Gál, Z. (2009). Banking network In K. Kocsis, & F. Schweitzer (Eds.), *Hungary in Maps* (pp. 178–181). Budapest: Geographical Research Institute Hungarian Academy of Sciences.

Gál Z. (2010). *Pénzügyi piacok a globális térben. A válság szabdalta pénzügyi tér*. Budapest: Akadémiai Kiadó.

Gál, Z. (2012). A hazai takarékszövetkezeti szektor szerepe a vidék finanszírozásában. *Területi Statisztika,* 52(5), 437–460.

Gál Z., & Kovács, S. Z. (2018). Corporate Governance and Local Embeddedness of the Hungarian Cooperative Banking Sector. *Safe Bank,* 71(2), 30-54.

Guiso, L., Sapienza, P., & Zingales, L. (2004). The Role of Social Capital in Financial Development. *American Economic Review,* 94(3), 526–556.

Hicks, J. (1969). *A theory of economic history*. Oxford: Clarendon Press.

Kohn, M. (1998). *Bank és pénzügyek, pénzügyi piacok*. Budapest: Osiris, Nemzetközi Bankárképző.

Kovács, S. Z. (2011). A pénzügyi szolgáltatások területi dilemmái Magyarországon In K. Pálvölgyi, A. Reisinger, E. Szabados, & T. Tóth (Eds.), *Fiatal Regionalisták VII. Konferenciája, Győr, 2011: tanulmánykötet* (pp. 199-206). Győr: Széchenyi István Egyetem Regionális- és Gazdaságtudományi Doktori Iskola.

Kovács, S. Z. (2014a). Elérhetőség és kirekesztés Magyarországon a pénzügyi szolgáltatások aspektusából. *Területfejlesztés és Innováció*, 8(3), 28–35.

Kovács, S. Z. (2014b). Presence of Financial Servicers along River Drava. *DETUROPE: Central European Journal of Tourism and Regional Development*, 6(1), 79–94.

Kovács, S. Z. (2017). Város–vidék-kapcsolat a magyar pénzintézet-hálózatban. *Területi Statisztika*, 57(5), 495–511

Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*, 35(2), 688–726.

Lucas, R. E. (1988). On the Mechanics of Economic Development. *Journal of Monetary Economics*, 22(1), 3–42.

McKillop, D., & Hutchinson, R. (1991). Financial Intermediaries and Financial Markets: A United Kingdom Regional Perspective. *Regional Studies*, 25(6), 543–554.

Mérő, K. (2003). A gazdasági növekedés és a pénzügyi közvetítés mélysége. *Közgazdasági Szemle*, 50(6), 590–607.

Merton, R. C., & Bodie, Z. (2005). Design of Financial Systems: Towards a Synthesis of Function and Structure. *Journal of Investment Management*, 3(1), 1–23.

Mitchell, B. R. (1970). A Theory of Economic History by John Hicks – Book review. *The Economic Journal*, 80(31), 350–352.

Nagy, L. N. (2018, November 30). *Egyetlen bankba egyesülnek a takarékszövetkezetek 2020-ra*. Retrieved from https://www.vg.hu/penzugy/penzugyi-szolgaltatok/egyetlen-bankba-egyesulnek-a-takarekszovetkezetek-2020-ra-1230676/

Nemes Nagy, J. (1998). *A tér a társadalomkutatásban.* Budapest: Hilscher Rezső Szociálpolitikai Egyesület..

Rajnai, G. (1999). Pénzügyi szolgáltatások és a vidék. In Gy. Pócs (Ed.), *Vidékfejlesztés, vidékpolitika* (pp. 287–310). Budapest: Agroinform Kiadóház.

Robinson, J. (1952). The Generalization of the General Theory. In J. Robinson (Ed.), *The Rate of Interest, and Other Essays* (pp. 67– 142). London: Macmillan.

Schumpeter, J. A. (1912). *Theorie der Wirtschaftlichen Entwicklung*. Leipzig: Dunker & Humblot.

Shaffer, S. (1998). The winner's curse in banking. *Journal of Financial Intermediation,* 7(4), 359–392.

Stern, N. (1989). The Economics of Development: A Survey. *The Economic Journal,* 99(397), 597–685.

Torluccio, G., Cotugno, M., & Strizzi, S. (2011). How is Bank Performance Affected by Functional Distance? *European Journal of Economics, Finance and Administrative Sciences*, 5 (39) 79–93.

Original scientific paper

LINKING MACRO AND REGIONAL LEVEL ECONOMIC FORECASTS: ALTERNATIVE REGIONAL GROWTH PATHS IN HUNGARY

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Abstract

Economic development at the national level is often accompanied by territorial divergence at sub-national levels, which phenomenon became even more noticeable during and after the global financial and economic crisis. Current development policy have to face the well-known equity versus efficiency challenge to sustain the prosperity of the most advanced regions and, at the same time, to tackle the divergence between advanced and lagging regions. For this reason, a comprehensive knowledge is necessary about the long-run, interdependent dynamics of national and regional level growth. Our research contributes to this knowledge through studying alternative growth paths for Hungary in a comparative framework. We focus on the methods that apply a regionalisation procedure in order to downscale national level economic forecasts to the regional level.

Keywords: Regional development, Regional forecasting, Economic growth

INTRODUCTION

Economic development at the national level is often accompanied by territorial divergence at sub-national levels, which phenomenon became even more noticeable during and after the global financial and economic crisis. Current development policy have to face a double challenge: first, to sustain the prosperity of the most advanced regions as the fundamental motors of growth, and, second, to tackle the divergence between advanced and lagging regions that becomes not only economically inefficient, but also socially and politically dangerous (Iammarino et al., 2017). For this reason, a comprehensive knowledge is necessary about the long-run, interdependent dynamics of national and regional level growth. Our research contributes to this knowledge through comparing alternative regional growth paths which exhibit convergence or divergence. We focus on the methods that apply a regionalisation procedure in order to downscale national level economic forecasts to the regional level. The practice of “regionalisation” or regional downscaling intends to translate

information available at a coarse geographical resolution (e.g. the national level) to a finer geographical scale (e.g. the regional level).

There are two basic approaches to producing regional-level economic forecasts. Bottom-up models are full-fledged regional models, specified in a standard way with well-established interregional feedback mechanisms (Magnani and Valin, 2009). They are also called generative models, since the national growth rate of the economy is the weighted sum of the regional growth rates, that is, the causal relationship runs from the regional level to the national level. The major drawback to this approach is the great data requirement (subject to availability problems), and the size of the model when working with a large number of regions and sectors. This article focuses on the other type of methods, which is called top-down or distributive approach. These "satellite" models forecast regional growth (and employment etc.) given the forecast of the national variables obtained from macro models. In other words, these methods allocate regional growth across the regions in a competitive manner according to a certain, e.g. statistical, rule (as described later). Magnani and Valin (2009) states that although top-down (CGE, computable general equilibrium) models neglect the general equilibrium linkages at the regional level, they are much more reliable because they are based on robust data and do not need strong assumptions concerning the values of the behavioural parameters (such as elasticities). The top-down approach somewhat reflects the "spatial zero-sum game" view[13] of economic growth: in the case of the top-down methods, the causal relationship runs from the national level to the regional level, and no individual region is able to have any impact on aggregate growth. Thus, top-down methods apply an ex post approach, while bottom-up methods use an ex ante approach (for a detailed comparison, see Chizzolini, 2008). At the final step, a proportional rescaling is needed to ensure ex post, that the regional values sum up to the national aggregates. The top-down approach can be regarded as "regional downscaling" which is wide spread in the field of integrated assessment modelling which considers social and economic factors in environmental modelling (see e.g. van Vuuren et al., 2007). In this field, long-run forecasts are most often produced at the global scale or for world regions, and there is a need to downscale them to, e.g. the national level.

According to Capello et al. (2017a), the last methodological advances are linked to the simultaneous introduction of a top-down and a bottom-up approach, which makes it possible for national growth to influence regional growth and *vice versa*. This means that these mixed

[13] This concept was used by Martin (2015) who criticized those approaches that think about economic growth as a "spatial zero-sum game", assuming that there is some fixed amount of economic growth or activity that can be distributed across the national space economy.

or hybrid models are formalized as cumulative and generative at the same time, as illustrated by the MASST3 model (Capello et al., 2017b), the MultiREG-SpVAR approach (Ramajo et al., 2017) and the GMR model (Varga, 2017).

The aim of this research is to compare the results of different regional-level forecasting methods regarding the period between 2020 and 2050 at the NUTS 3 level in Hungary with respect to the gross domestic product (GDP). The existing, state-of-the-art, bottom-up approaches are multi-sectoral, multi-regional structural models with quite large resource requirements. I intend to present the results of some more simplistic methods with a top-down approach, keeping in mind that there may be a trade-off between the resource requirement and the reliability of the model results.

The second section describes the most relevant theoretical and policy frameworks of our research. Then, a short analysis of past trends and a few projection methods will be introduced. The empirical results will be presented in the fourth section. The last section concludes by suggesting that growing regional inequalities are predicted by almost all scenarios, therefore, regional policy has to face significant challenges.

THEORETICAL AND POLICY APPROACHES

When applying the top-down approach in regional economic forecasting, some assumptions have to be made with respect to the nature of the co-movement between national level and regional level economic variables. Regional development theories provide useful guidance with respect to this question, and they are also helpful in developing alternative scenarios of the dynamics of regional inequalities. Most current models build upon Krugman's New Economic Geography describing micro-founded economic models of regional growth based on firms' increasing returns, as well as urban economics which emphasises the advantages that stem from the density of activity and human capital within cities (see e.g. Glaeser, 2011). This stream of literature points towards the notion that national economic development implies increasing regional divergence, that is, there is a trade-off between national efficiency and spatial equity, because spatial agglomeration may actually raise aggregate national growth. As a consequence, regional imbalance may benefit national growth, and policies that seek to reduce regional economic inequalities may be nationally inefficient (see Martin, 2008 for a detailed analysis). More sophisticated descriptions of the evolution of regional inequalities can accommodate both convergence and divergence models, such as Williamson's (1965) inverted-U model.

Advocates of the NEG-based efficiency argument propose that resources spent on the most developed, central regions have positive spillover effects on other neighbouring, or even more distant regions (see World Bank, 2009 and Leunig, 2008). In this line of reasoning, the best way of reducing disparities is the fostering of economic integration between high-growth and lagging regions (Gill 2010, OECD 2011). Nevertheless, empirical studies are not equivocal to verify this assumption, and some of them found firm evidence against this position (e.g. McCann, 2016 in the UK, see Zsibók, 2017).

The equity versus efficiency dilemma poses a challenge to regional policy makers (as discussed in Martin, 2008). Enyedi (2010) presents that the current key sectors of the economy – knowledge-based economy and creative industry – tend to cluster in the largest, developed cities. In order to achieve an overall national catching-up, the strengthening of the international competitiveness of these metropolitan areas within the country is needed. At the same time, in the absence of regional policy intervention, these processes lead to the continuous decline of the regions that do not have such dynamic sectors.[14]

Several recent empirical works suggest that the proposed trade-off may not exist (Gardiner et al., 2011). Alternative, place-based theories emphasize that there is no automatic convergence between advanced and backward places, therefore national growth can be maximised through exploiting capacities in all regions, both developed and lagging. Preferably, policy interventions are able to differentiate between developed and lagging areas (Iammarino et al., 2017, Varga, 2017, Lennert, Csatári, Farkas, & Mezőszentgyörgyi, 2015). Place-based policies, as proposed by Barca et al. (2012) take into consideration the variety of local knowledge, institutional capabilities and competences in different geographical locations which may affect the potential returns of local policy interventions. Thereby they adopt a bottom-up, generative approach emphasising the importance of the process of entrepreneurial discovery and other supply-side factors (Capello et al., 2017a).

Martin (2008) emphasises that regional economists should investigate both theoretically and empirically the conditions under which the promotion of economic growth within all regions of a country could reduce inter-regional inequality and increase overall national growth simultaneously. This could happen within the frameworks of the NEG models or outside them and should be supported by comprehensive empirical evidence.

In sum, national growth can occur together with either regional convergence or regional divergence, and the actual dynamics of regional inequalities is not only influenced by market forces, but also, to a large extent, by national policies (Hadjimichalis and Hudson, 2014). For this reason, the projected national and regional pathways in the next sections show a range of

[14] See Egyed (2016) for the analysis of this question in a French context.

alternatives which all have to be considered by national policies in order to orient effective interventions for long-run socio-economic development.

PAST TRENDS AND EMPIRICAL FORECASTING METHODS

There are only a few examples that deal with the forecasting of regional inequalities in Hungary. The most notable is the GMR-Hungary model that is centred on policy impact assessment (Varga, 2017), and Jakobi (2004) that forecasted the dynamics of the main indicators of territorial inequalities in Hungary. Some long-run macroeconomic forecasts are available on the national level based on the ECO-TREND model (Keresztély, 2004), and an experimental, regional downscaling exercise was presented by Zsibók and Sebestyén (2017) at the NUTS 3 level. In terms of the methodological alternatives, there are significant differences between the short-, medium and long-run forecasts, and, of course, the longer the forecast horizon, the more difficulties arise (Fratesi, 2009, Lehmann and Wohlrabe, 2014). The simplest statistical procedure to downscale national-level forecasts is the linear-proportional disaggregation which assumes constant regional shares within the national economy through the whole forecasting horizon, where the constant shares are computed on historical data. This method is often used in integrated assessment models (see Gaffin et al., 2004) or in some CGE models, such as ORANI and MONASH-RES (see Haddad, 2009, Dixon et al., 1982 and Parmenter and Welsh, 2001). Since this assumption excludes the possibility of spatial convergence or divergence, it can be used as a benchmark forecast. Additional scenarios may exhibit convergence/divergence according to, for example, a beta-convergence equation, in which the levels of GDP per capita in a given year are negatively correlated with the subsequent growth rates. More sophisticated regionalisation methods can range from (spatial) vector autoregression and spatial dynamic panel models (e.g. Beenstock and Felsenstein, 2007, Baltagi et al., 2014, Elhorst, 2009) through dynamic factor models (Stock and Watson, 2002, Owyang et al., 2009) and shift-share techniques (Hoorelbeke et al., 2007, Mayor et al., 2007 and Koops and Muskens, 2005) to more sophisticated, multi-regional model-based forecasting procedures (Magnani and Valin, 2009). From this menu, in this article we consider a simple statistical trend approach which is extended by a decomposition exercise and convergence functions.

The centre of interest in this paper is the variable of GDP[15], which, in the second stage of our analysis will be extended with demographic and employment projections. The basis of our

[15] Spatial economic inequalities are often studied with per capita GDP, however, changes in the per capita GDP reflect not only the economic development, but also the demographic changes which may distort the picture.

forecasting exercise is, on one hand, the past evolution of NUTS 3 level GDP, and on the other hand, the existing national-level forecasts which will be regionalised. As a starting point, we consider the methods presented by Batista e Silva et al. (2016) with some modifications. In that work, the authors regionalise the country-level macroeconomic forecasts of the 2015 Ageing Report (European Commission, 2015, hereafter AR 2015) following two different assumptions: trend approach and convergence approach. Other national level forecasts are also available from international organisations; the reason for opting for the use of the AR 2015 projections[16] is that it is based on EuroStat data, prepared by the European Commission, available on a 5-years' interval, and is exempt from projecting extreme low or high growth rates.

Table 1 Projected potential GDP growth rate at the national level in Hungary and in the EU (%)

	2020	2025	2030	2035	2040	2045	2050
Hungary	1.94	2.14	1.99	1.50	1.18	1.32	1.38
EU-28	1.43	1.35	1.40	1.54	1.43	1.42	1.42

Source: own elaboration based on European Commission (2015)

The projections of the AR 2015 assume a catching-up process until the mid-2030s, which applies to those member states that are below the EU-28 average GDP level. This catching-up is driven by the above-average growth of total factor productivity and capital deepening[17].

With respect to socio-economic processes at the regional level in Hungary, comparable historical data are available between 2000 and 2016 (2015 for employment data). These data indicate persistent regional inequalities with respect to the GDP. The global financial and economic crisis caused a hysteretic[18] effect on the regional growth paths in Hungary: the growth in the most developed, capital region (Budapest and Pest county) started to slow down, while the regions near the core areas and the Austrian border started to develop more rapidly. These spatial processes and their possible underlying factors are analysed by Lengyel and Varga (2018) and Lengyel and Kotosz (2018) in detail.

[16] Updated projections are available from the end of May 2018 (The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States (2016-2070)), which provides projections on a 10 years' interval between 2020 and 2070. We prefer the 2015 edition, since the time interval of the projections is 5 years and the projection period is between 2020 and 2060 which seems more certain than a period of more than a half century. Anyway, the period of our demographic projections ends in 2050.

[17] Capital deepening is the growth in capital per labour input, e.g. hours worked, number of employees (European Commission, 2015).

[18] Hysteresis occurs when a temporary shock has a permanent effect on the steady state of a dynamic system (the interpretation of the concept in the context of regional economic processes is provided by Martin, 2011).

Table 2 Per capita GDP (in purchasing power standards) in Hungary at the NUTS 3 level, EU-28 = 100

NUTS 3 region	2000	2004	2008	2012	2016
Bács-Kiskun	37	42	42	46	51
Baranya	40	44	44	43	44
Békés	36	38	37	38	40
Borsod-Abaúj-Zemplén	34	40	40	40	47
Budapest	105	127	138	143	136
Csongrád	44	47	46	49	51
Fejér	61	59	59	61	70
Győr-Moson-Sopron	68	69	70	75	92
Hajdú-Bihar	39	47	44	49	47
Heves	37	44	44	43	49
Jász-Nagykun-Szolnok	35	39	40	42	44
Komárom-Esztergom	43	67	66	66	70
Nógrád	29	33	29	29	29
Pest	40	54	54	54	54
Somogy	36	41	39	42	41
Szabolcs-Szatmár-Bereg	30	35	33	36	38
Tolna	43	42	44	51	50
Vas	58	60	54	61	67
Veszprém	44	47	46	47	51
Zala	45	56	52	56	51
Hungary	52	61	63	66	67

Source: own elaboration based on EuroStat data

Table 3 Average annual GDP growth rate in Hungary at the NUTS 3 level (measured at constant, 2005 prices), in percentages

NUTS 3 region	2000-2016	2010-2016	NUTS 3 region	2000-2016	2010-2016
Bács-Kiskun	2.27	3.65	Jász-Nagykun-Szolnok	1.47	1.03
Baranya	0.64	0.13	Komárom-Esztergom	3.62	2.18
Békés	0.51	2.10	Nógrád	-0.12	0.36
Borsod-Abaúj-Zemplén	2.11	3.36	Pest	3.70	1.63
Budapest	2.26	0.70	Somogy	1.00	1.07
Csongrád	1.22	1.47	Szabolcs-Szatmár-Bereg	1.85	2.75
Fejér	1.64	4.85	Tolna	0.90	1.03
Győr-Moson-Sopron	3.07	6.03	Vas	1.37	4.31
Hajdú-Bihar	1.74	1.14	Veszprém	1.07	2.77
Heves	1.82	1.95	Zala	1.03	0.31
Hungary	2.03	1.79			

Source: own elaboration based on HCSO and National Bank of Hungary (NBH) data

The above presented past regional level and projected national level growth rates will provide the basis of our projections.

PROJECTED GROWTH PATHS IN HUNGARY AT THE NUTS 3 LEVEL

Benchmark projections

Our GDP-projections will be prepared in two stages. In the first stage, we directly extrapolate past trends and use these as benchmark projections, then, in the next stage, we apply a decomposition exercise. In the next paragraphs we analyse the possible future NUTS 3 level GDP paths assuming that past trends continue. This trend approach can be interpreted in four alternative ways (see Batista e Silva et al., 2016 for the first three ones):

Assumption 1) regional growth rates remain constant at their historical levels:

$$g^{Y}_{i,t+n} = g^{Y}_{i,tB} \quad (1)$$

where superscript *Y* denotes GDP, hence, $g^{Y}_{i,t+n}$ is the growth rate of GDP in region *i* (*i* = 1 to 20) in period *t*+*n*, $g^{Y}_{i,tB}$ is the average past growth rate in the base period (2000 to 2016);

Assumption 2) regional growth rates equal the projected national level growth rate through the projection horizon (assuming constant spatial structure):

$$g^{Y}_{i,t+n} = g^{Y}_{HU,t+n} \quad (2)$$

where $g^{Y}_{HU,t+n}$ is the projected national level GDP growth rate in period *t*+*n*;

Assumption 3) regional growth rates gradually converge from their past levels towards the common, projected national growth rate:

$$g^{Y}_{i,t+n} = w_{HU} * g^{Y}_{HU,t+n} + w_{reg} * g^{Y}_{i,tB} \quad (3)$$

where w_{HU} and w_{reg} are the weights assigned to the projected national growth rate and the past regional average growth rates, respectively (see Tab. 4 below);

Assumption 4) regional growth rates follow the projected national growth rate, but with a constant shift which shift is computed on the basis of the past deviation from the national growth rates:

$$g^{Y}_{i,t+n} = g^{Y}_{HU,t+n} + (g^{Y}_{HU,tB} - g^{Y}_{i,tB}) \quad (4)$$

where $g^{Y}_{HU,tB}$ is the average past national growth rate in the base period (2000 to 2016).

The first assumption uses past regional growth rates which continue in the future, for this reason, this may lead to large spatial divergence. The fourth one is similar to this, because it assumes that the deviation of the regional growth rates from the national rate remains constant. On the contrary, the second assumption implies that no spatial convergence or divergence will occur in the future, and it "freezes" spatial inequalities at their historical average level. It can be regarded as a "cautious", benchmark projection, since it says nothing about the future trends of the factors that influence spatial inequalities. However, it is

unrealistic in the sense that it assumes that regional growth rates follow the national level within a few years in the forecast horizon. The third one is an intermediary assumption between the first and the second, since it uses past regional growth rates in the first part of the forecast horizon, later, when the future is more uncertain, it gives larger weights to the national rates. It assumes that on the long run, regional growth rates can be better approximated by the national average than on the basis of their own past values. It uses a weighting system, and assigns different weights to the past regional growth rates and to the projected national growth rate throughout the projection period (with a slight modification to those applied by Batista e Silva et al., 2016).

Table 4 The weighting system of Assumption 3)

projection period	weights assigned to the national growth rate (w_{HU})	weights assigned to past regional growth rates (w_{reg})
2015-20	0.0	1.0
2020-25	0.2	0.8
2025-30	0.4	0.6
2030-35	0.6	0.4
2035-40	0.8	0.2
2045-50	1.0	0.0

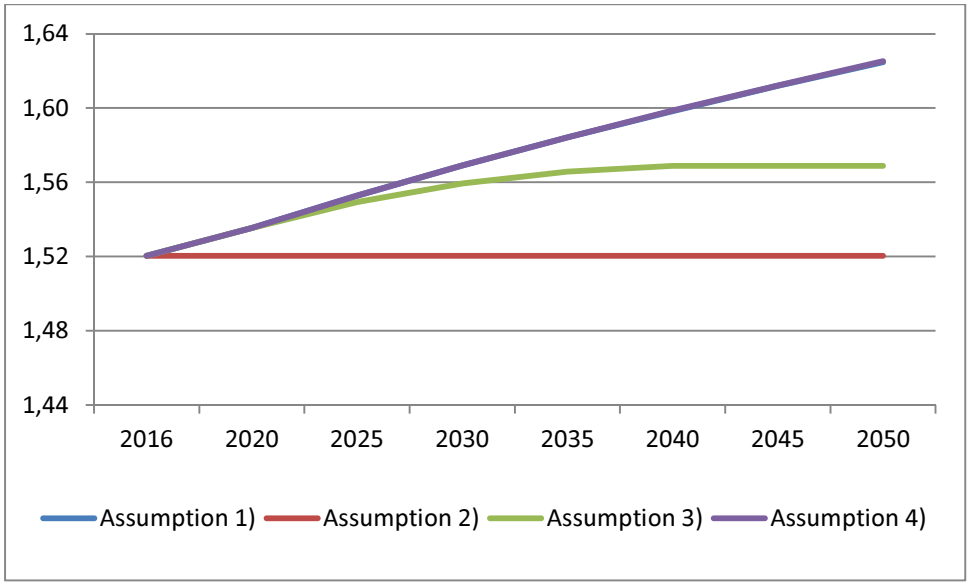
Source: own elaboration

At this point, we arrived to the question of the proportional rescaling. Batista e Silva et al. (2016) proposes an *ex post* proportional rescaling to ensure that the sum of the projected regional GDP values matches the total national value of the reference projection. When using this technique, the national GDP evolves according to the reference projection and remains the same no matter what kind of regional disaggregation assumption is used. Assumptions 1) to 4) can only influence the internal distribution of the projected regional GDP values. The proportional rescaling is carried out according to the following equation:

$$Y_{i,t+n} = Y_{HU,t+n} \cdot \frac{Y'_{i,t+n}}{\sum_{i=1}^{r} Y'_{i,t+n}} \quad (5)$$

where $Y_{i,t+n}$ is the GDP of the i^{th} region after rescaling in period $t+n$, $Y_{HU,t+n}$ is national GDP in period $t+n$, $Y'_{i,t+n}$ is region i's projected GDP in period $t+n$ before rescaling, $\sum_{i=1}^{r} Y'_{i,t+n}$ is the sum of regional GDP values in period $t+n$ before rescaling, r is the number of regions t=2016 is the base year and n is the number of years in the projection horizon. The ex-post rescaling was done after each period.

Figure 1 Coefficients of variance according to Assumptions 1) to 4)*



*Assumption 1) and 4) produced almost the same results
Source: own elaboration

The projected GDP values are presented in Tab. 10 in the Annex. Excepting Assumption 2), there are significant differences between the results if we use and do not use ex-post proportional rescaling with respect to the GDP levels, however, the spatial structure is unaffected. Nationally, the highest GDP is projected by Assumption 1) (without rescaling), while the results provided by Assumptions 3) and 4) (without rescaling) are not that much above those of Assumption 2). Unless we assume constant spatial inequalities (Assumption 2), all methods project increasing regional differences. Assumptions 1) and 4) deliver the least beneficial GDP projections for the less developed NUTS 3 regions and, at the same time, the highest GDP growth for the developed areas.

Projections with GDP-decomposition

Regional downscaling is done on the basis of the following decomposition of the per capita GDP (Szabó, 2015, Lengyel and Varga, 2018):

$$\frac{GDP}{population} = \frac{GDP}{employed\ persons} \cdot \frac{employed\ persons}{working\ age\ population} \cdot \frac{working\ age\ population}{population} \qquad (6)$$

that is,

$$per\ capita\ GDP = labour\ productivity \cdot employment\ rate \cdot rate\ of\ working\ age\ population \qquad (7)$$

from which, we get the GDP as

$$GDP = population \cdot labour\ productivity \cdot employment\ rate \cdot rate\ of\ working\ age\ population \qquad (8)$$

Projections of population and the rate of working-age population at the NUTS 3 level are available from external sources (Lennert, 2018a). In this exercise, we prepare projections for labour productivity and employment rate through decomposing the national-level projections of the respective variables in the AR 2015. The projections will be made in the following four steps:

Step 1) use the results of Lennert (2018a) to get the NUTS 3 level projected population and working-age population;

Step 2) downscale employment rate to the NUTS 3 level on the basis of the AR 2015 projections;

Step 3) downscale labour productivity to the NUTS 3 level on the basis of the AR 2015;

Step 4) insert the four above factors to the equation of the GDP to get the NUTS 3 level projections.

Demography

Lennert (2018a) provided demographic projections at the district level (called „járás", LAU 1). The data are collected from HCSO (Demographic Yearbook and population census) and available on a 5 years' interval between 2016 and 2051[19] according to nine different scenarios. The methodology[20] relied on a cohort component model in which the basic factors of natural population change (birth rates and death rates) were applied on the different age cohorts (Tagai, 2015). The modelling of the internal migration extends the cohort component model with a behavioural approach in which the changes of residence are classified with respect to the place of origin, the place of destination, the demographic and socio-economic characteristics and the motivation of the people who move from one place to another. The nine scenarios were defined in terms of two dimensions, one considering natural population change (lower, baseline and higher) and one considering socio-economic policy (national competitiveness-oriented, baseline and territorial equity-oriented policies). We will consider only the baseline scenarios (Tab. 5), but, unfortunately, all of its scenarios projected constant population decline in Hungary (from 9.8 million in 2016 to between 8.4 million and 9.4 million in 2051 depending on the scenario) and decreasing rate of active population (from 66.2 percent in 2016 to between 52.6 and 55.7 percent in 2051 depending on the scenario). According to this projection, regional demographic inequalities will grow, since in three NUTS 3 regions (Fejér, Pest and Komárom-Esztergom) population is expected to increase or

[19] Our projections will run on a 5 years' interval from 2020 to 2050, therefore, demographic projections are adjusted accordingly with a proportionate recalculation.
[20] See Lennert (2018b).

remain stable, but in all other regions it will decrease with 11 to 28 percent. With respect to the rate of working-age population, regional inequalities are also expected to grow. In contrast, the AR 2015 is more optimistic about Hungarian demographic trends, since it projects a population of 9.3 million people in 2050 of which 58.1 percent belongs to the working-age population.

Table 5 Projected population (thousand people) and rate of active population (%) at the NUTS 3 level in Hungary, 2016-51

	Population			Rate of working-age population		
	2016	2026	2051	2016	2026	2051
Bács-Kiskun	504.8	470.6	374.5	65.1	59.8	50.8
Baranya	382.2	372.3	331.3	66.6	61.0	54.0
Békés	345.0	316.5	247.1	65.0	59.4	50.8
Borsod-Abaúj-Zemplén	676.3	654.3	570.3	65.4	59.8	52.4
Budapest	1727.3	1689.0	1540.0	66.2	62.8	56.8
Csongrád	411.4	397.4	349.5	66.5	61.8	54.6
Fejér	435.1	448.2	449.8	67.5	64.0	55.0
Győr-Moson-Sopron	445.0	433.5	385.1	67.0	63.0	53.1
Hajdú-Bihar	542.1	531.4	470.5	67.5	62.2	55.6
Heves	305.5	296.7	261.0	64.6	59.3	51.5
Jász-Nagykun-Szolnok	374.8	349.8	280.6	65.0	59.9	52.3
Komárom-Esztergom	309.7	314.8	307.2	66.5	62.7	53.5
Nógrád	198.9	190.5	159.8	64.2	56.6	44.9
Pest	1278.8	1381.8	1528.6	66.7	66.2	56.7
Somogy	307.7	289.3	235.0	65.1	58.2	48.5
Szabolcs-Szatmár-Bereg	547.9	523.3	437.0	67.4	62.0	53.1
Tolna	224.1	209.6	164.1	65.5	59.1	50.6
Vas	251.3	239.5	202.9	66.6	61.0	50.2
Veszprém	353.2	350.6	313.6	65.6	58.5	47.8
Zala	275.7	259.6	210.0	65.6	58.5	47.4
Hungary	9896.8	9718.5	8818.1	66.2	61.8	53.7

Source: own elaboration based on the data of Lennert (2018a)

Employment rate projection

In Step 2) of the projection we downscale the projected AR 2015 national-level employment rate with respect to the population aged 15 to 64 years. The European Commission (2015) publishes employment rate projections directly, in terms of percentages (not only total population data and the number of employees from which one could otherwise calculate employment rate indirectly). In AR 2015, employment is a residual variable, determined

given Eurostat's population projections, future participation rates derived using a simulation model, and the unemployment rate assumptions.

Table 6 National-level projected employment rates of the 15 to 64 years old population in Hungary and in the EU-28, %

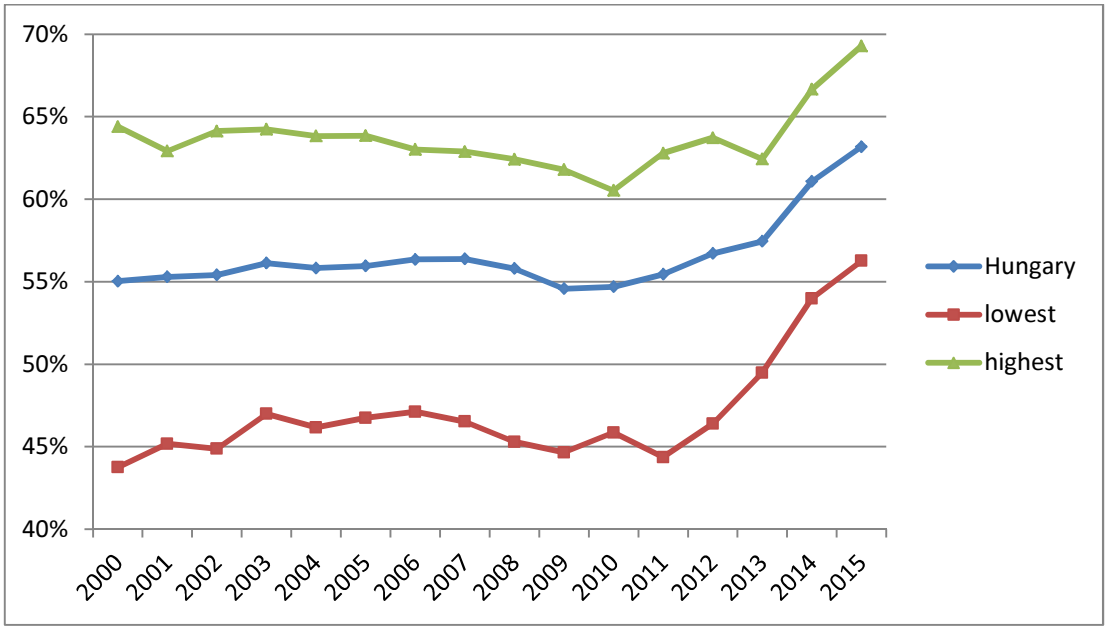
	2020	2025	2030	2035	2040	2045	2050
Hungary	65.71	68.18	68.55	68.31	67.82	67.82	67.81
EU-28	66.83	67.69	68.3	68.96	69.58	69.72	69.74

Source: own elaboration based on European Commission (2015)

According to the AR 2015 projections, a constant catching-up is expected until 2030 in employment rates, but after it, Hungarian rates remain apparently below the EU-28 average.

The projections presented in Tab. 6 will be downscaled on the basis of past NUTS 3 level data of the period 2000 to 2015 provided by the Central Statistical Office of Hungary (HCSO). These series indicate that changes in the regional and county level employment rates rather well follow the changes in the national trends, furthermore, there is a clearly visible convergence: the cross-sectional standard deviation between the NUTS 3 regions decreased from 5.07 percentage points in 2000 to 4.02 percentage points in 2015.

Figure 2 Employment rates of the population aged 15 to 64 years, 2000-15 at the NUTS 3 level: lowest, highest and average Hungarian rates



Source: own elaboration based on HCSO data

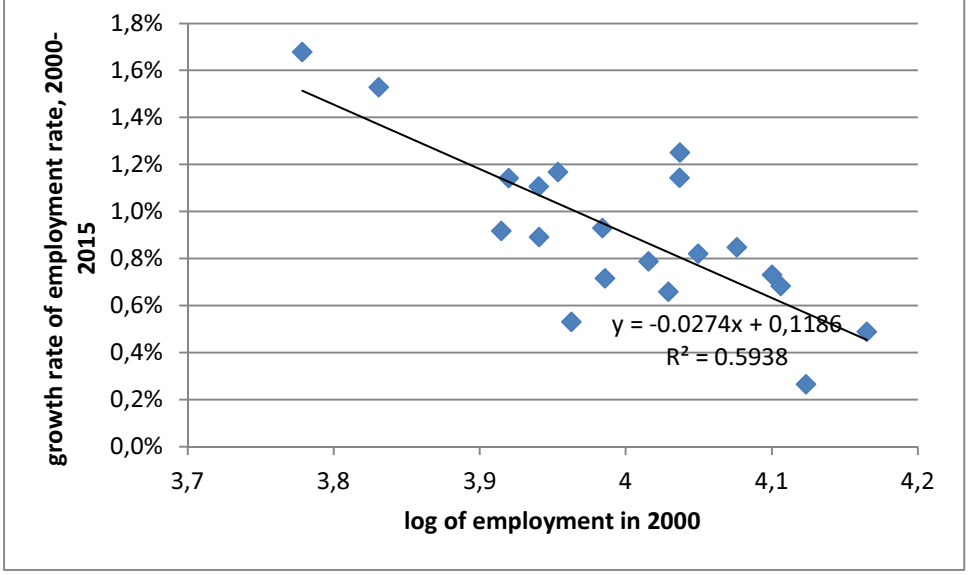
Regional employment rate data reveal a tendency according to which in those regions where the employment rate is above the national average, the deviation from the national average tends to gradually decrease and *vice versa*. In the long run, the convergence process is

likely not sustainable, and in the past years it was driven mostly by national policy interventions. According to the beta convergence hypothesis, in those regions where the initial employment rate is lower, the growth rate of the employment rate should be higher and *vice versa*. This hypothesis is usually tested with the help of a regression. In our regression, the explanatory variable is the employment rate in 2000 (emp_t) (in logarithm) and the dependent variable is the annual growth rate of the employment rate between 2000 and 2015 (the left-hand side of the equation). Here, t indicates the initial period, n is the number of years, ln is natural logarithm, α and β are regression parameters and ε is a random effect with zero mean.

$$1/n \ln\left(\frac{emp_{t+n}}{emp_t}\right) = \alpha + \beta \cdot \ln(emp_t) + \varepsilon_{t+n} \quad (9)$$

The output of the Ordinary Least Squares (OLS)[21] estimation is a strongly significant, negative convergence parameter (β=-0.0274, p=0.000, R^2=0.59). According to the results, regional differentials converge towards zero and expected to disappear between 2050 and 2055.

Figure 3 The relationship describing the convergence of NUTS 3 level employment rates



Source: own elaboration based on HCSO data

The convergence assumption is important from the point of view of our forecasting method, since if a significant relationship can be established between the initial position of a region and its growth rate, this relationship is applicable to project its long-run development path (e.g. in terms of employment). During the downscaling exercise we assume that the deviations of the regional level employment rates from the national level rates will converge

[21] OLS estimation has been chosen following the practice of Batista e Silva et al. (2016). In many cases, estimation methods that do not consider spatial autocorrelation are supposed to be biased. However, in our case, it is not easy to identify accurate spatial effects because of the relatively coarse spatial resolution of the data.

to zero in the long run (convergence assumption). When we directly project employment rates on the basis of the beta convergence equation, the relationship will be linear for all regions. Instead, we only use this equation to compute the deviations of the NUTS 3 level employment rates from the national level employment rate. This means that the regional employment rates are linked to the national level forecasted rates, and national level projections are those presented by the AR 2015 (Tab. 6).

Table 7 Projected employment rates at the NUTS 3 level in Hungary, 2020-50, %

	2020	2030	2040	2050
Bács-Kiskun	62.4	67.6	67.9	67.7
Baranya	60.7	66.3	67.1	67.3
Békés	59.8	65.6	66.6	67.1
Borsod-Abaúj-Zemplén	58.0	64.1	65.6	66.7
Budapest	67.3	71.3	70.4	68.7
Csongrád	62.1	67.3	67.7	67.6
Fejér	68.4	72.1	70.9	68.9
Győr-Moson-Sopron	67.3	71.3	70.3	68.7
Hajdú-Bihar	57.5	63.8	65.4	66.6
Heves	59.9	65.7	66.6	67.1
Jász-Nagykun-Szolnok	62.1	67.3	67.8	67.6
Komárom-Esztergom	67.2	71.3	70.3	68.7
Nógrád	58.8	64.8	66.1	66.9
Pest	64.9	69.5	69.2	68.2
Somogy	57.0	63.3	65.1	66.4
Szabolcs-Szatmár-Bereg	56.3	62.8	64.7	66.3
Tolna	61.8	67.1	67.6	67.5
Vas	69.3	72.8	71.3	69.1
Veszprém	66.9	71.0	70.2	68.6
Zala	64.3	69.0	68.9	68.1
Hungary	63.2	68.2	68.3	67.8

Source: own elaboration based on European Commission (2015) and HCSO data
Note: Data are available on a 5 years' interval upon request.

Labour productivity projections

In Step 3) of our projection exercise we downscale the national level labour productivity projections provided by the AR 2015 to the NUTS 3 level which makes our GDP equation complete and allows us to compute projected GDP values.

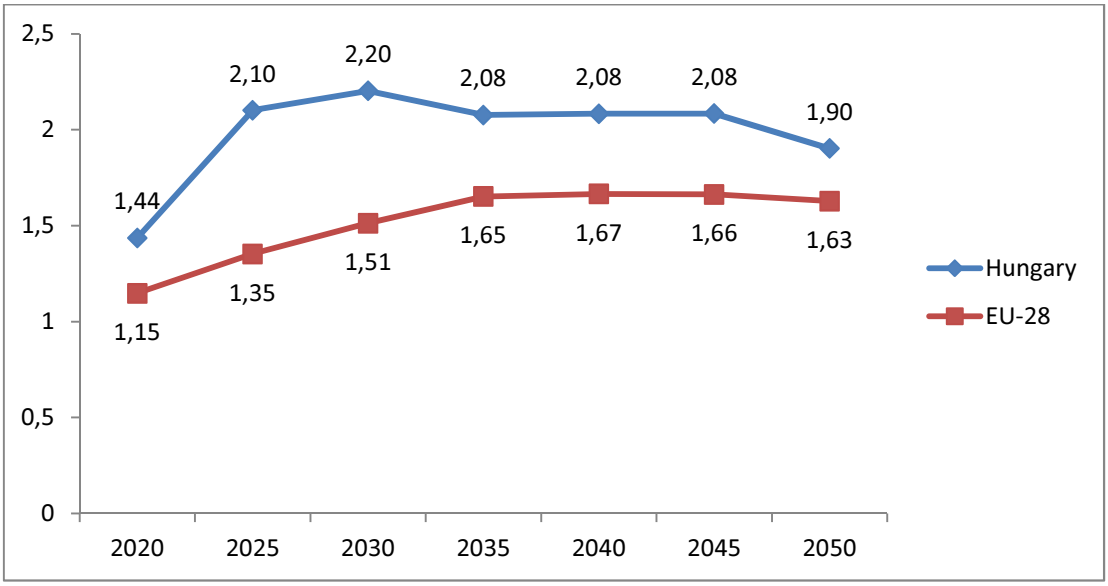
Regional downscaling of labour productivity is also feasible with the help of convergence equations, analogously to the process applied in the case of employment rates (see e.g. Riahi et al., 2005 for GDP growth). The hypothesis of beta convergence can be tested with the following equation (Batista e Silva et al., 2016):

$$1/n \ln\left(\frac{prod_{t+n}}{prod_t}\right) = \alpha + \beta \cdot \ln(prod_t) + \varepsilon_{t+n} \quad (10)$$

where $prod_t$ is labour productivity in the base period, $prod_{t+n}$ is labour productivity in period $t+n$. t denotes the initial period (2000), n is the number of years and ln is the natural logarithm. The left-hand side of the equation is the annual growth rate of productivity, α and β are regression parameters, and ε is the residual with zero mean.

Batista e Silva et al. (2016) used national-level productivity data to estimate the convergence equation and found a strong, significant relationship, i.e. convergence between nations. However, this relationship may not apply for regions within countries, especially, when within country divergence is detected. When applying the beta convergence test for Hungarian NUTS 3 regions with respect to productivity, no significant relationship was revealed. Instead of using national data, we tested beta-convergence on the productivity data of Central and Eastern European NUTS 2 regions and found a significantly negative beta parameter (β = -0.0292, p = 0.0000, R^2 = 0.4771). Unfortunately, these parameters predicted full regional convergence until the year 2035 which is far from being realistic. For this reason, we opted not to use convergence function in the projection, but to employ the same procedure as described in the benchmark scenarios of GDP projection, according to Assumption 3) (see Tab. 4). The calculations use the AR 2015 national-level productivity growht projections (Fig. 4) and the NUTS 3 level past productivity growth rates, which are available between 2001 and 2015 (Tab. 8).

Figure 4 Projected growth rates of potential GDP per worker in Hungary and in EU-28, %



Source: own elaboration based on European Commission (2015)

Table 8 Average growth rate of GDP per worker in Hungary at the NUTS 3 level, 2001-2015

NUTS 3 region	productivity growth	NUTS 3 region	productivity growth
Bács-Kiskun	2.05	Jász-Nagykun-Szolnok	0.94
Baranya	0.25	Komárom-Esztergom	2.93
Békés	0.20	Nógrád	-0.12
Borsod-Abaúj-Zemplén	1.48	Pest	2.27
Budapest	1.84	Somogy	1.08
Csongrád	1.11	Szabolcs-Szatmár-Bereg	0.05
Fejér	0.47	Tolna	0.83
Győr-Moson-Sopron	1.92	Vas	1.02
Hajdú-Bihar	1.15	Veszprém	0.70
Heves	1.71	Zala	1.86
Hungary	1.44		

Source: own elaboration based on HCSO and NBH (2015)

Alternatively, we could assign a reasonable convergence year in an *ad hoc* way, which would lead to somewhat similar results. In the case of labour productivity projection, no ex post proportional rescaling was applied. As a result of our weighting system, the regional growth rates of labour productivity are assumed to fully converge until 2050, however, this does not mean the full convergence of productivity levels, the cross-sectional variation coefficient is projected to rise from 35.2 percent in 2015 to 42.8 percent in 2040 and stabilize thereafter.

Table 9 Projected labour productivity (in constant 2005 prices) in Hungary

	2015	2020	2030	2040	2050
	thousand HUF	2015 = 100			
Bács-Kiskun	4597	110.7	122.9	122.8	121.8
Baranya	3884	101.2	108.6	116.4	121.8
Békés	3731	101.0	108.2	116.2	121.8
Borsod-Abaúj-Zemplén	4580	107.6	118.2	120.7	121.8
Budapest	11268	109.5	121.2	122.0	121.8
Csongrád	4528	105.7	115.3	119.4	121.8
Fejér	5509	102.4	110.2	117.2	121.8
Győr-Moson-Sopron	7086	110.0	121.8	122.3	121.8
Hajdú-Bihar	4578	105.9	115.6	119.6	121.8
Heves	4492	108.8	120.1	121.5	121.8
Jász-Nagykun-Szolnok	3865	104.8	113.9	118.8	121.8
Komárom-Esztergom	5603	115.6	130.6	126.0	121.8
Nógrád	2760	99.4	105.8	115.2	121.8
Pest	4705	111.9	124.8	123.5	121.8
Somogy	3997	105.5	115.0	119.3	121.8
Szabolcs-Szatmár-Bereg	3561	100.2	107.0	115.7	121.8

Table 9 (continued)

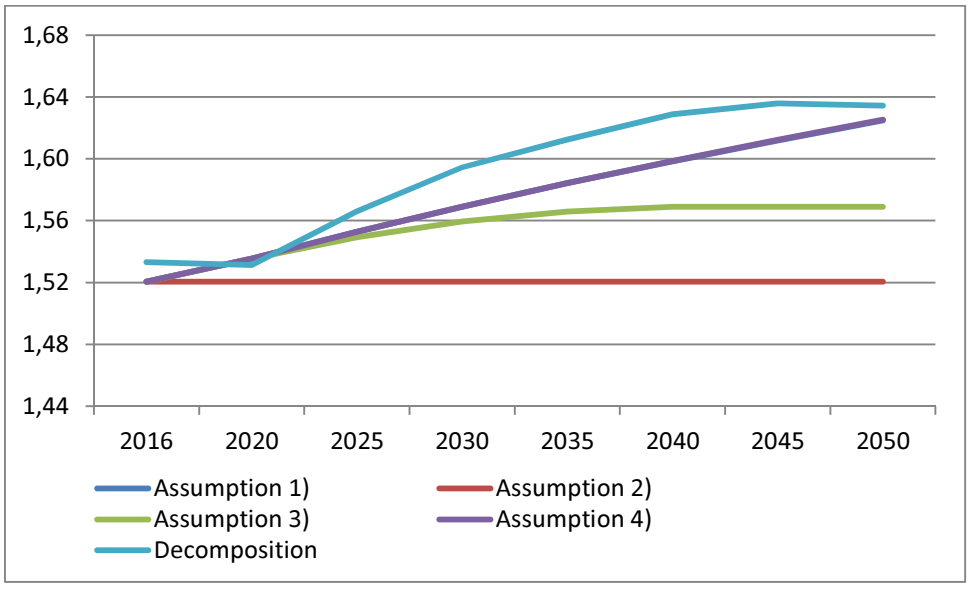
	2015	2020	2030	2040	2050
	thousand HUF	2015 = 100			
Tolna	4427	104.2	113.0	118.4	121.8
Vas	5100	105.2	114.5	119.1	121.8
Veszprém	4072	103.6	112.0	118.0	121.8
Zala	4640	109.7	121.4	122.1	121.8
Hungary (weighted average)	5876	107.4	123.7	122.9	121.8

Source: own elaboration based on HCSO and NBH data
Note: Data are available on a 5 years' interval upon request.

Results of the projection based on the decomposition of the per capita GDP

Step 4) delivers the projections of GDP values for the NUTS 3 regions of Hungary between 2020 and 2050 at a 5 years' interval. Fig. 5 extends the series presented in Fig. 1 above with the results of the per capita GDP decomposition. This procedure projected the highest level of spatial variation between the GDP at the NUTS 3 level (see Tab. 11 in the Annex). In many cases (NUTS 3 regions) the decomposition method provided the lowest projected GDP values in comparison to the trend assumptions (1 to 4). An important factor behind these results is that our demographic projections, which have a central role in the decomposition-based projection, are more pessimistic than those of the AR 2015.

Figure 5 Coefficients of variation according to five different projection methods



Source: own elaboration
Note: Assumption 1) and 4) delivered almost the same results.

CONCLUSION

In this paper we investigated the co-movement of regional-level and national-level economic (GDP) trends. The analysis of the theoretical and policy issues regarding regional inequalities

allows us to conclude that both regional convergence and divergence are realistic scenarios, depending on the stance of policy-makers and the general national economic environment. Our aim was to apply some simplistic projection methods that may exhibit either regional convergence or divergence. The most simplistic trend approaches were used as benchmark and contrasted to a more sophisticated decomposition method. The results proved to be rather sensitive to the demographic changes, which is in compliance with the implications of the AR 2015. Excepting one method, all projection techniques indicated growing regional inequalities, which highlights the importance of regional policy from the point of view of social stability.

Of course, there remains ample room for improving our methodology. First, demographic variables and also the dynamics of employment should be endogenized. Interregional feedback mechanisms need to be integrated in the methodology, for example, in a system dynamics framework (see. e.g. Maani and Cavana, 2007) or a spatial econometric model. Multiple scenarios, e.g. policy scenarios can be elaborated in order to study the sensitivity of the system. In support of this, regional "convergence clubs" can be identified, like those of Lengyel and Varga (2018) or Iammarino et al. (2017). Finally, national-level forecast can be updated by using the Ageing Report 2018.

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REFERENCES

Baltagi, B.H., Fingleton, B., & Pirotte, A. (2014). Estimating and forecasting with a dynamic spatial panel data model. *Oxford Bulletin of Economics and Statistics*, 76(1), 112-138.

Barca, F., McCann, P., & Rodríguez-Pose, A. (2012). The case for regional development intervention: place-based versus place-neutral approaches. *Journal of Regional Science*, 52(1), 134-152.

Batista e Silva, F., Dijkstra, L., Martinez, P.V., & Lavalle, C. (2016). *Regionalisation of demographic and economic projections. Trend and convergence scenarios from 2015 to 2060*. JRC Science for Policy Report EUR 27924 EN; doi: 10.2788/458769

Beenstock M., & Felsenstein, D. (2007). Spatial Vector Autoregressions. *Spatial Economic Analysis*, 2(2), 167-196.

Capello, R., Caragliu, A., & Fratesi, U. (2017a). Advances in Regional Growth Forecasting Models: Conceptual Challenges and Methodological Responses. *International Regional Science Review*, 40(1), 3-11.

Capello, R., Caragliu, A., & Fratesi, U. (2017b). Modeling Regional Growth between Competitiveness and Austerity Measures: The MASST3 Model. *International Regional Science Review*, 40(1), 38-74.

Chizzolini, B. (2008). National and Regional Econometric Models. In R. Capello, R. Camagni, B. Chizzolini, & U. Fratesi (Eds.), *Modelling Regional Scenarios for the Enlarged Europe* (pp. 69-82). Berlin, Heidelberg: Springer-Verlag.

Dixon, P.B., Parmenter, B.R., Sutton, J., & Vincent, D.P. (1982). *ORANI: A Multisectoral Model of the Australian Economy*. Amsterdam: North Holland Publishing Company.

Egyed, I. (2016). From uniformity towards unequality in regional development policy: The case of France. *Deturope*, 8(3), 33-52.

Elhorst, J.P. (2009). Spatial panel data models. In M. Fischer, A. Getis (Eds.), *Handbook of Applied Spatial Analysis* (pp. 377-407). Berlin, Heidelberg: Springer.

Enyedi, Gy. (2010). Terület- és településfejlesztéssel kapcsolatos tudományos kutatások fő irányai és feladatai [The main directions and tasks of the scientific researches in relation to spatial and settlement development], *Területi Statisztika* 13 (50)(4), 398-405.

European Commission (2015). *The 2015 Ageing Report. Economic and budgetary projections for the 28 EU Member States (2013-2060)*. European Economy 3/2015, Economic and Financial Affairs [Pdf] Retrieved from http://ec.europa.eu/economy_finance/publications/european_economy/2015/pdf/ee3_en.pdf

Fratesi, U. (2009). The regional economist with the crystal ball: a discussion of the possibility of long-term predictions at sub-national level. *Italian Journal of Regional Science*, 8(1), 91-97.

Gaffin, S.R., Rosenzweig, C.R., Xing, X., & Yetman, G. (2004) Downscaling and Geo-spatial Gridding of Socio-Economic Projections from the IPCC Special Report on Emissions Scenarios (SRES), *Global Environmental Change A*, 14, 105-123.

Gardiner, B., Martin, R., & Tyler, P. (2011). Does spatial agglomeration increase national growth? some evidence from Europe. *Journal of Economic Geography*, 11(6), 1–28.

Gill, I. (2010) Regional development policies: Place-based or people-centred? [Html]. Retrieved from http://voxeu.org/article/regional-development-policies-place-based-or-people-centred

Glaeser, E. L. (2011). *Triumph of the City: How Our Greatest Invention Makes us Richer, Smarter, Greener, Healthier and Happier*. New York: Penguin.

Haddad, E. (2009). Interregional Computable General Equilibrium Models. In M. Sonis & G. J. D. Hewings (Eds.), *Tool Kits in Regional Science – Theory, Models, and Estimation.* Berlin, Heidelberg: Springer-Verlag.

Hadjimichalis, C., & Hudson, R. (2014). Contemporary Crisis Across Europe and the Crisis of Regional Development Theories. *Regional Studies*, 48(1), 208–218.

Hoorelbeke, D., Lohest, O., Bassilière, D., Bossier, F, Bracke, I., & Caruso, F. (2007). HERMREG: A regionalisation model for Belgium [Pdf]. Retrieved from https://ecomod.net/sites/default/files/document-conference/ecomod2007/93.pdf

Iammarino, S., Rodríguez-Pose, A., & Storper, M. (2017). *Why regional development matters for Europe's economic future*. Working Papers of the Directorate-General for Regional and Urban Policy, WP 07/2017. Brussels: European Commission.

Jakobi, Á. (2004). Kísérletek a hazai területi egyenlőtlenségek előrejelzésére [Some experiments to forecast domestic spatial inequalities]. *Regionális Tudományi Tanulmányok 9* (pp. 107-124). Budapest: ELTE Regionális Földrajzi Tanszék, MTA-ELTE Regionális Tudományi Kutatócsoport.

Keresztély, T. (2004) Előrejelzés és szcenárióelemzés hosszú távú makromodellel. [Forecasting and scenario analysis using a long-term macroeconomic model.] *Statisztikai Szemle*, 82(10-11), 919-944.

Koops, O., & Muskens, J. (2005). REGINA: A model of economic growth prospects for Dutch regions. In F. van Oort, M. Thissen, & L. van Wissen (Eds.), *A survey of spatial economic planning models in the Netherlands. Theory, application and evaluation*. Rotterdam: NAi Publishers, Netherlands Institute for Spatial Research, Den Haag.

Lehmann, R., & Wohlrabe, K. (2014). Regional economic forecasting: stat-of-the-art methodology and future challenges. *Economics and Business Letters*, 3(4), 218-231.

Lengyel, I., & Kotosz, B. (2018). Felzárkózás és/vagy távolságtartó követés? A visegrádi országok térségeinek fejlődéséről. [Catching up and/or following at a distance? On the prospect of the regions of the Visegrad countries] *Tér és Társadalom*, 32(1), 5-26.

Lengyel, I., & Varga, A. (2018). A magyar gazdasági növekedés térbeli korlátai - helyzetkép és alapvető dilemmák. [Spatial constraints of Hungarian economic growth – state of play and basic dilemmas] *Közgazdasági Szemle*, LXV., May, 499-524.

Lennert, J., Csatári, B., Farkas, J. Z., Mezőszentgyörgyi, D. (2015). Locality-based and place-based development in theory and practice – an example of the Hungarian countryside. *Deturope*, 7(2), 14-27.

Lennert, J. (2018a). *Területi jövőképek – demográfia*. [Spatial visions - Demography] Manuscript

Lennert, J. (2018b). Will the last one out turn off the lights? - Demographic scenarios for the Hungarian rural areas. In J. Zapletalová, A. Vaishar, M. Stastná (Eds.), *Eurorural '18: 6th Moravian Conference on Rural Research: European Countryside and its Perception*. 49 p. Brno: Mendel University in Brno.

Leunig, T. (2008). The regeneration game is up. The Guardian [Html]. https://www.theguardian.com/commentisfree/2008/aug/13/regeneration.conservatives.

Maani, K.E., & Cavana, R.Y. (2007). *Systems Thinking, System Dynamics. Managing Change and Complexity*. Rosedale: Pearson Education New Zealand.

Magnani, R., & Valin, H. (2009). Different approaches to modelling regional issues. *Italian Journal of Regional Science*, 8(1), 99-105.

Martin, R. (2008). National growth versus spatial equality? A cautionary note on the new 'trade-off' thinking in regional policy discourse. *Regional Science Policy & Practice*, 1(1), 3-13.

Martin, R. (2011). Regional economic resilience, hysteresis and recessionary shocks. *Journal of Economic Geography*, 12(1), 1–32.

Martin, R. (2015). Rebalancing the Spatial Economy: The Challenge for Regional Theory. *Territory, Politics, Governance*, 3(3), 235-272.

Mayor, M., López, A. J., & Pérez, R.(2007). Forecasting regional employment with shift-share and ARIMA modelling. *Regional Studies*, 41(4), 543-551.

McCann, P. (2016). *The UK Regional–National Economic Problem: Geography, globalisation and governance*. London, New York: Routledge.

OECD (2011). OECD *Regional Outlook 2011: Building Resilient Regions for Stronger Economies*. Paris: OECD Publishing. https://doi.org/10.1787/9789264120983-en.

Owyang, M.T., Rapach, D.E., & Wall, H.J. (2009). States and the business cycle. *Journal of Urban Economics*, 65, 181–194.

Parmenter, B.R., & Welsh, A. (2001). Historical simulations with the MONASH regional equation system. *Australasian Journal of Regional Studies*, 7(2), 209-230.

Ramajo, J., Márquez, M.A., & Hewings, G.J.D. (2017). Spatiotemporal Analysis of Regional Systems: A Multiregional Spatial Vector Autoregressive Model for Spain. *International Regional Science Review*, 40(1), 75-96.

Riahi, K., Kolp, P., Grübler, A. (2005). *National Scenarios of Economic Activity (GDP) - A Downscaling Analysis based on SRES*. Interim Report IR-05-063. Laxenburg: International Institute for Applied Systems Analysis.

Stock, J.H., & Watson, M.W. (2002). Macroeconomic forecasting using diffusion indexes. *Journal of Business and Economic Statistics*, 20, 147–162.

Szabó, P (2015). *Régió és térszerkezet – az elmélettől a területpolitikáig*. [Region and spatial structure – From theory to spatial policy] Budapest: ELTE Eötvös Kiadó.

Tagai, G. (2015). Járási népesség-előreszámítás 2051-ig. [District-level population projection until 2051] In M. Czirfusz, E. Hoyk, A. Suvák (Eds.), *Klímaváltozás - társadalom - gazdaság: Hosszú távú területi folyamatok és trendek Magyarországon*. [Climate change – society – economy. Long-run spatial processes and trends in Hungary] (pp. 141–166). Pécs: Publikon Kiadó.

van Vuuren, D.P., Lucas, P.L., & Hilderink, H. (2007). Downscaling drivers of global environmental change: Enabling use of global SRES scenarios at the national and grid levels. *Global Environmental Change*, 17, 114–130.

Varga, A. (2017). Place-based, Spatially Blind, or Both? Challenges in Estimating the Impacts of Modern Development Policies: The Case of the GMR Policy Impact Modeling Approach. *International Regional Science Review*, 40(1), 12-37.

Williamson, J.G. (1965). Regional inequality and the process of national development: a description of the patterns. *Economic Development and Cultural Change*, 13, 1-84.

World Bank (2009). *World Development Report: Reshaping Economic Geography*. Whashington, DC: World Bank.

Zsibók, Zs. (2017). Spatial imbalances in the United Kingdom after the Millennium: a focus on the cities. *Deturope*, 9(3), 61-84.

Zsibók, Zs., & Sebestyén, T. (2017). Regionális gazdasági előrejelző modell, a klímaváltozás figyelembevételével. [Regional Economic Forecasting Model with Respect to the Climate Change] *Területi Statisztika*, 57(2), 132-159.

ANNEX

Table 10 The GDP in 2016 (in Hungarian forints, at constant, 2005 prices) and forecasted GDP (in percentage of the 2016 value) in 2050 according to Assumptions 1) to 4)

	GDP 2016	GDP 2050							
		1)		2)		3)		4)	
		with rescaling	without rescaling	with rescaling	without rescaling	with rescaling	without rescaling	with rescaling	without rescaling
Bács-Kiskun	990 475	173.3	338.3	173.0	173.0	174.8	182.3	173.3	187.2
Baranya	606 796	100.5	104.4	173.0	173.0	139.7	145.7	100.3	108.4
Békés	528 883	96.0	202.7	173.0	173.0	137.1	142.9	95.7	103.4
Borsod-Abaúj-Zemplén	1 182 702	164.5	307.5	173.0	173.0	171.0	178.4	164.4	177.6
Budapest	9 054 783	172.6	126.8	173.0	173.0	174.5	181.9	172.5	186.4
Csongrád	771 765	121.9	164.0	173.0	173.0	151.2	157.7	121.7	131.5
Fejér	1 110 515	140.6	500.1	173.0	173.0	160.4	167.2	140.5	151.8
Győr-Moson-Sopron	1 581 713	225.7	731.6	173.0	173.0	194.9	203.3	226.0	244.1
Hajdú-Bihar	953 641	145.3	147.2	173.0	173.0	162.6	169.5	145.2	156.9
Heves	548 828	149.2	193.1	173.0	173.0	164.3	171.4	149.1	161.1
Jász-Nagykun-Szolnok	624 563	132.9	141.6	173.0	173.0	156.7	163.4	132.7	143.4
Komárom-Esztergom	789 709	270.9	208.4	173.0	173.0	210.2	219.2	271.4	293.2
Nógrád	214 081	77.5	113.0	173.0	173.0	125.5	130.9	77.2	83.4
Pest	2 551 867	278.2	173.1	173.0	173.0	212.5	221.6	278.7	301.1
Somogy	483 455	113.5	143.4	173.0	173.0	146.8	153.1	113.3	122.4
Szabolcs-Szatmár-Bereg	812 920	150.7	251.5	173.0	173.0	165.0	172.1	150.6	162.7
Tolna	418 645	109.5	141.6	173.0	173.0	144.7	150.9	109.3	118.1
Vas	639 830	128.2	419.4	173.0	173.0	154.4	161.0	128.0	138.3
Veszprém	662 093	116.2	253.0	173.0	173.0	148.2	154.6	116.0	125.3
Zala	528 032	114.5	111.2	173.0	173.0	147.4	153.7	114.3	123.5
Hungary (total)	25 055 296	173.0	225.5	173.0	173.0	173.0	180.4	173.0	186.9

Source: own elaboration

Table 11 Forecasted GDP, in percentage of the 2016 value, in 2050 according to the decomposition method (without ex post proportional rescaling)

	GDP 2050		GDP 2050
Bács-Kiskun	121.7	Jász-Nagykun-Szolnok	106.2
Baranya	120.7	Komárom-Esztergom	183.7
Békés	92.7	Nógrád	92.3
Borsod-Abaúj-Zemplén	146.1	Pest	228.0
Budapest	146.2	Somogy	112.0
Csongrád	134.4	Szabolcs-Szatmár-Bereg	103.7
Fejér	134.5	Tolna	101.1
Győr-Moson-Sopron	124.4	Vas	96.8
Hajdú-Bihar	151.0	Veszprém	104.7
Heves	143.9	Zala	117.5
Hungary (total)	149.9		

Source: own elaboration

Original scientific paper

EXPLORING THE SATISFACTION AND DISSATISFACTION FACTORS DERIVED FROM FOOD AND BEVERAGE SERVICES OF THERMAL HOTELS

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Abstract

The increase in supply and demand in thermal tourism has led to the intensification of competition. This situation causes the thermal hotels to spend more effort on issues such as understanding customer expectations and providing customer satisfaction. Food and beverage services have great importance in all areas of tourism as well as in thermal hotels. Thus, the main purpose of the study is to reveal the factors affecting the tourists' satisfaction or dissatisfaction in food and beverage services in thermal hotels. The research was conducted in thermal hotels in Denizli, Turkey. Tourists' online reviews on TripAdvisor were analysed by content analysis. The findings clearly show the main areas of satisfaction of the food and beverage services in the thermal hotels as taste of food, employees, quality of food and activities in the restaurants. However, the main areas where the online reviewers are dissatisfied are high price, variety of food, capacity for restaurants and freshness of food. Then, one-way ANOVA was performed to determine whether satisfaction levels of food and beverage service has an affect on overall hotel performance in the different categories of review. Results show the strong relationship between customers' satisfaction on food and beverage services and overall thermal hotel satisfaction.
The abstract of this study was presented in Cultural Management and Governance for European Thermal Tourism: Creativity and Innovation for cultural and tourism management in European Thermal Routes and Sites Conference, Cori, Italy, 6 November 2017.

Keywords: thermal tourism, tourist satisfaction, food and beverage services, online review.

INTRODUCTION

The rising tendency in global tourism demand and revenues has led to developed and developing countries to take tourism into their agenda to receive more tourists and tourism income. Similarly, today's tourism professionals also focus on alternative types of tourism by creating product diversification away from sea-sun-sand-based tourism (Kaya, 2017). Thermal tourism, which has seen significant developments throughout the world in recent years, has emerged from this situation.

Thermal springs have been used for having a healthy life for thousands of years (LaMoreaux, 2005). Today, thermal spring waters are used to treat discomforts, reduce stress levels, and maintain beauty and well-being (Erfurt-Cooper & Cooper, 2009). Therefore, the alternative uses of thermal waters are important in today's tourism industry. To support this, there is a consensus among researchers that health and health-related tourism activities and

tourism movements are on the rise (Harmsworth, 2004; Gligorijevic & Petrovic, 2010; Hudson & Li, 2012).

With the increase in the tourism demand and supply of thermal tourism, the competition has been intensified (Fontanari & Kern, 2003). The thermal hotels offer both the services provided by the classical hotel companies and the health and special services required by thermal tourism. Especially, the types of services offered by thermal hotels and the contents of these services are very important for the thermal tourists (Lagrosen & Lagrosen, 2016). In this respect, the increasing demand for thermal hotels and the increasing number of thermal hotels reveal the necessity of products and services that are not possible to be imitated by their competitors (Emir & Paşaoğlu, 2013). Within this context, food and beverage (F&B) services in thermal hotels are one of the most prominent parts for the thermal tourists due to their basic and special nutritional needs for thermal tourists' health conditions and their F&B services expectation distinguishes from average hotel visitors (Emir & Paşaoğlu, 2013; Giritlioglu, Jones & Avcikurt, 2014). However, while much is known about the factors affecting tourist satisfaction in F&B services in other hotel types (Smith & Puczkó, 2009; Saar, 2010; Lagrosen & Lagrosen, 2016) little is known about factors affecting thermal hotel visitors F&B satisfaction (Giritlioglu et al., 2014). Current study aims to fill the gap in the literature by an empirical study that focused on thermal hotels F&B services. Once the thermal hotel management knows factors affecting the tourists' satisfaction or dissatisfaction in F&B services, the management will be able to compete with their competitors by having the opportunity to offer unique experiences to their guests. Therefore, the subsequent sections of the research are structured in conceptual framework, methodology, analysis, results and discussion, and conclusion.

CONCEPTUAL FRAMEWORK

Thermal tourism

Health and wellness tourism has become an international trend for consumers who want to increase their welfare. These tourism types cover travels to protect or enhance one's personal well-being (Stará & Peterson, 2017). However, thermal tourism includes tourism movements that are made to use thermal waters for health, wellness, entertainment, rest, beauty etc. In this context, thermal tourism referred as a sub-sector of health tourism based on the idea of using thermal waters for health and wellbeing (Azakli, 2012).

Nowadays, individuals participate in thermal tourism activities in order to treat various illnesses, reduce the existing stress levels and to protect their vitality (Giritlioğlu, 2013). Thermal baths and thermal tourism have a much closer relationship to environmental tourism and human health than mass tourism. In fact, thermal destinations allow places to develop locally. For this reason, thermal tourism activities lead to the development of local economies (Zollo, Simonetti, Salsano, & Rueda-Armengot, 2015). Similarly, Araujo, Paiva, Ribeiro, & Coutinho (2015) examine thermal tourism as a tool to contribute in the development of the regions by eliminating the inter-regional economic asymmetries. Besides the economic contribution to regions, main thermal tourism features as follows (Zengin & Eker, 2016);

- Thermal tourism serves both ill and healthy people.
- In order to have thermal tourism in a region, it is necessary to have a thermal source.
- Thermal facilities should offer all the features in terms of technical, geological, hygienic, health and aesthetic facilities.
- Thermal tourism provides fitness, leisure, and relaxation beside healing effect.
- Thermal tourism is a tourism type that can be done for all the year round.
- Thermal tourism is a type of tourism that requires expertise.
- Thermal tourism is a high-income type of tourism.
- In thermal tourism, the length of stay depends on the healing process.
- Enterprises operating within the scope of thermal tourism have higher costs.
- Thermal tourism is a type of tourism that builds a habit in tourists.

These features of thermal tourism make it more attractive than other tourism types. In addition, the level of pressure and stress created by today's business life is causing individuals to seek relaxation opportunities. Thermal tourism is the leading option for the people who want to resist the stress of their daily life or treat certain diseases (Türksoy & Türksoy, 2010; Giritlioğlu, 2013; Giritlioglu et al., 2014).

Thermal tourism in the World and Turkey

Tourism and hospitality are among the world's fastest growing industries (25 million tourists in 1950 and 1235 million tourists in 2016). All countries want to get higher shares from this growing market (UNWTO, 2017). Many countries in the world are popular tourism destinations not only because of their interesting landscapes and extraordinary natural scenery but also because of their natural and hot mineral thermal waters (Erfurt-Cooper & Cooper, 2009).

Thermal waters have been used for having a healthy life since the ancient era (Kervankıran, 2016). Today, thermal spring waters are used to treat discomforts, reduce stress levels, and maintain beauty and well-being. Contemporary life conditions make using of thermal waters more popular than in any period of the history. Therefore, the alternative uses of thermal waters are important in today's tourism industry.

There is a consensus among researchers that health and health-related tourism activities and tourism movements are on the rise. That is why demand for thermal tourism has been increasing globally for over 20 years and it is one of the fastest-growing sub-sectors of health tourism (Erfurt-Cooper & Cooper, 2009; Kovács, Bacsi, & Lőke, 2012; Giritlioglu et al., 2014; Costa, Quintela, & Mendes, 2015; Kervankıran, 2016). For example, over 15 million people visit thermal destinations in Italy for health and well-being purposes. Italy reached 4 billion Euros in 2009, with more than 30,000 wellness-related enterprises in 2009 (Zollo et al., 2015). Similarly, every year more than 10 million tourists visit Germany and Hungary for thermal purposes (Kervankıran, 2016). Mainil, Eijgelaar, Klijs, Nawijn, & Peeters (2017) noted that in 2014, 61.8 million people visited the European Union (EU) for health, spa/thermal and healthcare services as part of health tourism. Surprisingly, only four countries, namely Germany, France, Poland, Italy and Sweden share more than three-fourths of the total health tourism income (46.9 billion euros in 2014) in the EU. In addition, the global thermal and spa industry revenues reached $ 150 billion in 2015 (Global Wellness Institute, 2017).

Developed countries have a bigger share of the thermal related touristic movement than developing countries due to their early recognition of the global trend towards thermal tourism. Turkey is a classic example of this situation. According to the Ministry of Energy and Natural Resources of Turkey (2018), Turkey is rich in geothermal energy resources. It ranks fifth in the world for geothermal heat and thermal spring applications (Kilic, 2016). Similarly, Giritlioglu et al., (2014) argue that Turkey with over one thousand hot springs is poorly developed in thermal tourism. Kervankıran (2016) points out that people who live in Turkey have traditionally used thermal spring water for health purposes since the Hittite era but the increase in investments related to thermal tourism after 2007. While the numbers of thermal hotels were 78 in 2006, with a bed capacity of 17,767, this number increased to 160 and 54,962, respectively, in 2016 (see Table 1).

Table 1 Number of thermal hotels in Turkey

	2006		2010		2016	
	Hotel	**Bed**	**Hotel**	**Bed**	**Hotel**	**Bed**
Tourism Operation Licensed	37	9,736	50	15,796	75	25,353
Tourism Investment Licensed	8	2,438	15	7,757	44	23,218
Licensed by Municipality	33	5,593	35	6,174	41	6,391
TOTAL	**78**	**17,767**	**100**	**29,727**	**160**	**54,962**

Source: Ministry of Culture and Tourism of Turkey (2017). http://yigm.kulturturizm.gov.tr/TR,9579/turizm-tesisleri.html

Importance of food and beverage services in thermal hotels

Thermal hotels have a primary role in the development of thermal tourism in a region (Boekstein, 2014). However, the increase in the demand for thermal tourism is reflected itself in the supply side of thermal hotels. As the number of thermal hotels increases, the competition among the hotels is also intensifying. This situation requires that the products and services of the thermal hotels be unique.

Thermal hotels are crucial for tourists who visit the region to get thermal services (Bakucz & Flink, 2012). Therefore, to ensure tourist satisfaction, not only thermal services but also non-thermal services should be qualified. Customer satisfaction has been an important part of marketing and management literature for decades, as satisfied customers can provide long-term benefits, including loyalty and profitability (Liu & Jang, 2009). Consumer satisfaction is mainly the result of cognitive comparisons of product-related expectations and comparisons of business performance (Bigné, Matilla, & Andreu, 2008). Consumer satisfaction occurs when the product's performance after use exceeds its pre-use expectations and consumer dissatisfaction if product performance is below consumer expectations (Oliver, 1980). In thermal hotels, the similar process operates in terms of tourist satisfaction (Chua, Lee, Goh, & Han 2015).

Lebe (2006) points out the F&B services as important as health-related services provided in thermal hotels. Similarly, Giritlioglu et al. (2014) state that thermal hotels should provide special F&B services to their visitors to ensure successful thermal hotel experiences. Andaleeb and Conway (2006) state that department satisfactions based on each service encounter lead to overall satisfaction with the hotels. It is also apparent, that if hotel and restaurant managers really want to gain a competitive advantage, they must endeavour to provide customer satisfaction.

F&B service is one of the critical elements in both land and sea-based tourism types (Kaya, 2017). For this reason, meeting the expectations of tourists for F&B service in thermal hotels

has an important role in terms of service quality and overall satisfaction. From another point of view, due to basic and special nutritional needs of thermal tourists' health conditions, F&B services are the essential part of thermal hotels in customer satisfaction (Saar, 2010). This reveals the complementary nature of F&B services in customer satisfaction.

METHODOLOGY

Research objectives

In contemporary competitive conditions, defining the customer expectations is a critical pre-requisite for thermal hotels to satisfy their customer. For customer satisfaction, F & B services have a primary role in completing health services, and meeting specific nutritional needs of customers visiting thermal hotels for health or well-being (Alén, Fraiz, & Rufin, 2006; Giritlioglu et al., 2014). Therefore, examining tourist' F&B service experiences in thermal hotels from online booking websites can be an effective way to obtaining valuable insight. The specific objectives of the research are:

(1) to reveal the factors affecting the tourists' satisfaction or dissatisfaction in F&B services of thermal hotels; and

(2) to identify effects of satisfaction levels from F&B services to overall hotel satisfaction.

Data collection

As well known, customer satisfaction or dissatisfaction arises from a comparison of consumers' after-consumption evaluation with consumers' product-related expectations (Liu & Jang, 2009). Today, one of the most practical ways to achieve this is to check online reviews. Therefore, online travel reviews are emerging as a powerful source of information affecting tourists' pre-purchase evaluation of a hotel organization (Browning, So & Sparks, 2013; Mauri & Minazzi, 2013). Growing importance and effect of electronic word-of-mount (E-WOM) directs the researchers to online reviews. In addition, these reviews and ratings indicate the tourists' degree of satisfaction with the hotel or related department/s (Gretzel & Yoo, 2008; Gu & Ye, 2014; Schuckert, Lu, & Law, 2015).

The data used for this research were collected from TripAdvisor. The research analysed and evaluated the travellers' reviews about the F&B services provided by the thermal hotels on TripAdvisor. The reason for choosing TripAdvisor was that it is one of the leaders in social media travel content providing reviews of the hotel, places, and restaurants (Schuckert et al., 2015). In 2017, Trip Advisor's official page posted more than 500 million reviews and

more than 390 million travellers were using the page (https://tripadvisor.mediaroom.com/tr-about-us, 2017).

The sample of the study include 4 or 5 star thermal hotels operating in Denizli, Turkey, According to the Ministry of Culture and Tourism of the Republic of Turkey, there are one 4 star and six 5 star thermal hotels operating in Denizli (http://yigm.kulturturizm.gov.tr, 2017). All the hotels are registered with Trip Advisor, and the reviews and ratings of all F&B services are accessible through Trip Advisor. For the research sample, 3,573 online reviews, submitted between May 2006 and September 2017, were assessed. In the translation and evaluation of reviews other than English, Turkish and German languages, assistance was obtained from professional translation agencies.

Research design

In this research, a mixed-methods design was employed to answer each research question. In a mixed-methods design, both qualitative and quantitative methods are used together (Liu, Kim, & Penning-Gray, 2015). This method includes transformative designs (quantization process) that the qualitative data are converted (quantized) into quantitative data to use in suitable statistical techniques (Driscoll, Appiah-Yeboah, Salib, & Rupert, 2007; Teddlie & Tashakkori, 2009).

For data analysis four types of variables were used for evaluation; 1. Nationality, 2. Travel types, 3. Overall evaluation score for the hotel in TripAdvisor (From 1 to 5), 4. Reviews about F&B services in the thermal hotel. In the qualitative phase of the study, following the previous studies (e.g., Stepchenkova & Zhan, 2013; Berezan, Raab, Tanford, & Kim, 2015; Wang & Hung, 2015) a content analysis was employed which is a useful technique to analyse customer reviews and consumer comments (Berezan et al., 2015). Therefore, reviews on F&B services in the thermal hotel were coded and classified under four categories to understand the relation between overall scores and F&B review categories. These categories are 1. No review about F&B services, 2. Negative review about F&B services, 3. Neutral review about F&B services and 4. Positive review on F&B services. Then, in the quantitative phase One-Way ANOVA test is used to determine whether there are any statistically significant differences between the means (overall hotel score) of categories.

RESULTS AND DISCUSSION

As previously mentioned, this study aims to identify the factors affecting the tourists' satisfaction or dissatisfaction in F&B services of thermal hotels and, the effects of satisfaction

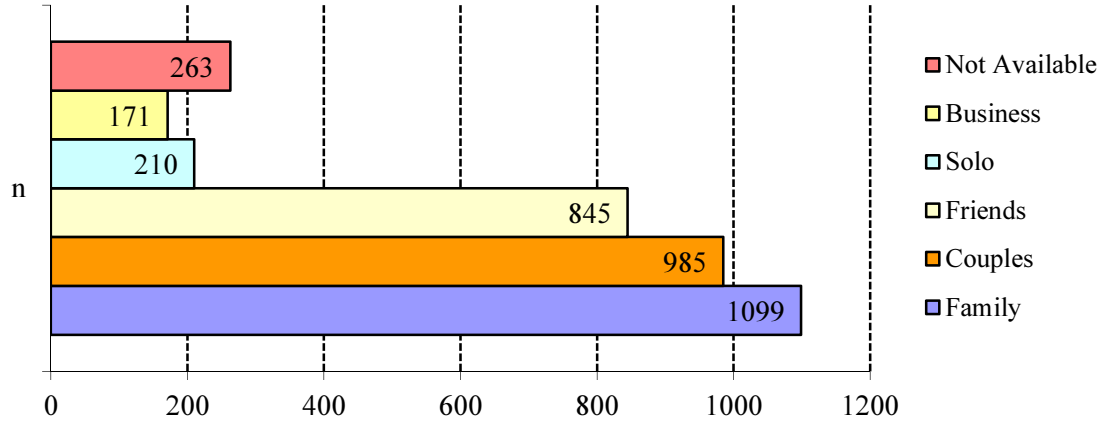
levels from F&B services to overall hotel satisfaction. For this purpose, 3,573 online reviews were analysed in the study. Table 2 shows the nationality distribution of visitors who stayed in thermal hotels in Denizli, Turkey. As seen in Table 2 the majority of the visitors of thermal hotels are domestic visitors. However, Spain (219), USA (204), England (180) and Japan (156) are the main tourist generating countries for thermal hotels in Denizli.

Table 2 Nationality of visitors

Nationality	n	%
Turkey	1,325	37,1
Spain	219	6,1
USA	204	5,7
England	180	5,0
Japan	156	4,4
Argentina	144	4,0
Italy	132	3,7
Australia	125	3,5
Russia	85	2,4
Germany	78	2,2
Not Available	216	6,0
Others	709	19,9
TOTAL	**3,573**	**100**

Figure 1 shows the travel types of thermal hotel visitors. According to Figure 1, most of the visitors coming to thermal hotels travel with their families (30.8%), couples follow this group with 27.6% and 23.6% of the visitors travel with their friends.

Figure 1 Travel types of thermal hotel visitors (N=3,573)

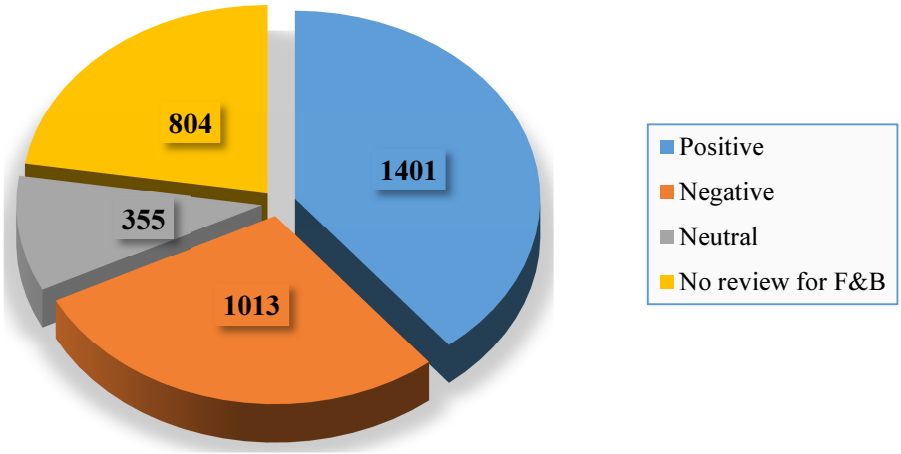


Content analysis of reviews

According to the descriptive analysis of reviews, the distribution to categories is as follows; 804 (22.5%) of 3,573 reviewers did not submit any review on F&B services, however, there are 1,013 (28.4%) negative reviews, 355 (9.9%) neutral reviews (e.g. restaurant was crowded but meals were tasty) and 1,401 (39.2%) positive reviews on F&B services in thermal hotels.

Figure 2 shows how F&B services are important for visitors of thermal hotels with a total of 78.5% evaluation rate. One of the purposes of the study is to reveal the factors affecting the tourists' satisfaction or dissatisfaction in F&B services of thermal hotels. However, neutral reviews contain both positive and negative opinions about F&B services in thermal hotels. Therefore, each positive and negative evaluation item for the F&B services in the neutral reviews has been distributed to the positive and negative categories to identify all factors that affect tourists' satisfaction or dissatisfaction in F&B services. Thus, positive reviews increased to 1,756 and negative reviews to 1,368.

Figure 2 Review categories



Satisfaction factors

According to the content analysis of reviews, there are four main factors affecting the tourists' satisfaction in F&B services in thermal hotels. As seen in Table 3 these factors are taste of food, employee, quality of food, and activities in restaurants.

Table 3 Factors affecting tourist satisfaction in the services F&B (N=1,756)

Factor	n	%*
Taste of food	1,258	71,6
Employee	812	46,2
Quality of food	657	37,4
Activities in the restaurant/s	482	27,4

*Respondent could mention a number of responses.

Taste of food: 1,258 of 1,756 (71.6%) of the positive reviews mentions taste of food which is a critical factor for F&B services to satisfying both national and international tourists in the thermal hotel. Basil & Basil (2009) also found taste as a major indicator of satisfaction in their

research with 95% in upscale restaurants. Similarly, Clark (1998) finds that taste of food is an important factor in consumer food choice. In this research 71.6% ratio proves that taste of food is a critical factor for satisfying tourists who use F&B services of thermal hotels. Some of the reviews are as follow;

“the evening meal was a buffet, the range was ok and the food was tasty” England, Score: 4, Travels with family.

“The service is great and the food tastes good”, Thailand, Score:5, Couple.

“Food was plentiful & good tasty meals”, Turkey, Score:5, Travels with family.

“The buffet breakfast is really tasty” USA, Score: 4, Solo.

“....There is a dish I highly recommend of flat bread with spinach and cheese rolled up, so tasty .....” Canada, Score:5, Travels with family.

Employee: The importance of employees in the service sector has been known for a long time (Kuo, 2007). Many studies proved the existing direct relationship between employee or employee-related factors and customer satisfaction (Gould-Williams, 1999; Winstead, 2000; Keung, 2000). Accordingly, the employee is also revealed as a satisfaction-providing factor in F&B services in thermal hotels. Among 1,756 positive reviews, 812 mentioned employees. Such as;

“..... brilliant staff was great and it was just a great stop over....” Australia, Score:5, Travels with friends.

“...Foods are delicious and staffs are very helpful...”, Turkey, Score:5, Travels with family.

“...The restaurant staff were very helpful and very kind”, Spain, Score:4, Couple.

“Waiters in the bar were perfect, meals were delicious”. Canada, Score:5, Solo.

Quality of food: Quality of food is an important success factor for both restaurants and hotels (Giritlioglu, et al., 2014). This factor can also be applied to thermal hotel F&B services. Mela (1999) states the quality of food is an indicator of matching the consumers’ expectations in restaurants. According to content analysis, 657 of 1,756 reviewers mentioned it positively.

“The hotel provide with breakfast and diner included and even this is like a buffet style, you will find there a very good quality of food with so much choices it can satisfy all the tastes”, Canada, Score: 5, friend.

“The hotel caters for large bus tours so the buffet had a good variety of food at a good quality for both the evening meal and breakfast”, Australia, Score:4, Solo.

“The food was healthy and good quality”, Turkey, Score:5 , family.

“Food quality is very good and it makes me happy”, Singapore, Score:5, Couple.

Activities in the restaurant/s: The main motivations of visitors to thermal hotels can be considered as health, refreshment or relaxing (Kelly, 2012). However, unexpectedly, many tourists (482 in 1,756) were satisfied with activities in restaurants.

"...the lounge area was great with a large open fire and live music..", Ireland, Score:5, Couple.

"Dinner outdoors was a perfect setting - there was a live "Turkish Pancake" Counter serving excellent pancakes! The music was soft & soothing", India, Score:5, friends.

"Dinner for group guests was served next to cold water swimming pool, with wide variety of food, and live music from keyboard playing good old time songs from the 60s-70s", Italy, Score:4, family.

"There's live music and belly dance show after dinner", Turkey, Score: 5, Business.

Dissatisfaction factors

The factors that cause dissatisfaction with F&B services in Thermal Hospitals were identified by content analysis in this study. In this context, four dissatisfaction factors were derived from the content analysis, including high price, variety of food, the capacity of restaurant/s, and freshness of food (Table 4).

Table 4 Factors causing tourist dissatisfaction in the F&B services (N=1,368)

Factor	n	%*
High price	1,024	74.8
Variety of food	752	54.9
The capacity of restaurant/s	542	39.6
Freshness of food	412	30.1

*Respondent could mention a number of responses.

High price: The effect of the price on customer preferences and satisfaction is emphasized in many researches (Hill, Roshe, & Allen, 2007; Saraiva, Cid, & Baião, 2011; Rahman, Kalam, Rahman, & Abdullah, 2012; Gagić, Tešanović, & Jovičić, 2013). Particularly, unfair priced or high priced F&B affects customer satisfaction in a negative manner. In this research, during the content analysis process, it is understood that the hotels are usually operating half-board. It means that tourists pay for everything except breakfast and dinner. Especially the beverage prices of all hotels disturb visitors extremely. 1,024 of 1,368 revivers' mentioned price related comment for F&B negatively, such as;

"Beverages were the most expensive we had come across, approx. 30% higher than everywhere else!" Argentina, Score:2, family.

"The buffet dinner was tasty with a good quality as was breakfast but I found the drinks prices high." England, Score:3, Solo.

“All drinks and snacks double the price as bars and cafes outside and the cheapest bottle of wine being 35 euros” Turkey, Score:3, friend.

“They are demanding cash for drinks at the pool (who carries cash to the pool??) and at crazy prices; 9 euro for a beverage.” Canada, Score:2, family.

Variety of food: Variety of food in the menus suit individuals’ daily life preferences in restaurants. In addition, Abbey, Wright, & Capra (2015) stated that the power to choose from the menu increases levels of individuals’ food service satisfaction up to 30%. This factor not only includes the number of meals on buffet or menu but also includes alternative food options like vegetarian and dietary ones (Zhou, Ye, Pearce, & Wu, 2014). Variety of food related reviews consists 752 of 1,368 negative reviews.

“The food menu wasn’t that great ...even though they served buffet but it lacked variety!” India, Score: 2, Couple.

“The buffet dinner and breakfast the food is tasty and for my wife who is a vegetarian there is no specific dishes.” Netherlands, Score:2, family.

“The food is tasteful but not plenty, vegetarian options are very poor.” USA, Score:2, Solo.

“....Limited food varieties served during dinner.....” Indonesia, Score: 2, Couple.

“....Food quality is good but for 5 star ,variety of foods is inadequate.” Turkey, Score:3, Business.

The capacity of restaurant/s*:* Noone and Mattila (2009) states that crowdedness is a negative factor for customers in perceiving the quality of restaurants. According to Toktassynova & Akbaba (2017) crowded service environment take the great portion (82.1%) of negative reviews in their study. Similarly, the capacity of restaurant/s is a dissatisfactory factor for thermal hotel customers', too (542 of 1,368). The following reviews depict it clearly.

“....Buffet: chicken and chips were OK, great salad selection, but restaurant was very crowded with group tours....” China, Score:2, Friends.

“The buffet hall is huge but it got messy with crowds, some food strewn on the floor.” Spain, Score: 3, family.

“...Buffet was crowded with people, pushing and shoving to get a crack at what was mostly mediocre food.” USA, Score:2, Solo.

“They do not re-set the tables at breakfast, so when my daughter and I came down at 8:30am after most of the big tour buses had gone we could not find a clean place to sit.” Argentina, Score:2, Family.

“restaurant is small. most of the tables are for big groups that is already reserved by the waiters.” Italy, Score:1, Couple.

***Freshness of food*:** There is an increasing tendency towards consumption of fresh F&B by contemporary consumers (Melia, 2011). This situation makes the consumer more sensitive to healthy and fresh food. It is a fact that, if tourists feel distrustful about healthiness or freshness of food, that reduces the satisfaction of F&B services (Hwang & Lorenzon, 2008). A few of the 412 (30.1%) negative comments about freshness of food can be found below.

"Breakfast served comes with very limited choice, no fresh fruits." N.A., Score:1, Family.

"The dinner was cold, and after complaining about it and asking for new food, they took our plates, and literally microwaved it for us." Germany, Score:1, Couple.

"breakfast is insufficient, no muesli, no fresh fruit juice, no fruits, no milk." England, Score: 3, Friend.

"Food in the buffet was not inspiring or fresh." Australia, Score:2, Solo.

"The food was cold and not fresh. However, you have to pay extra for everything, even for water....." Canada, Score:1, Couple.

One-way ANOVA analysis

For the purposes of the study, one-way ANOVA was performed to determine whether satisfaction levels of F&B service has an affect on overall hotel performance. As mentioned in the previous sections, comments were divided into 4 categories but for the one-way ANOVA analysis, only three categories (negative, neutral and positive review) were taken into account to get a clear picture of comparison between review categories and overall hotel scores. Firstly, the homogeneity of the variance was checked by Levene's test in order to identify the requirements for ANOVA (Levene=13.142; p=0.068). Then, One-way ANOVA was performed with hotel score as the dependent variable and review group as the fixed factor. In the cases where significant results have been obtained in ANOVA, Least Significant Difference (LSD) was applied to identify where differences lie between categories on hotel performance (α= 0.05).

Table 5 ANOVA results

Dependent Variable	Factor Variable	Mean*	SD	n	Sum of Squares	df	Mean Square	F	Sig.
	Negative	2.341	1.025	1,013					
Hotel Score	Neutral	3.476	.921	355					
	Positive	4.434	.712	1,401					
Between Groups					2,575.96	2	1,287.98	1717.3	.000
Within Groups					2,074.51	2,766	.75		
Total					4,650.47	2,768			

* 1 = Terrible, 2 = Poor, 3 = Average, 4 = Very good to 5 = Excellent

Results (see Table 5) showed that there are significant differences (F = 1717.3; p<0.000) in relation to review categories on hotel scores. According to this, the mean hotel scores of the negative reviews are at the lowest level (2.34) and it is followed by neutral reviews (3.47) and positive reviews (4.43) respectively. Moreover, the post hoc LSD test (Table 6) showed that all the review categories were significantly (p<0.000) different from each other. Most researchers have examined the impact of F&B services on customer loyalty and customer satisfaction in hotel businesses and satisfaction with F&B services has been directly related to hotel satisfaction (Alén et al., 2006; Kundampully & Suhartanto, 2000; Acharya, Sengupta, & Mishra, 2011). Similarly, in this study, in a manner of conforming to descriptive statistics of review categories and ANOVA results, there is a strong relationship between customers' satisfaction on F&B services and overall thermal hotel satisfaction.

Table 6 Multiple comparisons (LSD).

	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
Hotel Score	Negative	Neutral	-1.134*	.053	.000
		Positive	-2.092*	.035	.000
	Neutral	Negative	1.134*	.053	.000
		Positive	-.957*	.051	.000
	Positive	Negative	2.092*	.035	.000
		Neutral	.957*	.051	.000

* The mean difference is significant at the 0.05 level.

CONCLUSION

F&B services are one of the most important parts of tourism industry. In addition, the F&B department is one of the most revenue-generating departments, as well as positively affecting customer loyalty and customer satisfaction in the hotel. This also applies to thermal hotels. Therefore, understanding visitor expectations and perceptions of F&B services is one of the critical factors in achieving customer satisfaction in the thermal hotel. This study contributes to tourism literature by revealing the satisfactory/dissatisfactory factors of F&B in thermal hotel visitors of Denizli, Turkey.

Unlike many other studies, the current research investigated the satisfactory and dissatisfactory factors of F&B services in the thermal hotel by examining the reviews of guests in TripAdvisor. In the study, firstly, the F&B related reviews were divided into three categories (negative, neutral and positive), then the comments in the neutral categories were

included in the positive and negative categories according to their contents. After the content analysis of the positive and negative reviews, there are 4 satisfied and 4 dissatisfied main factors identified. The satisfactory factors of F&B services in the thermal hotels were found as; taste of food, employees, quality of food and activities in the restaurants (e.g. live music). On the other hand, the main factors where the reviewers are dissatisfied were determined as; high price, variety of food (lack of vegetarian menu, steak menu etc.), capacity for restaurants (i.e. crowdedness in restaurants) and freshness of food. The results of this study are similar to the study of Giritlioglu et al., (2014). Accordingly, thermal hotel customers pay attention to tangible features of F&B services in both studies. Therefore, thermal hotel managers should pay particular attention to tangible characteristics of F&B services. These results contribute to increasing managerial success by guiding hotel managers with limited resources to which areas resources should be transferred. Moreover, the present study revealed the direct relationship between catering services and overall hotel satisfaction. This proves that F&B services are vital for the thermal hotel.

This study has some limitations that should be considered in the interpretation of the study. First of all, the current study is based on textual data collected from TripAdvisor, so some of the necessary details like demographic or tripographic information are lacked (Berezan et al., 2015). Future research, particularly for the case studies, may use reviews from other online sites and additional methods, to validate and extend these findings. Additionally, the current study only used the reviews of the tourists who stayed in the thermal hotels in Denizli, Turkey. Therefore, findings of F&B services in the thermal hotels cannot be generalised. In future research, data can be collected from different thermal cities to conducting a comparative analysis of competing cities.

REFERENCES

Abbey, K. L., Wright, O. R. L., & Capra, S. (2015). Menu Planning in Residential Aged Care-The Level of Choice and Quality of Planning of Meals Available to Residents. *Nutrients*, 7(9), 7580-7592.

Acharya , S. B., Sengupta , P. P., & Mishra , R. (2011). Exploring customer loyalty: A study on fast food outlines in the city of Chennai. *International Journal of Multidisciplinary Research*, 1(4), 175-183.

Alén, M.E., Fraiz, A.J., & Rufin, R. (2006). Analysis of health spa customers' expectations and perceptions: the case of Spanish establishments. *Polytechnic Studies Review*, 3 (5/6), 245-262.

Andaleeb, S. S., & Conway, C. (2006). Customer satisfaction in the restaurant industry: an examination of the transaction-specific model. *Journal of Services Marketing*, 20 (1), 3-11.

Araujo, R. T. S. A., Paiva, T., Ribeiro, M. P., & Coutinho, P. (2015). Innovation in Thermalism: An Example in Beira Interior Region of Portugal. In M. Peris-Ortiz and J. Álvarez-García (eds.). *Health and Wellness Tourism Emergence of a New Market Segment* (pp.165-180). London: Springer.

Azakli, H. S. (2012). Institutional and spatial aspects of thermal tourism in Turkey: Nevsehir kozakli thermal tourism center. (MSc Thesis, Middle East Technical University), Retrived February 8, 2017 from: http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=D1662A54253F4BBFBFF5802343D999B4?doi=10.1.1.633.9550&rep=rep1&type=pdf

Bakucz, M. & Flink, A. (2012). Competitiveness and Potential in Spas and Health Resorts in Some Central European Regions: Conclusions from on-going research in South Transdanubia, Hungar." Networks regions and cities [in] times of fragmentation: developing smart, sustainable and inclusive places: Annual European Conference, 13 May - 16th May 2012, Delft University of Technology, Delft, Netherlands.

Basil, M. & Basil, D.Z. (2009). Reflections of ultra-fine dining experiences. In Lindgreen, A., Vanhamme, J. and Beverland, M.B. (Eds), *Memorable Customer Experiences: A Research Anthology* (pp. 135-147). Surrey: Gower.

Berezan, O., Raab, C., Tanford, S., & Kim, Y.S. (2015). Evaluating loyalty constructs among hotel reward program members using eWOM. *Journal of Hospitality & Tourism Research*, 39 (2), 198-224.

Bigné, J. E., Mattila, A. S., & Andreu, L. (2008). The impact of experiential consumption cognitions and emotions on behavioral intentions. *Journal of Services Marketing*, 22(4), 303-315.

Boekstein, M. (2014). From illness to wellness-has thermal spring health tourism reached a new turning point? *African Journal of Hospitality, Tourism and Leisure*. 3(2), 1-11.

Browning, V., So, K. K. F., & Sparks, B. (2013). The influence of online reviews on consumers' attributions of service quality and control for service standards in hotels. *Journal of Travel & Tourism Marketing*, 30 (1-2), 23-40.

Chua, B., Lee, S., Goh, B., & Han, H. (2015). Impacts of cruise service quality and price on vacationers' cruise experience: moderating role of price sensitivity. *International. Journal of Hospitality Management*, 44, 131– 145.

Clark, J. E. (1998). Taste and flavour: their importance in food choice and acceptance, *Proceedings of the Nutrition Society,* 57, 639-643.

Costa, C., Quintela, J., & Mendes, J. (2015). Health and Wellness Tourism: A Strategic Plan for Tourism and Thermalism Valorization of São Pedro do Sul. In M. Peris-Ortiz and J. Álvarez-García (eds.) *Health and Wellness Tourism Emergence of a New Market Segment* (pp.63-76). London: Springer.

Driscoll, D. L., Appiah-Yeboah, A., Salib, P., & Rupert, D. J. (2007). Merging qualitative and quantitative data in mixed methods research: how to and why not. *Ecological and Environmental Anthropology*, 3(1), 19-28.

Emir, O., & Paşaoğlu, D. (2013). Impact of the service quality of Turkish thermal hotel enterprises on customer loyalty. *Balikesir University The Journal of Social Sciences Institute*. 16(30),185-202.

Erfurt-Cooper, P. & Cooper, M. (2009). *Health and Wellness Tourism – Spas and Hot Springs*. Bristol: Channel View.

Fontanari, F., & Kern, A. (2003). The "Comparative Analysis of Spas" - An instrument for the re-positioning of spas in the context of competition in spa and health tourism. *Tourism Review*, 58 (3):20 – 28.

Gagić, S., Tešanović, D., & Jovičić, A. (2013). The vital components of restaurant quality that affect guest satisfaction. *TURIZAM*, 17(4), 166-176.

Giritlioğlu, İ. (2013). Yiyecek İçecek Bölümlerinde İşgörenlerin ve Müşterilerin Hizmet Kalitesi Beklenti ve Algıları: Termal Otellerde Bir Araştırma, *Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 16 (29), 329-355.

Giritlioglu, I., Jones, E., & Avcikurt, C. (2014). Measuring food and beverage service quality in spa hotels: A case study in Balıkesir, Turkey. *International Journal of Contemporary Hospitality Management*, 26 (2), 83-204.

Gligorijevic, Z., & Petrovic, J. (2010). The position of Niska Banja (Nis Spa) in Serbian spa tourism. *Economics and Organization*, 17 (3), 309-317.

Global Wellness Institute. (2017). Global Wellness Economy Monitor, January 2017. The Global Wellness Institute. Retrieved May 12, 2017, from https://www.globalwellnessinstitute.org/industry-research.

Gould-Williams, J. (1999). The impact of employee performance cues on guest loyalty, perceived value and service quality. *The Service Industries Journal*, 19(3), 97-118.

Gretzel, U., & Yoo, K.H. (2008). Use and Impact of Online Travel Reviews. In: O'Connor P., Höpken W., Gretzel U. (eds), Information and Communication Technologies in Tourism (pp. 35-46). Vienna: Springer.

Gu, B., & Ye, Q. (2014). First step in social media-measuring the influence of online management responses on customer satisfaction. *Production and Opererations Management*, 23 (4), 570-582.

Harmsworth, S. (2004). The latest trends and developments in health and spa market. *Insights*, 15, 173-178.

Hill, N., Roshe, G., & Allen, R. (2007). *Customer Satisfaction: The Customer Experience Through the Customer's Eyes*. London: Cogent.

Hudson, S., & Li, X. (2012). Domestic medical tourism: a neglected dimension of medical tourism research. J*ournal of Hospitality Marketing and Management*, 21, (3), 227 -246.

Hwang, J., & Lorenzon, C.L. (2008). Effective nutrition labeling of restaurant menu and pricing of healthy menu. *Journal of Foodservice*, 19, 270–276.

Kaya, O. (2017). Turistlerin Kruvaziyer Gemileri Yiyecek ve İçecek Hizmetlerinden Beklenti ve Performans Düzeylerine İlişkin Bir Araştırma. *Jounal of Tourism and Gastronomy Studies,* 5(2), 22-38.

Kelly, C. (2012). Wellness tourism: retreat visitor motivations and experiences. *Tourism Recreation Research*, 37(3): 205-213.

Kervankıran, İ. (2016). Between Traditional and Modern: Thermal Tourism in Turkey. In Egresi I. (eds) *Alternative Tourism in Turkey* (pp.109-124). Cham: Springer.

Keung, S. W. C. (2000). Tourist' perceptions of hotel frontline employees' questionable job related behaviour. *Tourism Management*, 16(1),39-63.

Kilic, F. C. (2016). Geothermal Energy in Turkey. *Energy and Environment*, 1-17.

Kovács, E., Bacsi, Z., & Lőke, Z. (2012). Key success factor of spas – interviews with leaders in three spa towns in Hungary. *Deturope*, 4(1) :5-22.

Kundampully , J., & Suhartanto, D. (2000). Customer loyalty in the hotel industry: the roll of customer satisfaction and image. *International Journal of Contemporary Hospitality Management*, 12(6), 346-351.

Kuo, C.M. (2007). The importance of hotel employee service attitude and the satisfaction of international tourists. *The Service Industries Journal*, 27 (8), 1073-1085.

Lagrosen, Y., & Lagrosen, S. (2016). Customer perceptions of quality – a study in the SPA industry. European Business Review, 28 (6): 657-675.

Lamoreaux, P.E. (2005). History and classification of springs. *Geological Society of America Abstract with Programs*, 37(7): 324.

Lebe, S. S. (2006). European spa world. *Journal of Quality Assurance in Hospitality & Tourism*, 7 (1-2): 137-146.

Liu, Y., & Jang, S. (2009). Perceptions of Chinese restaurants in the U.S.: What affects customer satisfaction and behavioral intentions*? International Journal of Hospitality Management*, 28: 338-348.

Liu, B., Kim, H., & Penning-Gray, L. (2015). Responding to bed bug crisis in social media. *International Journal of Hospitality Management*, 47 (May), 76-84.

Mainil, T, Eijgelaar, E, Klijs, J, Nawijn, J., & Peeters, P. (2017). Research for TRAN Committee - Health tourism in the EU: a general investigation. *European Parliament*, Policy Department for Structural and Cohesion Policies, Brussels.

Mauri, A. G., & Minazzi, R. (2013). Web reviews influence on expectations and purchasing intentions of hotel potential consumers. *International Journal of Hospitality Management*, 34, 99-107.

Mela, D. (1999). Food choice and intake: the human factor. *Proceedings of the Nutrition Society*, 58, 513-521.

Melia, D. (2011). Trends in the food and beverage sector of the hospitality industry. EuroCHRIE Conference, Dubrovnik, Croatia.

The Ministry of Culture and Tourism of the Republic of Turkey. (2017). Numbers of touristic facilities in Turkey. Retrieved April 11, 2017, from: http://yigm.kulturturizm.gov.tr/TR,9579/turizm-tesisleri.html

The Ministry of Energy and Natural Resources of Turkey. (2018). Geothermal. Retrieved June 22, 2018, from http://www.enerji.gov.tr/en-US/Pages/Geothermal

Noone, B. M., & Mattila, A. S. (2009). Consumer reaction to crowding for extended service encounters. *Managing Service Quality: An International Journal*, 19 (1), 31-41.

Oliver, R. L. (1980). A Cognitive model of the antecedent and consequences of satisfaction decisions. *Journal of Marketing Research*, 17 (4), 460-469.

Rahman, M., Kalam, A., Rahman, M., & Abdullah, M. (2012). The influence of service quality and price on customer satisfaction: An empirical study on restaurant services in Khulna division. *Research Journal of Finance and Accounting*, 3(4), 8-15.

Saar, M. (2010). Cultural differences in spa tourism and the expectations of Finnish spa goers (MSc thesis). Retrieved January 15, 2017 from: http://www.theseus.fi/handle/10024/10936

Saraiva, M., Cid, M., & Baião, C. (2011). The Degree of Customer Satisfaction in University Restaurants: The Case of the University of Evora in Portugal. Proceedings of EDULEARN11 Conference, 4-6 July 2011, Barcelona, Spain.

Schuckert, M., Lu, X., & Law, R. (2015). A segmentation of online reviews by language groups: How English and non-English speakers rate hotels differently. *International Journal of Hospitality Management*, 48 (July), 143-149.

Smith, M. K., & Puczkó, L. (2009). *Health and Wellness Tourism*. Oxfod: Butterworth-Heinemann.

Stará, J., & Peterson, C. (2017) Understanding the concept of wellness for the future of the tourism industry: a literature review. *Journal of Tourism and Services*, 7 (14), 18-29.

Stepchenkova, S., & Zhan, F. (2013). Visual destination images of Peru: Comparative content analysis of DMO and user-generated photography. *Tourism Management*, 36, 590-601.

Teddlie, C., & Tashakkori, A. (2009), *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*, Thousand Oaks, CA: Sage.

Trip Advisor. (2017). About Trip advisor. Retrieved September 23, 2017, from: https://tripadvisor.mediaroom.com/tr-about-us

Toktassynova, Z., & Akbaba, A. (2017) Content analysis of on-line booking platform reviews over a restaurant: a case of pizza locale in Izmir. *International Journal of Contemporary Tourism Research,* 2, 29-35.

Türksoy, A., & Türksoy, S. S. (2010). Termal Turizmin Geliştirilmesi Kapsamında Çeşme İlçesi Termal Kaynaklarının Değerlendirilmesi. *Ege Akademik Bakış*, 10 (2), 701-726.

UNWTO. (2017). UNWTO Tourism Highlights 2017 Edition. Retrieved May 9, 2017, from: https://www.e-unwto.org/doi/pdf/10.18111/9789284419029

Wang, S., & Hung, K. (2015). Customer perceptions of critical success factors for guest houses. *International Journal of Hospitality Management*. 48, 92-101.

Winstead, K. F. (2000). Service behaviors that lead to satisfied customers. *European Journal of Marketing,* 34(3-4), 399-417.

Zengin, B., & Eker, N. (2016). Sakarya ili termal turizm potansiyelinin değerlendirilmesi. *Kastamonu Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*. 13 (Temmuz), 165-181.

Zhou, L., Ye, S., Pearce, P. L., & Wu, M.-Y. (2014). Refreshing hotel satisfaction studies by reconfiguring customer review data. *International Journal of Hospitality Management*, 38, 1-10.

Zollo, A, Simonetti, B., Salsano, V., & Rueda-Armengot, C. (2015). Promotion and Marketing: Marketing Strategies, Italy, Regional Development. In M. Peris-Ortiz and J. Álvarez-García (eds.) *Health and Wellness Tourism Emergence of a New Market Segment* (pp.63-76). London: Springer.

Professional paper

HUNGARIAN COUNTIES AND REGIONAL DEVELOPMENT – CHANGING ROLES IN A TRANSFORMING ENVIRONMENT

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Abstract

The main aim of this jurisprudential analysis is to review the transforming regulation and practice on the regional development tasks of the Hungarian county governments. The main European models of the regional (2nd or 3rd tier) municipalities will be reviewed by the article. Traditionally, the county municipalities have had an important role in the Hungarian public administration. The changing role of the counties in the development policies will be analysed, as well. Although this role was weakened after 1990, the new county governments have had significant service provider competences until 2011, but their development tasks were just partial. This system has been transformed by the new Hungarian Municipal Code. The counties lost the majority of their functions and they received competences in regional planning and development. These tasks were extended by the reforms between 2013 and 2016. These changes could be the base of a new "developer county" approach.

Keywords: Hungary, counties, regional development, legal regulation, municipal tasks, municipal reform

INTRODUCTION AND METHODS

Hungary – similarly to other countries – has a two-tier municipal system. These 2nd tier municipalities have traditionally important competences in the field of regional planning and development. Although the counties have these competences, the scope of them is a changing one. Different models have evolved and the approach of the development tasks of the counties have transformed several times.

In Hungary the legal status and the role of the county governments have been significantly changed by the reforms between 2011 and 2017. A new model was chosen by the Act CLXXXIX of 2011 on the Local Self-Governments of Hungary (hereinafter: Mötv). The regional planning and development tasks became the major competences of the counties.

In this article the administrative reform of the counties will be reviewed. Firstly, the methods of the analysis will be introduced. Secondly, the background of the Hungarian regulation will be analysed: the main models of the county governments and their role in

development policies and the evolvement of the Hungarian regulation and administrative practice will be presented.

The approach of this analysis will mainly be jurisprudential, to show how the legal regulation on the development competencies of the county governments transformed. Although the major approach will be jurispudential, comparative methods will be used in the second part of the article. The approach of the administrative sciences will be used, as well, because the administrative practice will be – at least partially – analysed by this article.

THEORETICAL BACKGROUND: MAIN MODELS OF THE LEGAL STATUS OF THE COUNTY GOVERNMENTS AND THE CHANGES OF THE HUNGARIAN LEGISLATION ON THE COUNTIES

The main models of the county governments should be analysed to understand the Hungarian regulation and its transformation. Firstly, the (traditional) Anglo-Saxon model will be reviewed which is based on the enumeration of the local government powers and duties. Secondly, the approach of the Continental countries will be examined which is based on the general clause of the local government tasks.

The (traditional) Anglo-Saxon model

The county governments in England were defined traditionally as public entities established by the Parliament (Bailey, 1983, p. 8). Thus, the powers and duties of the local governments are based on an enumeration of the legislation (Morphet, 2008, p. 40), the limit of their powers are defined by the *ultra vires* principle (Arden, Baker, & Manning, 2009, pp. 305-308). The local government system of the United States is based on the *ultra vires* principle but this traditional regulation rule has been transformed by regulation of the constitutions of the states. The *ultra vires* approach of the competences of the local governments transformed significantly in the last decades. Not only the American but the Canadian, Australian and Irish model has been changed and the general powers of the English municipalities was recognised by the *Localism Act 2011* (Elliott & Thomas, 2017, p. 318).

In the traditional Anglo-Saxon local government systems the *counties* – and the county towns (or unitary authorities) – *are the most important local authorities.* In the United Kingdom the counties are responsible for a wide range of public services (Arden et al., 2009, 3-5). Similarly, in Ireland the counties are the main local authorities (O'Sullivan, 2003, 46-47). Although several important tasks are performed by the special authorities and the school districts, and the county system is spatially strongly fragmented, the county councils could be

considered as the base of the American local government system (Bowman & Kearney, 2012, pp. 272-274). Thus, the main tasks are performed by these entities. The urbanization transformed this structure: a convergence of the county and metropolitan governments can be observed which is caused mainly by the large suburban areas and the urban agglomerations (Clawson, 2011, 163-164). In the United States the counties (and the city governments) are the main bodies responsible for regional planning and development, but the special districts could have important development competences, as well (Bowman & Kearney, 2012, pp. 277-280).

In the field of regional development, the regulation of the United Kingdom and Ireland transformed significantly in the last decades. After the Accession to the European Union the regional development of these countries changed. In England regions were established and regional development agencies were institutionalised. The regionalisation of England was broken after 2010, because these bodies were abolished, and now the counties, the unitary authorities and several agencies of the central government are responsible for these tasks (Cowie et al., 2016, p. 143) In Ireland special boards have been organised and in the 1990s two regional assemblies were established which has been responsible for the major development tasks. These entities could be interpreted as a speical form of inter-municipal cooperation, because the members of these bodies are delegated by the county and town governments and other municipalities (Callanan, 2003, pp. 437-438). Therefore, the traditional Anglo-Saxon approach changed significantly: the general powers of the municipalities has been widely recognised and a regionalisation tendency could be examined in the European Anglo-Saxon countries.

The role of the regional (second- or third-tier) local governments in the countries of the continental Europe

A common element of the local government systems of the continental Europe is that the powers of the local government system are defined by a general clause, which are mainly the "local public affairs" or "local affairs".

Although the general clause is common, the *constitutional status* of the second- or third-tier local governments is different. Typically, the powers of the county governments are defined by the general clause regulated by the national constitutions. Thus these local governments have general powers. This model is followed, for example, by France where the county governments *(département)* can be considered as authorities with general powers (Bernard, 1983, pp. 15, 122-123). A different regulation has been evolved in *Germany.*

Although a general clause model is established by the article 28 paragraph 2 of the German Constitution *(Grundgesetz,* hereinafter *GG)*, this general responsibility is guaranteed for the settlement level municipalities, for the communities *(Gemeinde)* and for their inter-municipal associations *(Gemeindeverbände)*. The county governments *(Landkreise)* do not have general responsibility, but they are public bodies whose responsibilities are defined by the federal and mainly by the provincial *(Länder)* legislations (Maurer, 2009, pp. 591-592).

The *tasks* of the county level local governments are very different in the continental Europe which depends on several factors. Firstly, there are continental countries which have three-tier local government systems. The model state of these systems is France[22]. In this model there are two regional local government tiers: the counties and the regions. The spatial structure of France is very fragmented, the majority of the communities *(communes)* are too small to perform appropriately the local public services. Therefore in the French model the counties *(départements)* are responsible for the provision of the majority of the basic local public services, and the regions are responsible mainly for the specialized services and they are the main bodies of the regional planning and development (Hoffman, 2012: 333-334). The most similar model to the French system is the Polish and the Bavarian three-tier system (Hoffman, 2011: 26-28).

In Germany the regulation on the local self-governments belongs to the powers of the provinces *(Länder)*. Thus the German counties can be interpreted as an additional, supplementary local government level, which is a correction tool of the spatial fragmentation and the limited (economic and administrative) capacity of the German settlements (Brüning 2013: 70-71). In Germany the counties have significant regional planning and development competences but several regional tasks are performed by inter-municipal cooperation. The most common form of these regional inter-municipal bodies are the planning associations *(Planungsverbände)* (Schmit-Aßman & Röhl, 2005, p. 119).

[22] Traditionally, Italy and Spain are considered as the follower of this approach but the Italian and the Spanish development in the 1990s and the 2000s resulted different systems. In Italy the regions *(regione)* have legislative powers, they can pass acts. Thus, the Italian regions have more powers than the local government entities (Mirabella et al., 2012: 258). In Spain the powers of several regions *(comunidad autónoma)* – for example Catalonia and the Basque Country – have been largely extended, so that these regions can be considered rather a Member State of a Federation than a regional local government (Moreno, 2004: 262 and Rodriguez-Arana, 2008: 203-206).

RESULTS: THE ROLE OF THE COUNTIES IN HUNGARY IN THE FIELD OF REGIONAL DEVELOPMENT – A HISTORICAL OUTLOOK FROM THE 19TH CENTURY TO 2011/12

The autonomy of the counties has a long history in the Hungarian public administration. Although the self-governance of the counties was recognised by the feudal state, the modern county governments were institutionalised after the bourgeois transformation in Hungary, in the second half of the 19th century. This establishment was linked to the evolvement of the regional development as a policy, as well. Therefore the competences of the counties in the field of regional development were traditionally significant (Hoffman, 2017, p. 56).

The county of the bourgeois era (1867/70 to 1949/50)

The modern Hungarian municipal system was based on the system of the feudalism. These entitites were responsible for several main state tasks including the law enforcement, jurisdiction, taxation (Timon, 1910, p. 497). The "Acts of April", the acts of the revolution in 1848 tried to modernise the former feudal county. After the lost War of Independence, the Habsburg neoabsolutism in the 1850s eliminated the self-self-governance of the counties which were replaced by central government agencies (Mezey et al., 1999, p. 341). A new local municipal system was established by the Local Government Acts of 1870 and 1886. By these acts the Hungarian meso level was unified: formerly different meso units were instituionalized as a part of the feudal heritage. The differences of these units remained in the county structure: in Transylvania and in the northern part of Hungary the counties were relatively small and in the Great Hungarian Plain the counties were very large. The counties were divided into districts *(járás)*, which did not have self-governance, they were practically branch offices of the counties. The communities were under the strong supervision of the district administration, their self-governance was strongly limited. The towns have different types: the large towns (county towns – *törvényhatósági jogú város* – and the Royal Capital of Budapest – *Budapest székesfőváros)* were independent from the counties: they have parctically the same legal status but they exercised the competences of the communities and dsitricts, as well. The small towns (district towns – *rendezett tanácsú város)* were parts of the counties but they have the legal status of a district.

In the bourgeois era the counties had broad competences. Although the counties have important administrative and public service competences, the regional development was strongly centralised in the 19th century: the development of the transport and the support of

the industrial production was orgnised by the central government. The counties have other competences of regional development which tasks did not belong to the competences of the central adinistration. The first modern urban area of Hungary, the agglomeration of Budapest has a special development structure. An atypical body was organised, the Council for the Public Works in the Capital which was an intergovernmental body: the members were delegated by the central government and the municipal councils of Budapest and Pest County. This council was responsible for the development and planning of the Greater Budapest Area (Hoffman, 2017, pp. 58-59).

After the Trianon Treaty (which closed the First World War in Hungary) the inequality of the counties became even more prominent. Several large counties remained part of the reduced territory of the Kingdom of Hungary and these counties have not been divided. Several counties became smaller or fragmented, baceuse of the territorial changes. The county system has not been radically reformed. Thus Hungary was divided into 25 counties but the largest county had almost one-eight (13.72%) of the country area. This system was strongly criticized by the Hungarian administrative scientists, as well. The main critics was that the seat towns of the counties were not part of the county government, thus the centre and the agglomeration were administratively divided. This problem was significant both in urban and rural areas.The sizes of the county governments were criticized, because there were great differences.[23]

Therefore, in the public administration sciences two main reform concepts were emerged. These concepts had common elements: both of them were based on the unity of the town and the agglomeration. The first one was the town-county concept of Ferenc Erdei which wanted to establish 70 to 80 town centered town-counties – practically unitary authorities of the towns and their agglomerations – instead of the then 25 counties (Erdei, 1939, pp. 233-235). The other concept was a town-centered one, as well, but it did not want to replace the two-tier local government system with a one-tier model: this concept intended to strengthen the *districts* and the inter-municipal cooperation (Magyary & Kiss, 1939, pp. 213-219, Magyary, 1942, p. 218). Although several important reform plans were developed between 1928 and 1942, the system did not changed. From 1938 the centralisation of the system was strengthened.

[23] Hungary had 25 counties between 1923 and 1938. The average size of the counties were 3 723 km^2. The largest Hungarian county in the period between 1920 and 1938 was Pest-Solt-Pilis-Kiskun county, and its area was 12 767 km^2 (the 13,72 % of the whole territory of Hungary).

The counties and the development policy of the communist period (1949/1950-1989/90)

The local government system of the bourgeois era was swept away by the storm of the World War II. The Hungarian municipal system could not be changed during the democratic era from 1945 to 1947/48, only reform plans were published which were mainly based on the 'town-county' concept of Ferenc Erdei.

The local and territorial public administration was transformed after the adoption of the Stalinist Constitution. After 1949 the Soviet local and regional administration model was introduced in Hungary by the Act I of 1950 on the Councils (the 1st Act on the Councils). This model was based on the concept of the unity of the public administration. The local, the district and county councils did not have self-governance, they were the local and territorial agencies of the central government. The county councils were directed by the Council of the Ministers (which was the government of the People's Republic of Hungary) and by the ministrries and central agencies. Although the councils were only agencies of the central government, they had elected bodies, as well. The county councils have only complementary role in the regional development policy. The development policy was strongly centralised: the former private ownership was primarily abolished, the planned economy was introduced. Therefore the main body responsible for the national, regional and local development was the National Planning Office *(Országos Tervhivatal)* (Kornai, 1992, p. 111). The strong direction of this system was partly reduced by the Act X of 1954 (the 2nd Act on the Councils). This system was significantly amended by the Act I of 1971 on the Councils (the 3rd Act on Councils). This Act was adopted after the New Economic Mechanism of 1968 by which reform several market economy elements were introduced in the socialist planned economy system. The self-government *nature* of the councils was recognized by the new Act as the only one among the countries of the Council for Mutual Economic Assistance (CMEA) (Fonyó, 1976, p. 59).

The *county councils* played a very important role during the communist period. The majority of the agencies of the central government were merged with the county councils which became – as I have above mentioned – the agencies of the central government, as well. Thus, the central role of the counties in the local and regional administration remained. As part of the reform the county system was reorganized in 1950. The number of the counties was reduced from 25 to 19 thus the most significant disparities were eliminated. The strengthening of the county councils was very pronounced by the 3rd Act on the Councils. The 3rd Act on the Councils and the Act II of 1979 on the Public Finance introduced a county-centered local financing and planning system. The funding of the communities was delegated

to counties, thus, the counties were responsible for sharing the state fund between the communities of the counties (Fonyó, 1976, p. 256). Therefore, the counties became the major bodies responsible for regional development.

The regional development system after the Democratic Transition: the 'floating county'

During the Democratic Transition there were reform plans which proposed to establish a one-tier local government system in Hungary (Csefkó, 1997, p. 81). The main reason of this porpopal was that the county councils were the 'last bastions of the anciene régime'. The counties became very important bodies after the reforms of the 1970s. Thus, a strong 'counter-county' movement evolved. As a compromise the county governments remained but their powers were strongly reduced. *The counties became practically subsidiary service providers of the specialized public services.* In addition to the *limited service provider tasks* of the counties the local communities were allowed to take over widely the tasks of the counties by the Act on Local Self-Governments (Hoffman, 2011, pp. 31-32). The majoritiy of the former competences of the authorities directed by the county council were given to the newly organised territorial agencies of the central government. As a result of these reforms, the counties *lost their competences in the field of regional development*, as well.

The regional development was strongly centralised by the Act LXXXIX of 1992 on the targeted support: the decisions were made by the Parliament and partly by the Government. The reduction of the territory and population of the counties weakened these entities, as well. The county towns (or towns with county rights) were institutionalised by the Act on the Local Self-Governments which were not part of the county government. In 1990 twenty towns with a population of more than 50 000 people were declared a town with county rights. Budapest as the Capital City of Hungary remained an independent type of the municipalities (F. Rozsnyai, 2013, p. 48). Therefore the large Hungarian municipalities and their agglomeration became divided administratively (Hoffman, 2017, p. 63). The *democratic legitimacy* of the county governments *was weakened*. The members of the county assemblies were elected indirectly, practically by the representative bodies of the communities and towns (Pálné Kovács, 2003, pp. 186-187). Therefore, the significance of the counties was strongly reduced by the legislation of the Democratic Transition.

This new system was interpreted by the literature as the *"floating county"* (Zongor, 1994, pp. 34-36): the county governments remained, but they were shadows of their former selves.

From 'floating county' to 'politics county': the partial reform of the development policy during the 1990s

The limited significance of the county governments was only partially corrected by the Amendment of the Act on Local Self-Governments in 1994. The democratic legitimacy of the counties was strengthened. From 1994 the members of the assembly of the county were directly elected. The county election was based on a proportional system. Thus, the political significance of the county assembly has been strengthened. The officers of the county could perform duties delegated by the central government after the 1994 Amendment (Hoffman, 2009, p. 132). Although the county towns (the unitary authorities) remained independent from the counties, the majority of the members of the county assembly lived in the county seats. Thus, the county towns just theoretically have not had representation in the county assembly, practically the political elite of the county which inhabited the county seat town ruled the assembly (Pálné Kovács, 1997, p. 62). The number of the county towns was increased: the county seat towns became *ex lege* county towns, thus two county seat towns which had lesser than a population of 50 000 people were declared to county town. The tasks of the counties did not changed radically after the Amendment, but the takeover of the functions by the settlements became more complicated.

The regional development policy was transformed in 1996. The trend of the strengthening of the county governments was slowed by the new act. The counties did not become responsible for the regional development and planning. The Act XXI of 1996 on the Regional Development and Land Use Planning (hereinafter Tftv) institutionalised special, hybrid bodies for the tasks of regional development. These new entities were the – originally tripartite – *County Development Boards (megyei területfejlesztési tanácsok).* Although the president of these boards were the presidents of the county government but only the minority of the members were delegated by the municipalities of the counties. The majority of the members were delegated by the central government and by the economic interest representation bodies. These bodies can be considered as corporative nature central government bodies (Ivancsics, 2007, p. 7). Although the county gvernments were responible for the land use planning in the counties, the regional development was just partly decentralised. This model was just partly amended during the EU Accession. Because of the NUTS 2 based European regional development system, new hybrid bodies, the Regional Development Boards were established (Szabó, 2008, pp. 76-77). The former trilateral structure was transformed. A new two-and-half-lateral model was institutionalised: the interest represenation groups lost their voting rights in these boards, they had only permanent

invitational status. Thus the influence of the central government was more singnificant in these regional bodies (Pálné Kovács, 2009, pp. 50-51).

Thus, the tasks of the county governments were quite narrow, but they have a strong democratic legitimation therefore the "floating county" became *"politics county"* (Zongor, 2000: 20).

Reform plans in the first decade of the 21st century

Having regard to the Accession Process to the EU, the reform plans in the Visegrád Countries were strongly influenced by the structure of the European regional policy (Nemes Nagy, 1997, pp. 4-6). The regionalisation process in the Westeren and Southern European states was impacted these concepts, as well (Pálné Kovács, 2009, pp. 44-46). Therefore the common element of these concepts was the establishment of NUTS-2 level regional governments. The counties were attacked "from below", as well. Several reform plans tried to establish effective inter-municipal service provision framework (Hoffman, 2009, pp. 254-258). The reform plans were based on the self-governance of the regional entities and they agreed that the regional planning should be one of the major tasks of the new bodies. Tha first concept was a provate proposal which was based on the traditional structure of the Hungarian counties. The "greater county' concept of Imre Verebélyi was based on the restructuring and partial merge of the counties. These new 'greater counties' could be NUTS-2 level entities, and they could be responsible for the tasks of regional planning and development, as well (Verebélyi, 2000, pp. 582-585).

Another approach was preferred by the Hungarian governments: they tried to establish new, regional governments instead of the counties. The institutionalisation of these regional entities was an important element of the government program of the first Orbán administration (1998-2002) and the left-wing governments between 2002 and 2010. A Bill on the establishment of the regional local governments (Bill No T/240 of the Parliamentary Term 2006-10) was proposed by the second Gyurcsány administration in 2006. This Proposal wanted to establish Italian type regional local governments – without county level, thus the Hungarian municipal system would remained a two-tier one. This Bill failed. The legal reason of the fall was the lack of required qualified (two-third) majority vote of the Parliament, but practically the reform plans were not truly supported by the Hungarian political elite (Pálné Kovács, 2009, p. 47).

The reform of the county system have taken place after 2010 when the right wing parties had a landslide victory and have a qualified (two-third) majority in the Parliament.

DISCUSSION: THE NEW ROLES OF THE COUNTY GOVERNMENTS: 'CEREMONIAL COUNTY GOVERNMENT' OR 'DEVELOPER COUNTY GOVERNMENT'

The legal status of the county governments has been radically transformed by the public administration reforms of 2011/12. The county governments lost the vast majority of their tasks, primarily the local services provider roles, but the regional development tasks have been strenghtened. In the following I would like to review the different stages of the transformation.

The approach of the new Constitution, the Fundamental Law of Hungary

The politicisation of the county government was strenghtened by the amendment of the election of the county councils in 2010. The new, right wing government – which had a qualified majority support in the Parliament – transformed the Hungarian administrative system. A new constitution, the Fundamental Law of Hungary (published April 25th 2011) was passed. The approach on the local governance changed significantly by the Fundamental Law. Formerly, the municipal tiers and units were defined by the Constitution. The articles 31-35 of the Fundamental Law have just indirect regulation on the number of the levels of the local governments and on the definition of the municipal units. Thus, the two-tier system is just partly guaranteed by the Fundamental Law. The former Constitution interpreted the major compteneces of the municipalities as fundamental rights of these entities which can be limited only by an act passed by a qualified majority.[24] Although the interpretation of the Constitutional Court partly modified the content of these rules because these municipal fundamental rights were interpreted as competence groups which are relatively defended by the Constitution.[25]

A significant change of the new Constitution was that *the municipal asset has been declared public property* which serves the performance of the municipal tasks.[26] Now the Fundamental Law allows the central government to nationalise the municipal asset (without any compensation) if the tasks are not performed by the municipalities (Nagy and Hoffman,

[24] See paragraph 1 section 43 and section 44/C of the (multiple amended) Act XX of 1949 on the Constitution of the Republic of Hungary.

[25] The main resolutions of the Constitutional Court on the competence and responsibilities of the local governments are the Res. No. 4/1993 AB (published on February 12th), the Res. No. 47/1991 AB (published on September 24th), the Res. No. 31/2004 AB (published on September 11th) and the Res. No. 55/2009 AB (published on May 6th).

[26] See paragraph 6 article 32 of the Fundamental Law of Hungary (published on 25th April 2011): "The assets controlled by municipal governments shall be public property, serving the performance of municipal government tasks."

2012, p. 354). The radical transformation of the counties in 2011/12 was based on these regulations.

The transformation of the county government system in 2011/12

The debates on the transformation of the county governments begun in 2011. Three models were proposed by the Ministry of Interior. The first concept was based on the *status quo.* The second one was a modest expansion of the competences in which the counties would have been responsible for the tasks of the regional planning. The third version was *counties with narrow competences,* in which the counties have just representative and coordinative tasks and the former county services are performed by the county towns and by the County Government Offices (which are the general agencies of the central governments in the counties) (Dobos 2011: 67).

The transformation of the county system was decided before the adoption of the new municipal code. The reform was based on the third porposal: the 'ceremonial county' was chosen, because they lost their service provider roles and their asset, as well. As a part of the consolidation the whole county government debt (184 billion HUF) was assumed by the central government. The loss of the tasks is reflected in the total expenditures of the county governments. The average of the annual total expenditures of the county governments has been reduced from 21 857 million HUF (ca. 72. 9 million EUR) to 421 million HUF (ca. 1.3 million EUR) from 2011 to 2012. Thus the annual total expenditure in 2012 was 1.93% (!) of the annual total expenditure of 2011. (The change of the annual total expenditure is shown by Tab. 1).

Table 1 Annual total expenditures of the county governments in 2011 and 2012

County	Population of the county governments (2011)*	Annual total expenditure of the county governments (million HUF)	
		2011	2012
Bács-Kiskun	410 615	30 399	417
Baranya	234 654	10 245	222
Békés	298 050	32 415	n. a.**
Borsod-Abaúj-Zemplén	521 888	38 429	343
Csongrád	213 468	18 208	294
Fejér	276 294	25 709	1 508
Győr-Moson-Sopron	257 875	25 449	274
Hajdú-Bihar	335 341	7 682	315

Table 1 (continued)

County	Population of the county governments (2011)*	Annual total expenditure of the county governments (million HUF)	
		2011	2012
Heves	253 118	14 325	n.a.**
Jász-Nagykun-Szolnok	312 411	18 593	308
Komárom-Esztergom	243 658	12 895	266
Nógrád	164 753	15 812	252
Pest	1 172 518	34908	452
Somogy	249 968	29205	370
Szabolcs-Szatmár-Bereg	434 342	34150	303
Tolna	196 887	13 506	218
Vas	180 141	12 152	251
Veszprém	292 192	n.a.***	285
Zala	178 242	19 343	1078
Average	327 706	21 857	421

* The county towns are not part of the county local government
** Just the local government decree on the 2013 annual budget is available
*** Just the local government decrees on the 2012 and 2013 annual budgets are available
Source: own editing based on the county government decrees on the annual budget in 2011 and 2012 (the decrees are available on National Legislation Database – www.njt.hu)

The central government tried to compensate the county governments for their lost service provider competences (which were formerly the main tasks of the counties). *The regional development competences of the county governments have been significantly strengthened.* The County and Regional Development Boards were abolished and the competences of the county boards became the responsibilities of the county governments. The complete powers and duties of the regional development boards could not be received by the county assemblies. The legislation of the EU required NUTS 2 level entities to perform several tasks. After the Regulation 1059/2003/EC the Hungarian counties could be interpreted as typical NUTS 3 level bodies, they cannot be considered as NUTS 2 level entitites. The NUTS 2 units in Hungary are not real administrative units, practically, they are merely statistical and partly development units. Obviously, these units do not have self-governance and elected bodies. Thus, a special regulation has been emerged: those functions which can be performed by NUTS 3 level entities belong to the responsibilities of the county governments and those regional development tasks which should be performed by a NUTS 2 level entity belong to

the responsibilities of a special body. These special bodies are the *regional development consultation forum* whose members are the presidents of the county assemblies.

Although the counties became responsible for regional development, the major regional intermediate bodies, the regional development agencies, were then directed by a central government body, by the National Development Agency and by the Ministry for National Development. Thus, the counties received a long list of new competences but they had just limited impact on the allocation of the development funds. The coordination and the direction of the actual development policy remained strongly centralised after 2012.

These changes were reflected by the rules of the Act CLXXXIX of 2011 on the Local self-Governments of Hungary, as well.

It was very interesting that these reforms have less political consequences than the regional experiments in 2006/2007. One of the main reasons is that *the political structure of the county government has remained unchanged* (Pálné Kovács, 2016, p. 84.).

The evolvement of the 'developer county'?

The concept of 'ceremonial county' was partly transformed after 2014. Although the service provider role of the counties was abolished, the regional development tasks were strenghtened. The ownership of the former regional development agencies changed: it was transferred to the county municipalities. These regional development agencies were important intermediate bodies of the regional development funds of the European Union and they had significant planning and coordination competences. They were organised at the NUTS-2 level, therefore after 2013/2014 they were jointly owned by the counties of the given NUTS-2 regions. Therefore, *prima facie,* the counties became one of the major bodies responsible for regional planning. This prominent role of the county government was just partial. The majority of the sources of the Hungarian regional development funds come from the European regional development and cohesion funds (Medve-Bálint, 2017, p. 282-283). Therefore, the bodies responsible for planning, management, cooridantion and direction of the EU funds have the primary influence on the Hungarian regional development policy. In Hungary these tasks are strongly centralised: from 2014 the main body responsible for the direction and coordination of the EU funds is the Office of the Prime Minister *(Miniszterelnökség)*[27] after the Government Decree No. 4 of 2011 (published January 28th) and Government Decree No. 272 of 2014 (published November 5th). Thus, the managing authority of the operational programme for regional development *(Területfejlesztés Operatív Program – TOP)* is the

[27] The Prime Minister's Office is defined as a ministry by the Hungarian law: it is not only the secretariat of the Government, but it has traditional ministerial tasks, as well (Fazekas, 2017, pp. 165-166).

Ministry for National Ecomomy and the managing authority of the programme for rural development *(Vidékfejlesztési Program – VP)* is the Prime Minister's Office (Hoffman, 2017, p. 104).

The county land use and development plans are regulated by innormative decisions of the county governments (by normative resolutions and county government decrees). But the decision-making process of the regional plans are controlled strongly by the ministries and the agencies after the Government Decree and No. 218 of 2009 (published October 6th) (Hoffman, 2017, pp. 97-98).

Thus, the counties seemed to be the central player of the Hungarian regional and rural development, but the central government and its agencies have key competences in these fields. The role of the counties have been weakened between 2016 and 2017. Six from the seven regional development agencies were abolished. The former intermediate body tasks of these agencies baceme the competences of the county directorates of the Hungarian State Treasury (which is an agency directed by the Ministry for National Economy). Just several coordination and planning competences of the regional development agencies were transferred to the offices of the county governments.

Therefore the development competencies of the county government have been partially strengthened after 2014. But the Hungarian regional development system remained a strongly centralised one, and the role of the counties is important but not decisive in this field. This strengthening is mirrored by the change of the annual total expenditures of the county governments. The expenditures increased but this growth was just modest (see Tab. 2).

Table 2 Annual total expenditures of the county governments in 2011, 2012 and 2017

County	Annual total expenditure of the county local governments (million HUF)		
	2011	2012	2017
Bács-Kiskun	30399	417	660
Baranya	10245	222	725
Békés	32415	n. a.**	341
Borsod-Abaúj-Zemplén	38429	343	1124
Csongrád	18208	294	650
Fejér	25709	1 508	537
Győr-Moson-Sopron	25449	274	545
Hajdú-Bihar	7682	315	641
Heves	14325	n.a.**	528

Table 2 (continued)

County	Annual total expenditure of the county local governments (million HUF)		
	2011	2012	2017
Jász-Nagykun-Szolnok	18593	308	657
Komárom-Esztergom	12895	266	409
Nógrád	15 812	252	386
Pest	34908	452	622
Somogy	29205	370	760
Szabolcs-Szatmár-Bereg	34150	303	903
Tolna	13 506	218	580
Vas	12152	251	665
Veszprém	n.a.	285	752
Zala	19343	1078	479
Average	21857	421	630

Source: own editing based on the county government decrees on the annual budget in 2011, 2012 and 2017 (the decrees are available on National Legislation Database – www.njt.hu)

CONCLUSION

The Hungarian counties have traditionally important competencies in the field of regional planning and development. Although they have had significant competences, the characteristic of the Hungarian regulation have been a centralised one. These tasks have been transformed several times in the last one-and-half century. The last three decades were an eventful period. The regional development system of the late Communist period was based on the counties. During the Democratic Transition they lost their development tasks and became additional human service providers. They were partially 'rehabilitated' during the mid 1990s. This role was significantly transformed after 2011: the counties lost their service provider competences, but they received several development and planning tasks. Although the concept of the 'developer county' was highlighted and the list of these planning and development competences is broad, the centralised regional planning and development model remained. The decisive competences in the field of regional planning and development belong to the ministries and the agencies of the central government.

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REFERENCES

Arden, A., Baker, C. & Manning, J. (2009). *Local Government Constitutional and Administrative Law*. London: Sweet & Maxwell

Bailey, S. H. (1983). Central and Local Government and the Courts. Public Law 28 (1), 8-16.

Bernard, P. (1983). *L' État et la décentralisation. Du préfet au Commissaire de la République*. Paris : La Documentation française)

Bowman, A. O', & Kearney, R. (2012). *State and Local Government*. Boston: Wadsworth

Brüning, C. (2013). Kommunalrecht. In Ehlers, D., Fehling, M. & Pünder, H. (eds.): *Besonderes Verwaltungsrecht. Band 3. Kommunalrecht, Haushalts- und Abgabenrecht, Ordnungsrecht, Sozialrecht, Bildungsrecht, Recht des öffentlichen Dienstes* (pp. 1-75).Heidelberg: C. F. Müller

Callanan, M. (2003). Regional Authorities and Regional Assemblies. In Callanan, M. – Keogan, J. F. (eds.) *Local Government in Ireland. Inside Out* (pp. 429-446). Dublin: Institute of Public Administration

Clawson, M. (2011). *Suburban Land Conversion int he United States. An Economic and Governmental Process*. New York: Earthscan

Cowie, P., Madanipour, A., Davoudi, S. & Vigar, G. (2016). Maintaining stable regional territorial governance institutions in times of change: Greater Manchaster Combined Authority. In Schmitt, P. & van Well, L. (eds.). *Territorial Governance across Europe. Pathways, Practices and Prospects* (pp. 141-156). London: Routledge

Csefkó, F. (1997). *A helyi önkormányzati rendszer*. Budapest & Pécs: Dialóg Campus Kiadó

Dobos, G. (2011). Elmozdulás középszinten: A 2010-es önkormányzati választási reform hatásai a megyei önkormányzatokra. *Politikatudományi Szemle* 20 (4), 61-83.

Elliott, M. & Thomas, M. (2017). *Public Law*. Oxford: Oxford University Press

Erdei, F. (1939). *A magyar város*. Budapest: Athenaeum

Fonyó, G. (ed.) (1976). *A tanácstörvény magyarázata*. Budapest: Közgazdasági és Jogi Könyvkiadó

F. Rozsnyai, K. (2013). A területszervezésre vonatkozó szabályok a Mötv.-ben. Új Magyar Közigazgatás 6 (7-8), 37-48

Fazekas, J. (2017). Központi államigazgatási szervek. In: Fazekas M. (ed.) Közigazgatási jog. Általános rész I. (pp. 145-186). Budapest: ELTE Eötvös

Hoffman, I. (2009). *Önkormányzati közszolgáltatások szervezése és igazgatása*. (Budapest: ELTE Eötvös Kiadó)

Hoffman, I. (2011). A helyi önkormányzatok társulási rendszerének főbb vonásai. *Új Magyar Közigazgatás* 4 (1), 24-34.

Hoffman, I. (2012). Some Thoughts on the System of Tasks of the Local Autonomies Related to the Organisation of Personal Social Care. *Lex localis – Journal of Local Self-Government,* 10, 323-340.

Hoffman, I. (2017). *Bevezetés a területfejlesztési jogba*. Budapest: ELTE Eötvös

Ivancsics, I. (2007). Atipikus szervek a területi közigazgatásban. *Közigazgatási Szemle,* 1(1), 4-15.

Kornai, J. (1992). *The Socialist System. The Political Economy of Communism*. Oxford: Oxford University Press

Magyary, Z. (1942). *Magyar közigazgatás*. Budapest: Királyi Magyar Egyetemi Nyomda

Magyary, Z. & Kiss, I. (1939). *A közigazgatás és az emberek. Ténymegállapító tanulmány a tatai járás közigazgatásáról.* Budapest: Magyar Közigazgatástudományi Intézet

Maurer, H. (2009). *Allgemeines Verwaltungsrecht*. München: Verlag C. H. Beck

Medve-Bálint, G. (2017). Funds for wealthy and politically loyal? How EU funds may contribute to increasing regional disparities in East Central Europe? In Bachtler, J., Berkowitz, P., Hardy, S. & Muravska, T. (eds.) *EU Cohesion Policy. Reassessing Performance and Direction* (pp. 271-300). Abingdon (UK) – New York (NY, USA): Routledge

Mezey, B. (ed.) (1999). *Magyar alkotmánytörténet*. (Budapest: Osiris)

Mirabella, M., Altieri, A., & Zerman, P. M. (2012). *Manuale di diritto amministrativo*. Milano: Giuffré Editore

Moreno, L. (2004). La federalización autonómica. In: Chust, M. (ed.). *Federalismo y cuestión federal España* (pp. 237-266). Castelló de la Plana: Publicacions de la Universitat Jaume I

Morphet, J. (2008). *Modern Local Government*. London: SAGE

Nagy, M., & Hoffman, I. (2012). *A Magyarország helyi önkormányzatairól szóló törvény magyarázata*. Budapest: HVG-Orac

Nemes Nagy, J. (1997). Régiók, regionalizmus. Educatio, 6 (3), 1-18.

O'Sullivan, T. (2003). Local Areas and Structures. In: Callanan, M. & Keogan, J. F. (eds.). *Local Government in Ireland. Inside Out* (pp. 41-81). Institute of Public Administration: Dublin

Pálné Kovács, I. (1997). Lokális és regionális politika. *Politikatudományi Szemle*, 6 (2), 47-69.

Pálné Kovács, I. (2003). A területi érdekérvényesítés átalakuló eszközei. *Politikatudományi Szemle*, 12 (4), 167-191.

Pálné Kovács, I. (2009). Régiók és fejlesztési koalíciók Politikatudományi Szemle, 18 (4), 37-60.

Pálné Kovács, I. (2016). A magyar területi közigazgatási reformok főbb állomásai. In Pálné Kovács, I. (ed.) *A magyar decentralizáció kudarca nyomában* (pp. 73-85) Budapest & Pécs: Dialóg Campus

Rodriguez-Arana, J. (2008). *Derecho administartivo español*. Tomo I. Introducción al derecho administrativo constitucional. Oleiros: Netbiblo

Schmidt-Aßmann, E. & Röhl, H. C. (2005). Kommunalrecht. In Schmidt-Aßmann, E. (ed.): *Besonderes Verwaltungsrecht* (pp. 1-120). Berlin: Walter de Gruyter

Szabó, P. (2008). A térszerkezet fogalma, értelmezései. *Tér és Társadalom*, 22 (4), 63-80.

Timon, Á. (1910). *Magyar alkotmány- és jogtörténet*. Budapest: Hornyánszky Viktor Könyvkiadóhivatala

Verebélyi, I. (2000). Önkormányzati rendszerváltás és modernizáció II., *Magyar Közigazgatás*, 50, 577-587.

Zongor, G. (1994). A lebegő megye. In Agg Z. (ed.). *A lebegő megye* (pp. 14-42). Veszprém: Comitatus Kiadó

Zongor, G. (2000). A lebegő megyétől a politizáló megyéig. *Comitatus*, 10 (9), 17-23.

Professional paper

CHANGING INTERMEDIARY SYSTEM OF REPAYABLE EU FUNDS IN HUNGARY (2007-2013, 2014-2020)

A VISSZATÉRÍTENDŐ EURÓPAI UNIÓS TÁMOGATÁSOK PÉNZÜGYI KÖZVETÍTŐ RENDSZERÉNEK VÁLTOZÁSA MAGYARORSZÁGON (2007-2013, 2014-2020)

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Abstract

Hungary was among the first member states where financial instruments of the EU were introduced in lager scale and scope in 2007. However, in the new development phase (2014-2020) experiences of the delivery system have been just partly applied. The renewed, centralized model has a lower level diversity in terms of the type of financial institutions responsible for financial intermediation. Despite their numerous advantages the structural changes hold many risks on growth and on local economic development as well, since the embeddedness of the financial intermediaries in local economies and their diversity are among the core features to provide the properly customised financial services for the targeted enterprises. This institutional change causes a rapid spending of repayable subsidies but hindering the delivery of the original objectives of the cohesion policies. The intermediary system territorially does not give priority to the disadvantaged regions, furthermore contact points are concentrated on urban areas with higher level of economic growth. Beside this, the microcredit objectives cannot be put into practice, the average credit amount increased sixfold in the new development period.

Keywords: Financial intermediary system, Development policy, Financial instruments, European Union

INTRODUCTION

According to the recommendations of the European Commission's (COM) Fifth Cohesion Report (2010) on those policy areas, where subsidies contribute directly to profit generation, certain financial instruments (FIs) should be introduced. In the forms of credit, capital, guarantee and the combination of these products with non-repayable subsidies, after this statement Hungary was among the first member states to introduce these instruments in large scale and scope in the 2007-2013 development period (JEREMIE programme[28]). The role of these types of subsidies are emerging and parallel with EC's intentions, in Hungary the importance of these instruments is increasing.

[28] Joint European Resources for Micro to Medium Enterprises

This paper aims to give a brief overview of the institutional changes between the two EU development periods (2007-2013, 2014-2020), highlighting the most important experiences derived from the operation of the financial intermediaries (1), and to detail the core risks (2) and also to demonstrate some encouraging signs of meeting the objectives (3), which can be expected from the new institutional setting.

The findings were based on the analyses of the Hungarian strategic development policy documents (Partnership Agreement, Operational Programmes) and the activity data of the institutional system which handled the repayable funds between 2007-2013.

THEORETICAL BACKGROUND

The financial intermediary system's impacts on national economic growth, territorial cohesion and on local economic development

The EU FIs' intermediary system, and their ability to provide the relevant financial intermediation functions, has an indirect impact on national economic growth stimulation and it could decrease the territorial imbalances as well. Looking at the national level economic growth with this structural change the new model in Hungary still does not offer institutional guarantees to the more efficient venture capital spending, particularly the achievement of the R&D&I objectives which could offer rapid growth opportunities.

Although the banking system has a pro-cyclical impact on the economic processes, the depth of financial intermediation and its proper functioning, meeting the economic needs, have a considerable stimulating effect on the economic growth (Schumpeter, 1980; King & Levine, 1993; Mérő, 2003; Kay, 2015). In this stimulation effect both capital and credit finance plays an equally important role, though, among these mediation processes lending has a higher impact on economic growth (Mérő, 2003).

The proper functioning of the financial intermediation processes and its institutions have a significant impact on local economic development and thus on the development of regional disparities as well. The uneven regional distribution of financial flows in accordance with the given development level of the financial system can directly cause large territorial differences (Gál, & Burger, 2011 based on Porteous, 1995; Mazucca, 1999; Dow, 1999; Alessandrini & Zazzaro, 1999). These regional differences of the financial intermediary institutions can be observed mainly in the access to finance in the SME side, and in the institutional side these differences are manifested in the size of the information asymmetry arising from the local personal contacts and from local market knowledge.

In the territorial differences of the financial flows the core-periphery type disparities are dominant, characteristics of the urban network show positive correlation with the regional structure of the banking system and with the territorial spread of the financial innovations (Gál, 2014), thus the procyclical impact of the financial intermediary institution system displays not only in the economic processes, but the system amplifies the territorial disparities as well. The primary reason of the procyclical impacts of the financial intermediary system on core-periphery disparities is that the centralized corporate governance structure of the financial institutions and the low-level autonomy of the branches do not support the availability of local information in the centers and their inclusion in the decision making methods of the financial institutions. This locally gained knowledge which can be acquired via personal connections is for instance the professional competences of an entrepreneur, financial literacy and awareness of the client, or the motivations, the customer's personality traits or the payment discipline. However, in the assessment of credit risk for micro and small enterprises, the role these factor is the most relevant (Banai et al., 2016). The institutionally-coded emergence of the information asymmetry between the institutions generates a higher risk category for the institutions in peripheral regions with weaker local economy, furthermore it imposes higher expenditures and risks on these branches, which means higher transaction, information and monitoring costs. To compensate the regional imbalances of the financial transfers, only institutional and governance transformations of the intermediary institutional system are efficient steps in the long term (Gál & Burger, 2011), which factors should be highlighted by the institutions responsible for the delivery of the development policy.

In regards to the impacts of EU structural funds on regional disparities, the level of transfer intensity plays a key role as well. According to Kyriacou and Roca-Sagalés (2012), in more than 1.6% of national GDP the intended effects are actually reversed. Intensity contributes to only increasing regional disparities above this 1.6% level transfer. In order to spur regional growth, an adequate policy combination is essential to that which fits local conditions. Based on Dawid, Harting and Neugart (2014), human capital policy and SME subsidies to promote investment in technology, such as, policies which aim to facilitate convergence and also those which are supported financially by the EU, are strongly influenced by labor mobility. For instance, in regions with a more integrated labor market human capital policies are less effective in terms of convergence. As for the lagging regions subsidies awarded to SMEs for technological adoption can lead to productivity growth, but this requires improved fund absorption capacities of these firms. This paper also highlights that policy implications on regional growth are driven by the interplay of many firm related investment decisions. To

overcome the regional imbalances many path dependencies should be identified, in which, beside the investment choices, the most important determinants are the stocks of human and physical capital and the worker movements between firms (Dawid et al., 2014). Considering the effectiveness of subsidies aiming economic development in Hungary (2007-2013), Banai et al. (2017) proved that in technology oriented sectors, especially in ICT, the supported firms developed more rapidly. Moreover putting these efficiency issues in policy perspective it turned out that in Hungary there were no significant difference between refundable and non-refundable subsidies.

RESULTS AND DISCUSSION

The development resources and objectives of financial instruments have increased, but still no institutional guarantee to meet the microfinance objective in Hungary

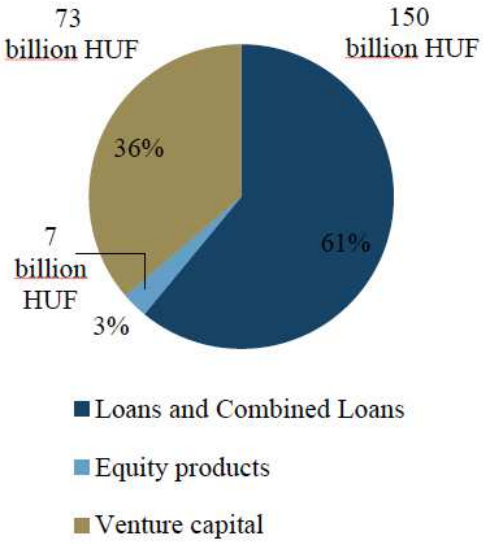
With a pilot manner Hungary has been experimenting with EU supported financial instruments since the 1990s, since the pre-accession fund PHARE has been launched. This time only a small amount of money, 1.15 million ECU was dedicated (Kovács, 2010) with a limited scope, focusing on microfinance. Between 2004 and 2006 there where no FI in the EU related development programmes, so the year 2007 called a restart.

In the 2007-2013 development period Hungary allocated 820 million EUR (with national co-financing) for FIs. In the next, 2014-2020 period, this amount has grown almost threefold to 25 billion EUR (with national co-financing). With this considerably high volume of repayable subsidies both the delivery systems and the potential beneficiaries' financial planning capacities face a serious test.

Within the framework of the JEREMIE programme (2007-2013) four types of financial products were introduced in the forms of credit, venture capital, guarantee and the combination of these products with non-repayable funds (combined products). The main objective of the JEREMIE programme was to support the development of enterprises through microfinancing, which are also apparent in the number of contracts. However, these micro-credit products represented the micro-character only in their name, by the end of the period the target groups were expanded with medium-sized enterprises as well and at the same time the available credit amount reached HUF 200 million (EUR 645,000). With this latter intervention the average credit amount increased and the focus on micro entrepreneurs has been lost. One of the most important lessons learned from the evaluations of the 2007-2013 development period is that the use of these subsidized financial products was largely unrelated to the originally intended target groups of the development policy (KPMG, 2013). Though, the end-of-cycle impact analysis (KPMG, 2017) did not examine this analytical consideration.

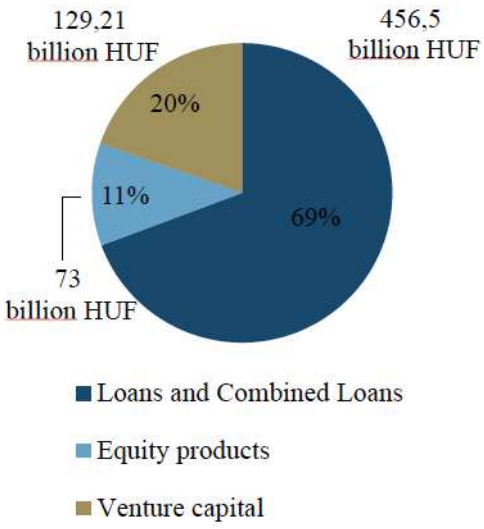
Meanwhile, the credit supply of the Hungarian SMEs needs to be further developed, according to the data released by the Hungarian Development Bank[29] (HDB) in 2016, the Hungarian economy is suffering from a finance gap[30] of 570 million HUF (HDB, 2016c).

Figure 1 EU subsidized financial products in Hungary, 2007-2013, %



Data source: Fontium, Economic Development and Innovation Operational Programme of Hungary (HDB reporting) based on Deloitte, 2016

Figure 2 EU subsidized financial products in Hungary, 2014-2020, %



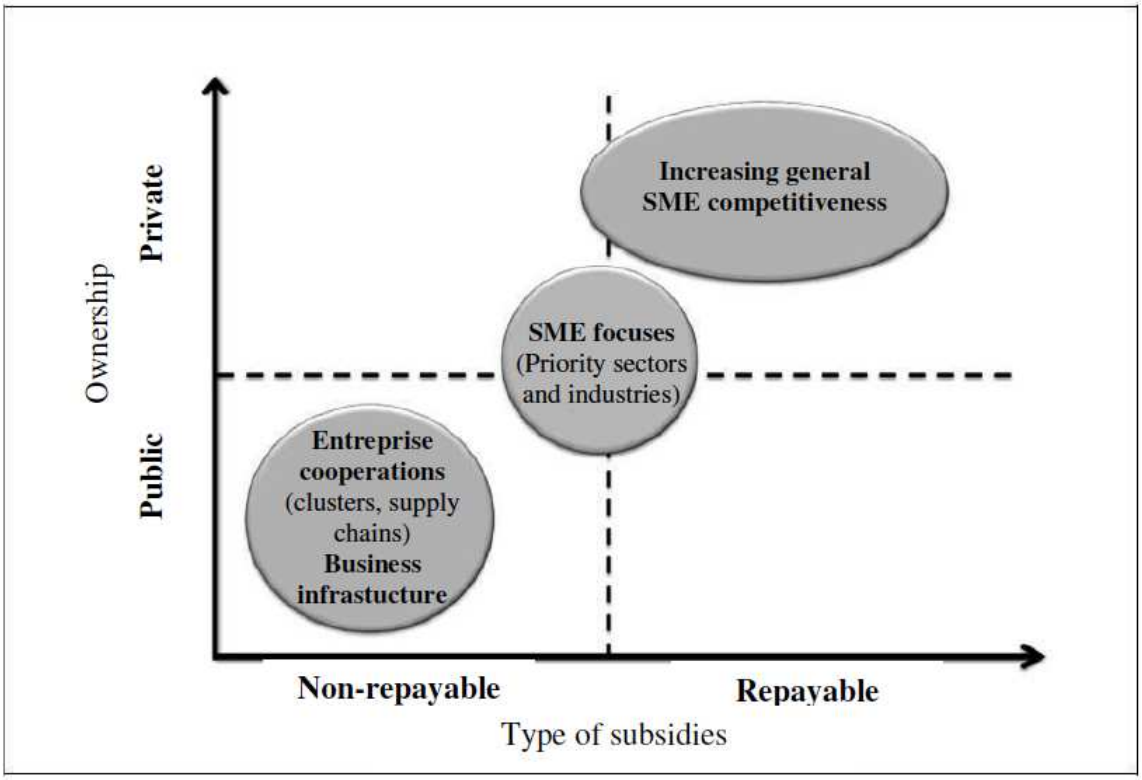
Data source: Fontium, Economic Development and Innovation Operational Programme of Hungary (HDB reporting) based on Deloitte, 2016

[29] Magyar Fejlesztési Bank (MFB)
[30] Based on the HDB's representative survey of inland corporateions in 2015, the finance gap refers to the size of the financing loan niche, which involves the partly or completly refused credit claims (1), the shortage of credit offers (2), and also the unclaimed credits arising from the possible refusal (3).

During the development period 2014-2020, the dominance of credit instruments strengthened, and the proportion of venture capital subsidies decreased (Fig. 1, Fig. 2). However, considering the size of the available credit amounts per enterprise, the objective of microcrediting hardly seems to be realized in the present development period. Based on the data describing the present payout process, the average size of loans has increased sixfold (!) compared to the 2007-2013 period (Nyikos, 2017).

The objectives of the FIs in the 2014-2020 period have also increased, they have become more diversified. In September 2014, the Hungarian Government recorded that the EU's FIs would become the most important form of the general SME development for the 2014-2020 period. Besides the development of SMEs, these repayable subsidies also serve several other purposes.

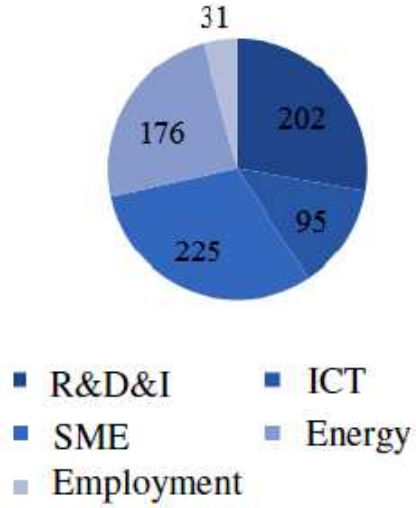
Figure 3 Simplified method of the SME development policy in Hungary, 2014-2020



Source: Hungarian Partnership Agreement for the 2014-2020 Programme Period (ONEP, 2014)

Based on the thematic objectives of the new EU development period, the FIs amount to 730 billion HUF within the framework of the Economic Development and Innovation Operational Programme (EDIOP) in which the fund will be allocated to five development policy areas (Fig. 4).

Figure 4 Development policy areas of EDIOP (thematic objectives, billion HUF)



Source: Szabó, 2016

In addition, based on the lessons learned from the previous development period, the new economic development policy focuses on the following strategic development issues declared in the Partnership Agreement and also in the operational programmes: to support the economically underdeveloped regions and those target groups which are excluded from traditional banking services (1), to make the subsidized financial products easily available in practice (2), and in terms of the administrative obligations to make them competitive and 'handy' in the market of banking products (3). Considering the central governmental intent, besides the European objectives in Hungary, the rapid implementation and pay- out of the FIs were also among the strategically important issues (4).

Centralized intermediation model of the repayable EU funds

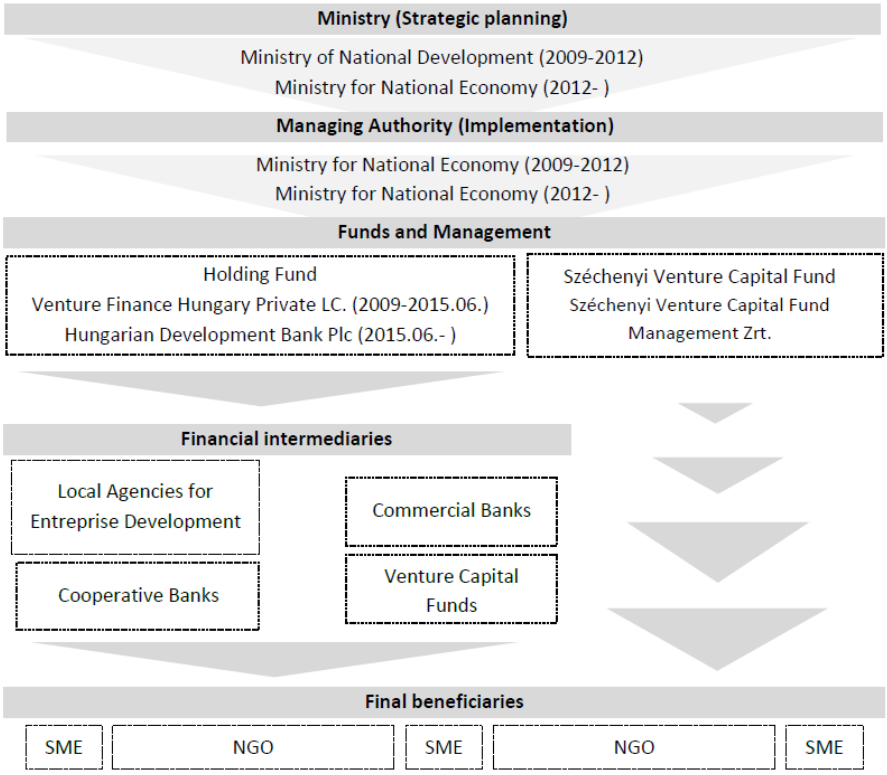
The institutional set-up of the JEREMIE programme consisted of a single holding fund and the Széchenyi Venture Capital Fund (SzVCF). Both operated directly under the managing authority, but within separate departments, because SzVCF used the sources of the Regional Operational Programmes, meanwhile all the other financial instruments were financed by EDIOP.

The final beneficiaries of the FIs received these financial products indirectly, via various types of financial intermediary institutions. In this supply chain the holding fund (Venture Finance Hungary Private LC. 2009-2015) integrated the development funds of the COM in proportion with the national co-finance and through several credit institutions, local enterprise development agencies, venture capital funds and other microfinance institutions, it could channel the subsidized financial products to the entrepreneurs. The role of the intermediary

institutions was to provide the necessary financial proficiency and the social network for the target groups locally. Capital resources were handled by the SzVCF and also by other venture capital funds. The main difference was that SzVCF operated directly under the MA and it was owned by the government in 100%, meanwhile the other venture capital funds were operated under the holding fund and with mixed capital resources requiring 30% private capital to the EU support (70%).

With this institutional structure a mixed intermediation model has been set up, it consisted of a direct and an indirect channel from the Management Authority (MA) to the final beneficiaries. (Fig. 5) The purpose of the JEREMIE Programme was explicitly the development of the micro and the SME sector.

Figure 5 Institutional system for the implementation of financial instruments in Hungary 2007-2013

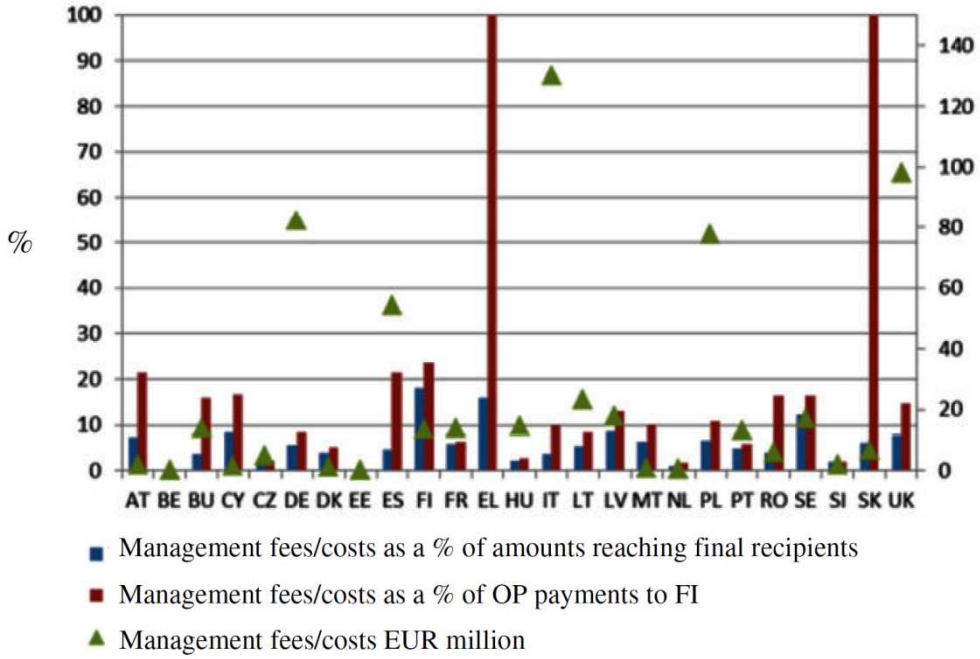


Source: Edited by the author

Featuring this institution system, four factors have been analyzed, the diversity (types of the institutions), the cost-effectiveness of the institutional set-up, the institutional activity (based on the date of accession and transaction numbers) and also the specialization for financial products.

Based on the types of institutions', the intermediation system was characterized by a high level of diversity with widespread network (Fig. 8). Among the financial intermediaries there were local enterprise development agencies, cooperative banks, commercial banks, venture capital funds and other microfinance institutions, which were usually specialized in one FI. The significance of diversity is that its high level plays a major role in developing more tailor-made solutions to SME financing needs. During the 2007-2013 period, among the Member States Hungary's specific characteristics was the very low-cost intermediary institutional system which at the same time could operate with high diversity and with a large number of intermediaries (Nyikos 2016c).

Figure 6 Management fees and costs (%)



Source: Nyikos, 2016b

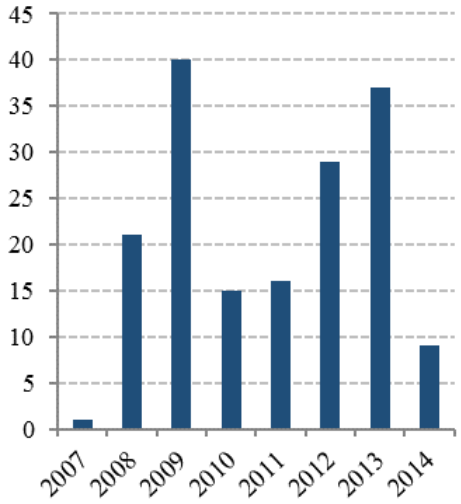
However, the varying cost-efficiency of the institutions can modify this picture. Despite the fact that the capital funds were represented in low number and share[31] (Fig. 8) among the intermediaries, they had a disproportionately expensive institutional structure. (Bucsky, 2016 based on the data set of Bisnode and Figyelő)

Considering the intermediators' activity, the most dominant players were the microfinance institutions, focusing on one FI, and the local enterprise development agencies. (Fig. 8

[31] Total number of the venture capital funds were 26, until 2014, but their operation in time were nor parallel.

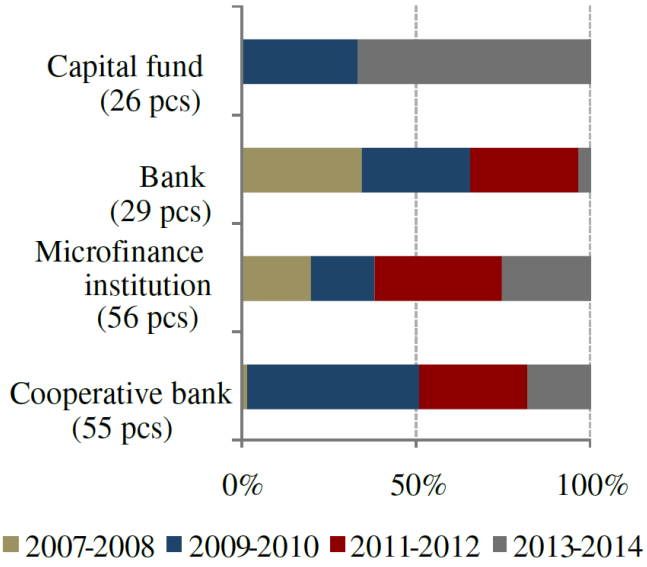
integrates these two types of intermediators as one category, called as microfinance institutions[32]).

Figure 7 Number of financial intermediaries based on the date of accession (pcs) 2007-2014 (%)



Source: HDB data provision, 2016

Figure 8 Breakdown of financial intermediaries based on the date of accession and according to the institutions'type (as a percentage of those institutions which joined until 2014)

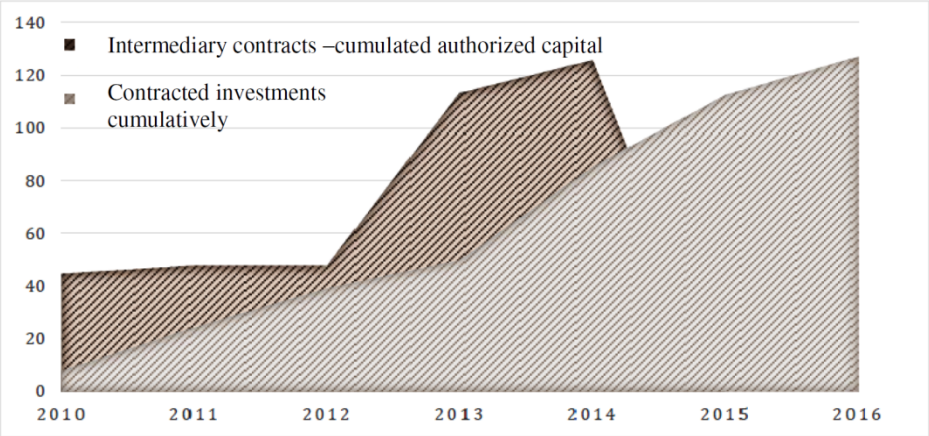


Source: HDB data provision, 2016

[32] Considering the forgoing statements, it is important to highilght the fact that the insitutions' number which intermediated the credit intruments in the 2007-2013 period (microfinance institutions, local enterprise development agencies, cooperative banks) cannot meet the number of the latter credit provider contact points (HDB points) opertaion in the 2014-2020 period (Fig. 5). The former refers to the number of the institutions (financial enterprises) and the latter refers to the intermediary points (branches) where the credit products can be requested. One credit institution had numerous credit points in the 2007-2013 period.

Considering the delayed time schedule of the pay-outs (Fig. 9), due to the slow establishment of the venture capital system, by the end of the period there was a serious time pressure on the delivery system to contract the beneficiaries in time. Most of the central venture capital programmes and tenders for the capital funds appeared only after 2012, and the capital investments started only from 2013. The delivery of the venture capital programme (contracting final beneficiaries) took place later, at the end of May 2016, with serious deadline modification approved by the COM.

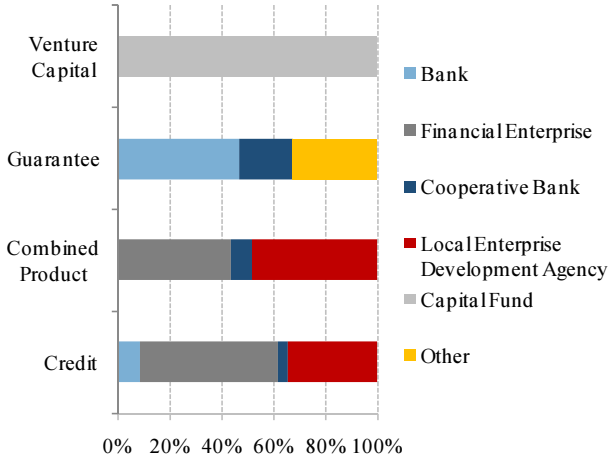
Figure 9 Payout timeline of the JEREMIE programme in Hungary (Billion HUF)



Source: Századvég based on Fontium, 2016

Examining financial product offers between 2007-2013 among the institution types a strong specialization can be observed (Fig. 10).

Figure 10 Breakdown of financial intermediaries by financial products, transaction number % (July 2016)



Source: HDB data provision, 2016

The product specification of the intermediary institutions was partly governed by the regulations and partly by the local embeddedness of the institutions. The most important background of the banks' low activity that they were ruled out to be an intermediary for the most successful financial product, the combined microcredit. (Nyikos, 2015) To the successful intermediation, the institutions' local social embeddedness was a critical factor, 80-90% of the enterprises employing combined micro-credit products had been informed about these FIs through local tender writers and their accounting experts (KPMG, 2013).

Simplified intermediary model

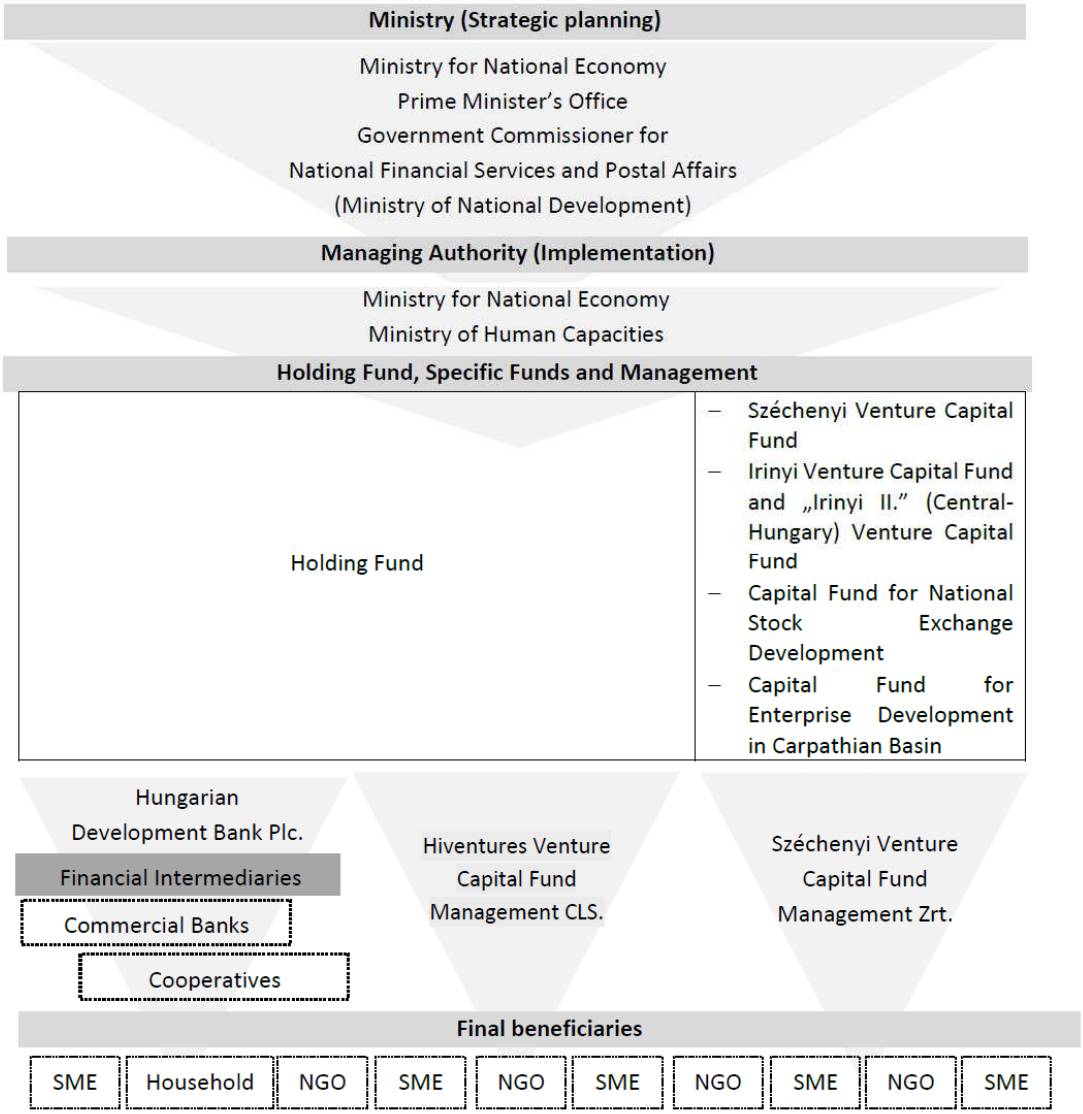
In the 2014-2020 development cycle the increased objectives of the FIs (Fig. 4) have to be implemented in an institutional structure built on more central decision-making mechanisms. In this institutional set the HDB, as the holding fund manager, chose an 'agent –type' intermediary model and contract directly the beneficiaries. Besides HDB plays the key role in venture capital investments as well. The Government invests the venture capital instruments in the development areas of research, development and innovation (R&D&I) through a state-owned venture capital fund[33], which is a significant shift from the 2007-2013 institutional practice (Fig. 11). Preventing the time pressure which had occurred in the previous development cycle call for applications of the financial instruments were fully published for the final recipients until 31 March 2017. In the case of guarantee products, the intermediary institutional structure is missing, which may show that some policy distortions happened.

The new model resulted a faster implementation method and absorption procedure, but local priorities and objectives of the development policy cannot be revealed. By end of the first quarter of the year 2017 all the call for applications were published, and by the end of august (2017) 75% of the EDIOP funds were contracted (Dányi, 2017). This shows a much higher delivery speed than in the 2007-2013 period. However, the delivery system can be improved further to serve the cohesion effects more efficiently. The delivery process does not create linkages between the Territorial Operational Programme (and the Competitive Central Hungary Operational Programme) and the EDIOP. That is why financial intermediation procedures and the financial instruments can not ensure the fulfillment of these territorial objectives efficiently, even though the policy documents intended to do so. (For example when the credit purpose of an enterprise is in line with its home counties territorial

[33] Hiventures, the State Venture Capital Fund professionally supervised and supported by the National Research, Development and Innovation Office and the Hungarian Develpoment Bank Plc. (HDB).

development objectives it can not be prioritized over those enterprises, which plans to use the FI with other development purposes out of the locally declared territorial ones.) Another hindering effect can be that the banking and the enterprise development expertise of local enterprise development agencies and financial institutions are not utilized.

Figure 11 Delivery system of the financial instruments in Hungary, 2014-2020



Source: Edited by the author

Risks and predictable positive achievements arising from the institutional system, 2014-2020

Due to the structure of the institutional system intermediating the repayable funds, it can be outlined that the system can effectively support at least four major strategic objectives of the Hungarian economic development policy, but parallel with this the number of not or just partially accomplished goals are also the same (Tab. 1).

Table 1 Expectations of predictable strategic achievements of the financial instruments' based on the financial intermediary system, 2018

Expected achievements	Partially or entirely unachievable goals
– Cost effectiveness: the financial intermediary system has low operating costs because the expensive intermediation system of the venture capital instruments, operating in the 2007-2013 period, has been rationalized and completely renewed; – Statistically the institutional system reaches a high proportion of the Hungarian enterprises; – Fast absorption of the EU resources; – User-friendly claiming and handling practices.	– Steady absorption through the seven years of the development cycle; – Tailor-made offers for projects which can clearly contribute to meet the five declared strategic objectives (Fig. 4); – Developing the financial literacy of the final beneficiaries by providing education, mentoring and consulting opportunities in-addition to the single financial service; – Addressing the most disadvantaged regions and target groups, as well as those who are the most talented or which are in need for the highest support.

In the currently operating system two key challenges can be identified. These are the balance creation between the successful address of the target groups and the cost-effectiveness of the intermediary system (1), and also to ensure the financial instruments' contribution to meet the EU's cohesion policy objectives, particularly to reach social progress, territorial cohesion and local economic development (2).

Creating balance between the target group reach and the cost-effectiveness of the mediation system

Key requirements for the strategic objectives of FIs that the new institutional set should assure the rapid access to the financial products and from the viewpoint of the final beneficiaries it should provide equal opportunities for accession in terms of the territorial and the social aspects. However, for the sustainability, maintaining the low-cost character of the system is also critical.

Regarding the qualitative characteristics of the intermediary system it is important to highlight that with a higher institutional diversity, the institutional system can provide customized solutions tailored to the beneficiaries' financial needs (Nyikos, 2016c) However, the local enterprise development agencies, owning the local knowledge mentioned above, could not gain an intermediary function in the delivery of the financial instruments in

Hungary in the 2014-2020 EU development period. The new, 'agent –type' intermediary model does not allow the decision-making system to integrate the local information owned by the branches hosting the HDB points. This can easily result in the inefficient spending of these EU funds. The institutionally- coded disorders of the intermediary system may strengthening the present territorial imbalances and governance deficits of the banking system.

The consequences of the previous development period reveal that the personal contacts between the final beneficiaries and the intermediary institution form a crucial point in spending the allocated EU subsidies for credit and the combined micro credit products. The easy physical availability of these contact points is a basic requirement to deliver the cohesion policy objectives and to address the intended target groups of the financial instruments and also to reach the catching up regions as well. From August 2017 the total number of these contact points, called "HDB points", was 565, which number will increase to 642 by the beginning of 2018. However, these points are territorially concentrated on those city regions which already have promising growth potentials and larger population. Among the disadvantaged settlements[34] (total number of 1230) there are only 45 HDB points. The gradual expansion of the HDB point network was focused on the cities with county rights, for the least developed settlements the availability of the contact points remained difficult in Hungary. Based on these issues several risks can arise from meeting the development objectives and addressing the originally intended target groups.

Since the general financial flows and the HDB contact points are also concentrated on the more developed urban areas, the intermediary system of the EU financial instruments may also contribute to the increase in the Hungarian territorial disparities (spending cc. 25 billion EUR between 2016-2020 via this intermediary model). In order to enhance the FIs territorial and social cohesion impacts additional professional capacities and services (financial education, training, consulting, mentoring or financial coaching) should be linked to the financial products and also the institutional presence should be extended towards the smaller settlements and the deprived areas.

The institutional types of the Hungarian intermediary system are characterized by a lower level of diversification in the 2014-2020 period and this may prioritize other beneficiaries instead of the originally intended target groups, and which can provide access to these FIs to the already competitive enterprises as well.

[34] 105/2015 (IV. 23) Government decree on disadvantaged districts and settlements, Annex 2.

CONCLUSION

In order to achieve the cohesion goals, the intermediary system should be improved both in terms of the geographical penetration and governance structure, which could give opportunity to financial institutions to specialize in target groups and in regional features (1). Along the use of these instruments other financial services such as financial education, training and financial mentoring of the beneficiaries should be developed, since their role is crucial to achieve the economic development impacts on SMEs (2). In the knowledge- intensive sectors with higher growth potentials, the significance of capital or equity-type subsidies is higher, in which the origin of capital has an important role. Finding the adequate balance in the venture capital fund resources with the right proportion of the private and the state-owned resources, subsidies may also contribute to a more appropriate use of the EU resources (3.)

Comparing the two development periods (2007-2013 versus 2014-2020) in Hungary, the policy objectives of the FIs became more sophisticated meanwhile the institutional system territorially and in terms of governance transformed towards a more centralized structure. Beside this, in terms of the institution types a less diversified system has been installed, outruling the previously successful local enterprise development agencies as non-financial microcredit providers.

Cohesion policy objectives, in terms of reducing the territorial inequalities in Hungary and boost local economic development in the disadvantaged regions are not efficiently supported by the new institutional set. Region specific financial products which offer mentoring and financial guidance besides the repayable funds cannot be displayed. The technical aim of the state to deploy these types of EU funds as rapidly as it is possible overwrites all the other development policy objectives. To prevent unintended consequences, particularly the increasing regional inequalities, a stronger development banking approach would be needed.

With the latter institutional changes of the FIs in Hungary several development policy goals can be achieved, but at the same time the new model still does not offer institutional guarantees towards the efficient spending of these resources, not even to the exact addressing of the intended target groups. In 2018 it can be important to predict which goals of the cohesion policy can be met effectively with this new delivery system, therefore this paper sought to contribute to the creation of realistic expectations by examining the new institutional set based on the predictable impacts on the economic development and territorial cohesion.

REFERENCES

Deloitte (2016). MFB Zrt. részére az 1-es tematikus célhoz kapcsolódó ex-ante tanulmány [Pdf]. Retrieved from https://www.palyazat.gov.hu/download.php?objectId=60397

Banai, Á., Körmendi, G., Lang, P., & Vágó, N. (2016). A magyar kis- és középvállalati szektor hitelkockázatának modellezése, *MNB-tanulmányok* 123 [Pdf]. Retrieved from https://www.mnb.hu/letoltes/mnb-tanulmanyok-123.pdf

Banai, Á., Lang, P., Nagy, G., & Stancsics, M. (2017). Impact evaluation of EU subsidies for economic development on the Hungarian SME sector, *MNB Working Papers* 8 [Pdf]. Retrieved from https://www.mnb.hu/letoltes/eufa-wp-final.pdf

Bucsky, P. (2016). Sok mutyi, pár profi. *Figyelő* 2016(36), 16-19.

Dányi, G. (2017). A 2014-20-as fejlesztéspolitikai periódus végrehajtásának tapasztalatai, 54. Közgazdász-vándorgyűlés [Pdf]. Retrieved from http://www.mkt.hu/wp-content/uploads/2017/09/EU_forrasok_Danyi_Gabor.pdf

Dawid, H., Harting, P., & Neugart, M. (2014). Economic convergence: Policy implications from a heterogeneous agent model. *Journal of Economic Dynamics and Control*, 44, 54-80.

European Commission (2010). Fifth Report on Economic, Social and Territorial Cohesion - Investing in Europe's future [Pdf]. Retrieved from http://ec.europa.eu/regional_policy/en/information/publications/reports/2010/fifth-report-on-economic-social-and-territorial-cohesion-investing-in-europe-s-future

Erdős, M., & Mérő, K. (2010). *Pénzügyi közvetítő intézmények. Bankok és intézményi befektetők*., Budapest: Akadémia Kiadó.

Gál, Z. (2014). A pénzügyi piacok földrajzi dimenziói: a pénzügyi földrajz frontvonalai és vizsgálati területei. *Földrajzi Közlemények*, 138 (3), 181-196.

Gál, Z., & Burger, C. (2014). A vidék bankjai? *Közgazdasági Szemle*, 60, 373–401.

Gál, Z. (2012). Pénzügyek és a térbeliség. A pénzügyi térgazdaságtan helye a regionális tudományban. In J. Rechnitzer, Sz. Rácz (Eds.), *Dialógus a regionális tudományról* (pp. 99–121). Győr: SZE Regionális- és Gazdaságtudományi Doktori Iskola; Magyar Regionális Tudományi Társaság.

Gál, Z., & Burger, C. (2011). Sikeres szövetkezeti banki modellek Németországban, Olaszországban és Finnországban. In *Háttértanulmány az Országos Takarékszövetkezeti Szövetség részére a hazai takarékszövetkezeti szektor fejlesztési kérdéseihez*. Budapest: Századvég Gazdaságkutató.

HCSO (2016). Dissemination Database, Annual statistical data, Settlements in Hungary (2000-2016), Number of registered business units (GFO'2014) Retrieved from http://statinfo.ksh.hu/Statinfo/haDetails.jsp

Hungarian Development Bank, HDB (2015). MFB Periszkóp 2015. október [Pdf]. Retrieved from https://www.mfb.hu/sites/default/files/mfb_periszkop_2015_oktober.pdf

Hungarian Development Bank, HDB (2016a). 50 milliárd forinttal indul az állami tőkealap-kezelő társaság [Html]. Retrieved from https://www.mfb.hu/aktualis/sajtokozlemenyek/50-milliard-forinttal-indul-az-allami-tokealap-kezelo-tarsasag

Hungarian Development Bank, HDB (2016b). Megjelent a Nemzeti Technológiai És Szellemi Tulajdon Kockázati Tőkeprogram- Elérhető a Hiventures Kockázati Tőkealap-kezelő első tőketerméke az induló vagy fiatal, innovatív kkv-k támogatására [Html]. Retrieved from https://www.mfb.hu/aktualis/sajtokozlemenyek/megjelent-nemzeti-technologiai-es-szellemi-tulajdon-kockazati-tokeprogram

Hungarian Development Bank, HDB (2016c). MFB Periszkóp 2016. június (pp.3) [Pdf]. Retrieved from https://www.mfb.hu/aktualis/mfb-periszkop/mfb-periszkop-2016-junius

Hungarian Private Equity and Venture Capital Association - HVCA (2015). Koncepcionális Javaslatok a Jövőben Indítandó Jeremie Kockázat Tőkeprogramokhoz [Pdf] Retrieved from http://www.hvca.hu/wp-content/uploads/2015/04/Koncepcion%C3%A1lis-javaslatok-a-Jeremie-programokhoz_final-20150413.pdf

Hungarian Private Equity and Venture Capital Association - HVCA (2016). Venture Capital and Private Equity Overview Hungary – 2016 [Pdf]. Retrieved from http://www.hvca.hu/wp-content/uploads/2014/10/Investment-monitoring-report-FY16_0314.pdf

Karsai, J. (2013). Venture capital and private equity industry in Hungary, *Acta Oeconomica*, 63(1), 23-42.

Karsai, J. (2015a). Squaring the Circle? Government as Venture Capital Investor, *Studies in International Economics*, 2015/1, 62–93.

Karsai, J. (2015b). Hol tart a kelet-közép-európai kockázati és magántőkepiac öt évvel a válság után? *Statisztikai Szemle*, 93(1), 6-24.

Karsai, J. (2015c). Állami szerepvállalás a kelet-közép európai kockázatitőke-piacon, *Közgazdasági Szemle*, 62, 1172–1195.

Kay, J. (2015). *Other People's Money*. Public Affairs

King, R., G. & Levine, R. (1993). Finance, enterpreneurship, and growth. *Journal of Monetary Economics*, 32(3), 513-542.

Kovács, I. (2010). The microlending sector in Hungary: microlending to SMEs. In B. Jayo Carboni et al. (Eds.), *Handbook of Microcredit in Europe* (pp.188-213). Cheltenham: Edward Elgar.

KPMG, (2013). Értékelés a Gazdaságfejlesztési Operatív Program pénzügyi eszközeiről [Pdf]. Retrieved from https://www.palyazat.gov.hu/download.php?objectId=48260

KPMG, (2017). A magyarországi európai uniós források felhasználásának és hatásainak elemzése a 2007-2013-as programozási időszak vonatkozásában [Pdf]. Retrieved from https://www.palyazat.gov.hu/magyarorszagi_europai_unios_forrasok_elemzese

Kyriacou, A. P., & Roca-Sagalés., O. (2012). The Impact of EU Structural Funds on Regional Disparities within Member States. *Environment and Planning C: Politics and Space*, 30(2), 267-281.

Lennert, J., Csatári, B., Farkas, J. Z., & Mezőszentgyörgyi, D. (2015). Locality-based and Place-based Development in Theory and Practice – an Example of the Hungarian Countryside. *Deturope – the Central European Journal of Regional Development and Tourism*, 7(2), 14-27.

Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*, 35, 688-726.

Magyar Nemzeti Bank (2015). Elemzés a hazai kockázati tőkealap-kezelők és alapok működéséről [Pdf]. Retrieved from http://www.hvca.hu/wpcontent/uploads/2012/03/Elemzes_a_kovkazati_tokealapkezeloi_szektorrol_0202.pdf

Magyar Vállalkozásfinanszírozási Zrt. website. Retrieved from http://www.mvzrt.hu/

Mérő, K. (2003). A gazdasági növekedés és a pénzügyi közvetítés mélysége. *Közgazdasági Szemle*, 50, 590-607.

Mérő, K. (2004). Financial Depth and Economic Growth - the Case of Hungary, the Czech Republic and Poland. *Acta Oeconomica*, 54(3), 297-321.

Nyikos, G. (2015). The Role of Financial Instuments in Improving Access to Finance. *European Structural and Investment Funds Journal*, 2, 105-121.

Nyikos, G. (2017). Pénzügyi eszközök a 2007–2013 és 2014–2020 programozási időszakban, illetve 2020 után, 55. Közgazdász-vándorgyűlés [Pdf]. Retrieved from Pénzügyi eszközök a 2007–2013 és 2014–2020 programozási időszakban, illetve 2020 után_

Nyikos, G. (2016a). Experiences with implementation of FEI in Hungary – Combined Microcredit, *Financial Instruments delivering ESI Funds* Conference Budapest 2016 [Pdf]. Retrieved from https://www.fi-compass.eu/sites/default/files/publications/presentation_20160310_budapest_ESIF_Gorgyi-Nyikos.pdf

Nyikos, G. (2016b). Pénzügyi eszközök a kohéziós politikában, 54. Közgazdász-vándorgyűlés [Pdf]. Retrieved from http://www.mkt.hu/wp-content/uploads/2016/09/Nyikos_Gyorgyi.pdf

Nyikos, G. (2016c). Research for REGICommittee, Financial instruments in the 2014-20 programming period: First experiences of Member States. European Commission, COM (2016) [Pdf]. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2016/573449/IPOL_STU(2016)573449_EN.pdf

SeténYi, J. (2016). A fejlesztéspolitika önállósulása: Uniós források és hazai implementációs képesség. In A. Fábián, Z. Pogátsa (Eds.), *Az európai kohéziós politika gazdaságtana* (pp. 205). Budapest: Akadémiai Kiadó.

Schumpeter, J. A. (1980). *A gazdasági fejlődés elmélete*. Budapest: Közgazdasági és Jogi Könyvkiadó.

Századvég (2016). Pénzügyi eszközök értékelése 2007–2013 [Pdf]. Retrieved from https://www.palyazat.gov.hu/gazdasgfejlesztsi-expost-rtkelsek

Szabó, K. J. (2016). A Gazdaságfejlesztési és Innovációs Operatív Program (GINOP) Pénzügyi Eszközei, *EaSI Technical Assistance Workshops for the Hungarian Microfinance Sector*, Budapest: Fi Compass.

Széchenyi Tőke Alap, SZTA (2015). 2020 végéig befektetésre kész a Széchenyi Tőkealap [Html]. http://szta.hu/kozlemeny/64/2020-vegeig-befektetesre-kesz-a-szechenyi-tokealap

Széles, Zs., Széles, Z., & Miszori, I. (2011). How Does the Jeremie Program Affect the Hungarian Venture Capital Market? *International Journal of Economics and Finance Studies*, 3(1), 237-282. Retrieved from http://www.hvca.hu/wp-content/uploads/2011/12/How-does-the-JEREMIE-program-affect-the-Hungarian-Venture-Capital-Market.pdf

Office for National Economic Planning. ONEP (2014). Hungarian Partnership Agreement for the 2014-2020 programme period [Pdf]. Retrieved from https://www.nth.gov.hu/hu/media/download/30

105/2015 (IV. 23) Government decree on disadvantaged districts and settlements [Pdf]. Retrieved from http://www.kozlonyok.hu/nkonline/MKPDF/hiteles/mk15056.pdf

Professional paper

THE GRASS IS ALWAYS GREENER ON THE OTHER SIDE, OR ELSE AUSTRIA THROUGH THE EYES OF EUROPEAN RURAL DEVELOPERS

"A SZOMSZÉD FŰJE MINDIG ZÖLDEBB", AVAGY AUSZTRIA EURÓPAI VIDÉKFEJLESZTŐ SZEMMEL

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Abstract

The study seeks to answer the question as to why the combined performance of agriculture and forestry can be explained by the fact that in an EU member state with an agricultural disadvantage and with an advanced economy, the size of the cultivated area is high. The reasons are complex and suggest a deliberately chosen strategy, the essence of which is that in Austria the social perception of agriculture is far more favorable than it would be expected from its GDP contribution. The reasons for this are partly rooted in the history of the past, but may also be linked to a more immediate and strategic decision making primarily on the transformation of the agricultural product structure, the efficient use of resources from the EU, the use of sophisticated tools for rural tourism and, last but not least, on the widespread shaping of the attitudes of the population.

Keywords: agriculture, rural development, rural tourism, direct sales, environmental sensitization

Absztrakt

A tanulmány arra a kérdésre keresi a választ, hogy vajon milyen okai lehetnek annak, hogy egy mezőgazdasági szempontból kedvezőtlen természeti adottságú, ugyanakkor fejlett gazdasággal rendelkező EU tagországban a művelhető terület méretéhez képest kimagasló a mezőgazdaság és erdészet együttes teljesítménye. Az okok összetettek és tudatosan választott stratégiára utalnak, aminek a lényege, hogy Ausztriában a mezőgazdaság társadalmi megítélése sokkal kedvezőbb annál, ami a GDP-hez való hozzájárulása alapján elvárható lenne. Ennek okai részben a történelmi múltban gyökereznek, ugyanakkor több olyan közelmúlthoz köthető, stratégiai döntéssel is összefüggésbe hozhatók, amelyek elsődlegesen a mezőgazdasági termékszerkezet átalakításán, az EU-ból érkező források hatékony felhasználásán, a falusi turizmus kifinomult eszközeinek alkalmazásán és nem utolsó sorban a lakosság széleskörű szemléletformálásán alapultak.

Keywords: mezőgazdaság, vidékfejlesztés, falusi turizmus, közvetlen értékesítés, környezeti érzékenyítés

INTRODUCTION

In the EU's common agricultural policy, we have been in the process of continuous reform since 1992. This was the first time that the rural development measures within the CAP connected to the Mac Sharry's reform appeared, and since the turn of the millennium, rural

development has become CAP's pillar. The Buckwell Report (1998) has already indicated the intention to gradually shift CAP funds. Instead of production support, shifted the focus to environmental and rural development goals. It is true that the transformation takes place at a slower pace than that set out in the report, but a number of agri-market measures have been taken since the turn of the millennium, which are effecting in this direction (decoupling, single payment scheme (SPS), cross-compliance, modulation) and mainstreaming served this purpose in rural development. (Buday-Sántha, 2011, Jámbor and Mizik, 2014) Over time, the financing of CAP has also changed, from 2007 there are two new funding, the European Agricultural Guarantee Fund (EAGF) that is financing the agricultural policy, while the European Agricultural Fund for Rural Development (EAFRD) is financing the rural development. Although the emphasis in the EAGF's resource use was shifted from indirect (price-based) subsidies to direct (income-based) subsidies, but still this is basically a 75% share of CAP resources. Only 25% is for rural development (EAFRD), which primarily supports the production of rural commodities in the EU. Although the importance of rural development within the CAP has been substantially increased since 1992, however, the fact that over the same period the CAP's share of the budget fell from 58% to 44%, refers to the limitation of rural development resources. In such circumstances, successful rural development activities require great creativity and unique solutions. From this point of view, we investigate the case of Austria.

CHARACTERISTICS OF AUSTRIAN AGRICULTURE

Traditionally, Austria is not an agricultural country, from this aspect, the natural conditions are not satisfying. Well cultivated basins and hills are concentrated only on the east and north-east side of the country, covering only 34% of the total area in comparison to the EU average with 42%. Beside this, from historical reasons, Austrian agriculture does not have a huge tradition. In the internal the division of labour of the Austrian-Hungarian Monarchy, Austria specialised in manufacturing industry that was built structurally on the economy of the Habsburg patrimonial lands (Upper and Lower Austria in the narrower sense), primarily, textile-, food- and the light machine industry was characteristic. This situation changed radically after the Great War, and after the dissolution of the Monarchy. The population and the territory of the newly formed First Austrian Republic shrunk to one eighth of its former size and with it came with the loss of significant industrial raw materials, agricultural supply

areas, as well as protected markets. Under these conditions, the country had to lay its economic development on new basis. It is not accidental that at the beginning of the 20th century the rate of agricultural and the industrial workers were 40-40% in the Austrian employment structure. During the century since then, the number and proportion of agricultural employment reduced quickly, while reaching the current 4,8% that practically meets the EU's average, while the agricultural employment rate of the euro area was much lower, only 3% (EC, 2016a).

Several reasons justify the relatively high agricultural employment:

- After the Second World War, Austria stayed out of the advantages of the single internal market for a long time because of its neutralism. Until its joining of the EU (1995) the country practically had to be self-sufficient, and that resulted in the fact that the country could satisfy its need of agricultural products in 86% (FAO, 2012). This meets the EU's average however, typically the developed West-European countries perform below it (except for France 134%), while the less developed East-European perform above it (Hungary 162%) (FAO, 2012).
- On less advantageous areas (on highlands), small plant size occurred, where snowy shepherding is a typical activity. The needlework of livestock farming is much bigger than the cultivation of plants. In addition to this, the workflows done on the supply areas among these natural features can hardly be mechanized, unlike on flat areas. The high agricultural employment can only be sustained in a country that has a developed economy if the profitability of the agricultural production is high and keeping the population on the countryside is significant. These two aspects are related to the employment, but between them, we do not find causal relations, because in Austria the active population (53%) commute to their workplaces, so typically they live in the countryside, but work in cities. At the same time, the agricultural employment is significant in Austria, which can primarily be thanked to the fact that after the country's joining to the EU, the country has made some perceptible changes in the structure of agriculture adapted to the EU's and to the global markets, thereby, in significant living labour sectors (greenhouse and foil horticulture activity, organic farm, vinery in Burgenland) it made some improvements. The profitability of these sectors is high, since such submarkets are targeted, where the well-paying demand that is able and willing to recognize the additional expenses of the production is continuously expanding. Profitability is contributed by the effective use of resources

from the EU as a positive discriminatory use of the agricultural sectors considered as strategies (LFA[35], ÖPUL[36]).

Another component of the profitability is the high added value content that is partly due to Austria's developed food industry, so that it can sell its agricultural products typically on high processing level, thereby the high sales price is guaranteed. On the other hand, through the embeddedness into the global commerce, it is hardly sensitive to the changes of world market prices. In Austria, a significant part of the rural income does not originate directly from agricultural production, but from the rural tourism that is related strongly to it, which the Austrians apply as an additional activity with targeting diversification, eliminating the seasonality of agricultural activity. However, it tones the picture in connection with the high agricultural employment that in Austria (especially in Burgenland) significant part of the farmers (two third) do this activity as a second job, on the other hand, a significant part of the employees in this sector are not Austrian citizens, but guest workers coming from the neighbouring countries (Hungary and Slovakia).

The performance and the structure of the Austrian agriculture

In Austria, compared to the size of the cultivable area, the common performance of the agriculture and the forestry is outstanding however, the sector contributes with only 1.6% to the significant performance of the national economy that is significant at the EU level. In 2015, the total value of the EU's agricultural output was more than 410 billion euros. 52% of the value are plant products, 39% are animals and animal products, while the rest is given by the secondary activities and the services. In case of Austria, the weight of the animal husbandry exceeds the community average (53%), while the cultivation of plants is far from it (47%) (EC, 2016a).

Austria, in 2015, manufactured 1.7% of the agricultural output of the community. The grass production value counting on basic price was 2697 million euros. 1.4% of it was given

[35] Less Favoured Area

[36] The Environmentally-friendly, Extreme and Nature-Conservative Austrian Farming Program (**Ö**sterreichisches **P**rogramm zur Förderung einer**u**mweltgerechten, extensiven und den natürlichen **L**ebensraum schützenden Landwirtschaft = **ÖPUL**) Austria has developed to support environmentally friendly farming in agricultural areas. The original five-year program was launched in 1995 and it still works today. Against the EU Member States, whose environmental program is available only in delimited, environmentally sensitive areas, ÖPUL is a horizontal program that seeks to cover the entire territory of Austrian agriculture. (BNT 2016)

by the plant products, whereas the animal products were 2%. The activity of forestry is also significant in the country. Manufactured by the forester counting on basic price, the gross production value was 1074 million euros. Austria contributes with 4% to the EU's logging, so that it is the sixth in the rankings of the member countries, while it benefits with 8.4% from the production of processed, sawn wood, with which it is the third in the rankings. (EC, 2016b, EC, 2016c). The number of employees in forestry is quite high and they give 2.5% of the agricultural employees.

In Austria in 2015, agriculture contributed to the gross domestic product (GDP) with 1.4%, a little behind of the EU's average with 1,6%. The external trade balance of the country shows 12 billion euros additional exports however, in case of agricultural products, the balance is negative, the additional import shows 12 billion euros. The agricultural export is 7.8% of the total export, the most important product group is the non-alcoholic drinks. The agricultural import is 8.2% of the total import and it mainly includes processed products. In agricultural external trade, the most important partner is the EU, because the value of agricultural export done with EU's countries is quadruple of the turnover outside of the EU, while the EU's agricultural import is more than six times higher than of its not EU's pair. However, it is also interesting that significant differences can be proved in each country groups inside of the agricultural external trade of the EU. The share of the old member countries (EU-15), joined before 2004, is significant in case of export (78%) and import (80%) as well however, in this case, the accruing deficit is much more serious than in the case of new member countries (EC, 2016a). The exposure of the country's food import compared to self-sufficiency is relatively high with 51% (FAO, 2012).

If the examination is only focusing on food industry in terms of agricultural products, the external trade balance is positive, since, in 2015, export was 5,97 billion euros and import was 4.05 billion euros. This positivity in the market showed similar results in the previous years (in 2013, 0,66 billion euros, while in 2014, 0,67 billion euros) (WKÖ, 2017). The more than 0.5 billion euros food industry benefit came from the food export that was well-known on foreign markets. One key of the food industry's positive balance is the development system – in the beginning of the 1990s - by the Austrian Agricultural Ministry, the Austrian Economic Chambers (WKÖ), Agrarmarkt Austria (AMA) that aimed to improve the chances of market accesses of companies operating in Austrian food industry and to increase the export of Austrian agricultural and food industry products. The point of its marketing strategy is for the home countries' markets to take in the products, which are of high quality and well-known by

foreigners through the developed tourism, more easily. Another advantage for Austria is the strong collaboration experienced on the areas where European German language is spoken (Germany, Austria, Switzerland), which contributes greatly to the foreign demand of the Austrian food industry's products. (Jankuné & Tikász, 2016)

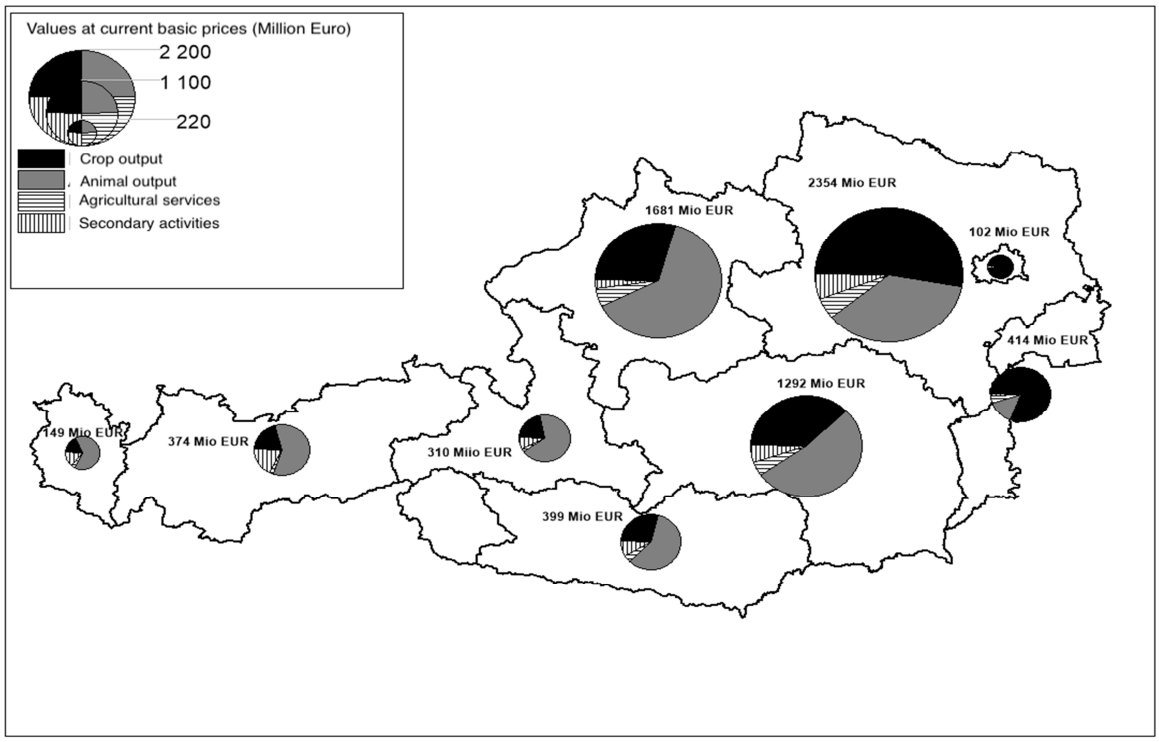
Production and holding structure

In Austria, the growth of area under agricultural cultivation is 2.8 million hectares, that gives nearly 34% of the country's total area. 47% of this area, nearly 1.3 million hectares are used as plough land, 0,16 hectares per capita (FAO, 2012). The production of cereals and industrial plants in Austria is marginal, altogether it is 1 million hectares, occupying 34% of the agricultural field. However, since the millennium, the sown area of the industrial plants increased with more than 30%. The proportion of forest land is high, half of the land, nearly 4 million hectares are taken. Permanent grasslands take a significant role of land-use that gives 17% and 1,4 million hectares of the land. (Jankuné and Tikász, 2016, EC, 2016a).

In Austria, the biggest sector is cattle-keeping, in which milk-producing animals and meat-producing animals are significant. In 2015, both of the two together shared more than 60% from the output of animal products and shared 32% from the gross output of the whole sector (EC, 2016a). The country's agricultural output increased by 26% between 2000 and 2014, within that, the production increased to the greatest extent in the following areas: eggs (+85%), poultry (+72%), and fruits (+71%). Against it, the gross value of sheep and goat production decreased by 16%, while the value of cereals decreased by 5% during the examined period (Jankuné and Tikász, 2016).

It derives from Austria's specific situation that its agriculture can be divided into well-defined landscapes and, to this extent, defined agricultural utilization trends. While the eastern and central parts of the country are characterized by arable crops and wineries, alpine livestock farming is determining in the middle and western parts of the country and in the mountainous areas. Sectoral production ratios well illustrate the country's natural geographic features, as most of the crop production is limited to Austria's two provinces (Burgenland and Lower Austria), while traditional alpine farming can be found in most of the high-lying areas.

Figure 1 Total output of Austrian agricultural sectors by Federal Provinces, 2015



Source: made by Tamás Hardi based on: http://www.agraroekonomik.at/index.php?id=gruenerbericht/Tab_2016_10107_Produktionswert_n_BL

In the whole union, it is a general phenomenon that weight of it in income generation of productive sectors is decreasing. It is especially true for the agriculture. While in 1950, there were 1 million agricultural workers in Austria, since then 2/3 of people living from agriculture abandoned their own profession. In 2013, 2,7 million hectares agricultural land was cultivated by 337 thousand people, 4,8% of the working population (EC, 2016a). The migration and the exchange of profession were especially large-scale in the industrialized Lower and Upper Austria and in Burgenland. The measure of exchange of profession is increasing by the uniquely high proportion of economics with secondary activity (66%) whose peak is in Burgenland (81%). (Probáld et al., 2014).

Land concentration was growing in parallel with the exchange of agricultural population. In 2013, on the cultivated 2,7 million hectares areas 140 430 agricultural (including forestry and fishing) companies were farming. In Austria, 93% of the registered companies are in private ownership however, the structure of holdings is rather fragmented. (Tab. 1) 30% of the farms are smallholdings under 5 hectares. This proportion is only half of the EU's average but within that, the fragmentation is typical for the East-European countries and the structure of holdings are more concentrated in West-European countries. Aggregating the dates, it turns out that 48% of the Austrian farms are smallholdings under 10 hectares but on only 5% of the

used lands are farming. The proportion of the 10-20 hectares holdings are 22%. The 20-100 hectares middle- and large peasant holdings give the 30% of the farms and only 2% of the farms are working on bigger than 100 hectares lands. However, these large holdings are farming on almost the half of the agricultural areas, located on the west side of the country – Styria, Tirol, Salzburg, on more than half of these locations' lands are farming. (Probáld et al., 2014, EC, 2016a). In the last 10 years not only in the number of companies but also in the growth of cultivated lands, there was a 20% reduction. The number of plants reduced in almost every size category, the farms under 10 hectares to the greatest extent, primarily for the 50-100 hectares plants. The number of latter increased by 1000 over 10 years (EC, 2016a). As a result, the average holding size increased to 19.4 hectares that exceeds the EU's average however, the West-European average value is twice more.

Table 1 Structure of agricultural holdings in Austria by utilised agricultural area, 2013

Holdings		Total	%
Utilised agricultural area	< 5 ha	43 070	30.7
	5-10 ha	24 430	17.4
	10-20 ha	30 290	21.6
	20-30 ha	16 680	11.9
	30-50 ha	14 660	10.4
	50-100 ha	8 730	6.2
	> 100 ha	2 570	1.8
Total		140 430	100.0

Source*:* EC 2016a, 13.

The livestock population was 2.4 million in 2013 in Austria. Although the concentration in animal husbandry is recognizable, however, 17 livestock units per plant is only half of the EU's average. The land supply of the livestock farms is balanced, because 69% of the livestock is concentrated on holding farms, which are 10 – 50 hectares (Jankuné and Tikász, 2016).

For supporting the agriculture and the rural development in 2014 1,28 billion euros were spent in Austria from the sources of the Common Agricultural Policy (CARPE/CAP). The structure of CAP sources used by the Austrians in 2014 shows a unique picture that is significantly different from the typical division of the EU's 28 Member countries. In the examined year, 54% of the available sources were expended for direct payments by Austria that is 30% lower than the EU's and 20% lower than the average of new member countries after 2004. The 1,7% proportion of market measures is only 34% of the EU's average, while payments expended for rural development is four times the EU's average and double of the

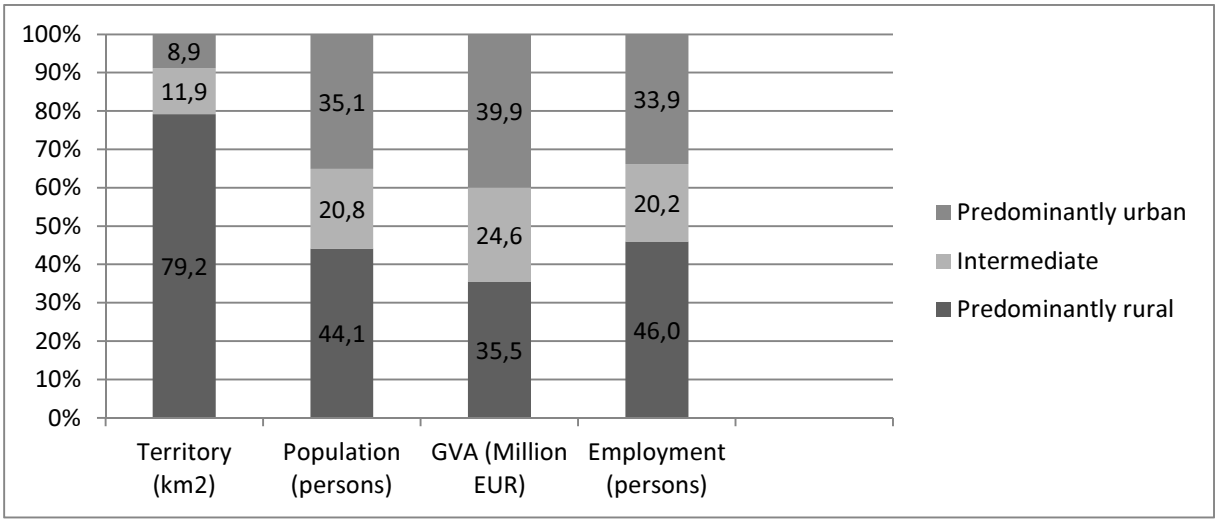
East-European's average (cca. 44%) (EC, 2016a). Almost the same rates will be met if we examine the use of CAP funds for the 2007-2013 budget period. (EC, 2013) At the same time, analysing the internal structure of rural development resources, Austria compared to the EU's average concentrated on the extreme use of these resources to agricultural axis 2 payments (76%). Similar use patterns within the EU are only available for Finland, Ireland and the UK. This, in practice, means that Austria, in fact, used most of the rural development resources (89%) as sectoral aid, as it provided farmers with only a few percent of the rural population and spent only 9% on real rural development payments. (EC, 2013, Jámbor and Mizik, 2014) However, the picture is lightened by reviewing the results of LEADER which is the EU's classical rural development program in Austria. The area covered by the Local Action Groups (LAGs) was 75%, with significantly higher ratios within the EU only in Latvia, Ireland and Sweden could show up (EC, 2013). During the period under review, the LEADER program was implemented in Austria by 8 federal provinces through 86 LAGs through EUR 473 million. These data appear to be contradictory to our findings in the examination of the structure of the use of rural development resources, which is basically explained by the fact that Austria used a unique method of financing the LEADER program. On the one hand, the EAFRD resources received from the EU have doubled from national budget through national co-financing. On the other hand, during the implementation of the program, it was stipulated that only 65% of the operational costs of the LAGs were eligible for EAFRD resources, the above part, for self-financing, for pre-financing and for own projects for settlements in LAGs. (Hutvágnerné, 2012) Thus, Austria achieved its many spectacular rural development successes with the help of significant domestic resources. From these above mentioned data it is recognizable that Austria attaches a significant importance to the rural areas and finds it important to preserve these areas' traditions and values from the aspect of politics, economics and society.

THE RURAL AUSTRIA

Most of Austria's area,[37] 79% is basically rural, that is 20% more than the EU's average. 44% of the population live there, that is double of the community's average. Although the 68% of the population live in cities, only 35% live in the region of the city that lags behind from the European average.

[37] The classification was based on the new methodology introduced by EUROSTAT in 2010, according to which the administrative territorial unit, where less than 20% of the population live in a settlement with a population of more than 5000, and where one km^2 are above 300 people per km^2 (EUROSTAT, 2010).

Figure 2 Importance of rural areas in Austria, 2014



Source: EC (2016)

The countryside's contribution to the economy's performance is very significant, basically, 46% of the employment work in the countryside, and they produce 36% of the gross additional value (EC, 2016a). Basically, Austria is a rural place and it is shown by the population density data with 100 people/km2.

In Austria, the social judgement of agriculture is more favourable than it could be expected by the 1.5% contribution to the GDP. The situation in relation with the social status of the employment in agriculture is also the same (Bene and Bene, 2014). Austrians honour the social benefits of the given activity much more than the economic benefit. This vision can be originated from historical reasons, because in Austria, since the emergence of capitalist relations of agriculture, there were no significant changes in the development of agriculture, so today, families dealing with agricultural production have been continuing their jobs for generations. On the other hand, the estimation after the agricultural activity can be seen in food products' prize. They follow conscious consumer habits, have high level of food culture, purchase high quality products and are willing to pay more for them. It is also due to the extremely high level of lifestyle in Austria: 5th in the EU, whereas 11th in the ratings worldwide. It is not a surprise that according to the database of the Eurostat in 2013, the prize of the standard consumer basket was 38% higher in Austria than the EU's average. Thirdly, since significant part of the country is covered by high mountains, there is no profitable economic activity on these places, so the maintenance of snowy shepherding is the only warranty not to lose its population (Probáld et al., 2014). It was always a key question independently from the government of Austrian politics, which they tried to validate not only in aid policy, but among the population to make them aware of the need of social

responsibility for the agricultural population. This awareness-raising, which focuses on domestic organic products, [38] covers not only the classical educational activity in Austria, but also outside the school an emphasis is put on the dissemination of information related to sustainability. As a result of this, the conscious consumer behaviour's feature is that those products are preferred which can be produced with the least ecological footprint. This means partly that through shopping a person looks for fresh, seasonal products and consumes limited finished and semi-finished products. Besides, a conscious consumer prefers bio and home products. The main cause of this is that consumers trust in these products' quality and on the other hand, they know that in case of a home product[39] (local or at least regional) the environmental pressure from transport is the smallest. In Austria, consumers' conscious consumer behaviour is supported by institutionalized food purchasing frameworks. Hypermarkets are not typical, but instead of them, discount stores and supermarkets are dominating on the market, and after joining, they saw an opportunity in satisfying new consumer needs, so they began selling ecological products creating a stable market for domestic organic farmers[40].

In Austria, mainly foreign owned food retail chains are operating. Despite of this, the presence of Austrian food in supply is very significant. It is even typical that in case of own branded products the Austrian origin is marked separately on the package. The concentration is relevant in the retail sector, the three biggest ones (Rewe, Spar, Lidl) have the most significant sales with more than 70%. Rewe, the German owned business group operates Billa, Penny, ADEG, AGM, and Magnet chain. Spar is a Dutch owned retail chain. The German discount chain, Lidl is expanding strongly in Austria. Moreover, other important characters on the retail market are also MPreis and Wedl & Hofmann (Jankuné and Tikász, 2016).

In the 20th century, the biggest change in the Austrian rural population's lives began when Austria joined the European Union. The reason for this was that Austrian farmers were not aware of the suddenly and drastically reducing prizes in 1995, and they answered this with leaving the agriculture. Although, Austria's peasantry has reduced since 1950 and after joining there was more 5% reduction. However, it has to be mentioned that people staying in

38 According to the IVEKOS database, 552 261 hectares were cultivated by 20 779 organic plants in Austria, in 2015. These areas are 21% of the agricultural utilized areas and it is a very high proportion worldwide. In addition, there is still a very significant increase in the sector compared to the EU, as in 2010 only on 16% of the cultivated area was organic farming. (Grüner Bericht 2016)

39 According to RollAMA's research, consumer demand for organic products has reached 8% in 2015 and 10% in bread and pasta (19%), fresh vegetables (16%) in potatoes (16%) and eggs (18%). (Grüner Bericht 2016)

40 It is important to note that there are various trademarks in the Austrian retail trade that are mostly linked to popular natural foods. For example, the slogan of the Billa (Rewe group), "Ja! Such products have also contributed to Austria's leading role in the organic market in Europe. (Jankuné and Tikász 2016)

this sector could adapt well to the changing market conditions. They strengthened their activity in such sectors, like well-paid sectors, and sectors with needlework, like horticulture, fruit-growing, organic farming (Burgenland), grape-and wine growing that produce foil and greenhouse products. As a result, the profitability of Austrian farms has improved because of the effect of the connection. The explanation of the growing income is dual: on the one hand, the reduction of people living from agriculture contributes to the annual income growth. On the other hand, the support of the Austrian agricultural policy has increased due to the common agricultural policy and to the temporary degressive payments (Törzsök, 1998).

Rural specialities: direct sales, rural tourism

In Austria, selling products directly has a significant role, 31000 full-time jobs depend on this opportunity. 27% of the farmers (36 000 plants) sell their products on their own, so the agricultural income is 34% (2010: 22%). In case of vineyards in Burgenland, the proportion is extremely high, where 57% of the income occurs during selling it. According to product groups, direct sales can be rated by: meat and meat products (27%), milk and milk products (19%), wine (14%), fruit and fruit products (6%), eggs (5%). From the sales channel, selling on the farm (53%), remote sale with the use of parcel service (10%), producer market (8%), food shop sales (6%) and the place of hospitality (5%) has to be mentioned, and obviously the last one shows high potential for the future (Grüner Bericht, 2016).

The demand after the direct sale can be explained with informing consumers and with the growing number of conscious consumers. There is a bigger need for the new form of rural tourism (Urlaub am Bauernhof), which supplied 1690 guest beds with 150 members in 2015 that shows 2.5% growth compared to last year. The brand of "Gutes vom Bauernhof" ("Good from the farm") is related to this new type of touristic supply, with which Austria's best plants are awarded, thus helping the appearance of regional specialties in the producers' shops and markets. This brand guarantees the original place of a product, the documented production process, the high quality, the use of hygienical principles, professional marketing and relating education and training (LKÖ, 2017). The brand of „Gutes vom Bauernhof" allows the safe selection of a producer for the consumer and guarantees the producer's origin. Thereby it contributes to the development and maintenance of the short supply chain[41].

[41] The Short Supply Chain (REL) refers to the length of the sales channel from the producer to the consumer. It can be called a short one, if it contains as few intermediate elements as possible, so it can be classified as a direct sale and the local utilization of the produced goods (eg in the catering industry), but this group also includes the farms or the local producers' markets. The importance of REL for the development of the local economy is remarkable, since it reduces market margins by placing local producers in a competitive position, but it also has a remarkable role in the community..

An important area of the promotion of local products and agricultural products is the program of "Schule am Bauernhof" ("School on the farm")[42] operating in Austria since 1998. Primarily, in this framework, the participant farms are visited by the schoolchildren. This program operates similarly to the forest school and gives opportunity for staying a couple of hours or even for some days. The thematic curriculum organised around the production spectrum of the host farm completes the school, to which the knowledge is also given which is essential as a consumer.

During the program, visitors can have a look at the day-to-day life of the host farm production, get to know the products produced by the host farm, they can examine the production process and can recognize the ecological connections. They will be conscious about the value local products represents, consumers will be humble and urge the future consumers to conscious and sustainable consumption gaining their trust through their genuineness. Since this trust has a bigger role in today's commerce, the process shows measurable growth of production and results in the growth of local products' preferences.

In Austria, with the program of "Schule am Bauernhof", there is a significant tradition of each form of the rural tourism that all help the promotion and introduction of local flavours and products from farmers or mainly from small farms. There is a huge emphasis on local products' shops that provide diverse supply. In these kinds of shops, selected wines, meat-specialities, vegetables, home-made toppings, jam, vinegar, wine, chocolate and a lot else can be purchased (Burgenland Tourismus, 2017).

The diversity of local farmers' supply is conspicuous for the experts' eyes. In Austria, in practice, these opportunities stand for primary producers in case of selling their products: home sales, local product shelves and shops. Shopping is helped by some kind of internet systems, where small farmers' products can be chosen and in some cases they can be purchased. Besides, local markets operate well and have a huge popularity and so has the "Get Yourself" promotion.

SUMMARY

The regular reforms of the EU's Common Agricultural Policy since 1992 require constant adaptation from the Member States' agricultural and, by 2007, rural development aspirations.

[42] The program also works in other European countries, with the same name as Austria, in the name of "Klassenzimmer im Bauernhof" in Germany and in France under the name "Bienvenue a la ferme". As a result of this, the Hungarian adaptation has also started as the "Falusi Porta Tanoda", so today, with 20 Schools in Hungary, this form of environmental education and consumer attitudes is also found.

The effective use of resources thus obtained means the basis for the sustainability and competitiveness of the agricultural sector. Member States must necessarily use CAP resources, in accordance with their own needs, but they do not have much room for movement. The Austrian natural and economic conditions differ greatly from the conditions in Hungary, has far less advantage of agricultural production than our country, yet the performance of agriculture and forestry is outstanding compared to the size of the cultivated area. Thanking to the use of the peculiar structure of resources and the significant involvement of the state. The success is based on agri-environment payments for Axis 2 and LEADER programs, in particular their high domestic co-financing. It can be stated that Austria attaches much greater importance to its rural areas than Hungary. Although the fundamentals of the support system are the same in the EU Member States, there are significant differences in the way resources are used and in their effectiveness. The study seeks to find out the positive examples (rural tourism, organic farming, direct sales) that could be applied in rural development in Hungary, so that the neighbours' grass would not be greener but could be as green as in our country.

REFERENCES

Bene, L., & Bene, Z. (2014). Környező országok mezőgazdasága. *Agro Napló*, 18(5), 90–92.

BNT (Bundesministerium Nachhaltigkeit und Tourismus) (2016). OEPUL Uebersicht [Html]. Retrieved from http://www.bmlfuw.gv.at/land/laendl_entwicklung/le-07-13/agrar-programm/OEPUL-Uebersicht.html

Buckwell, A. (1998). *Towards a Common Agricultural and Rural Policy for Europe.* (Report of an Expert Group) Brussels: European Comission.

Buday-Sántha, A. (2011). *Agrár- és vidékpolitika*. Budapest: Saldo Kiadó.

Burgenland Tourismus GmbH (2017). Burgenland schmeckt – Greisslereien [Html]. Retrieved from http://www.burgenland-schmeckt.at/de/shopping/greisslereien.html

EC (2013). *Rural Development in the EU.* Statistical and Economic Information Report. Brussels: European Comission.

EC (2016a). *Agriculture and Rural Development. Statistical Factsheet – Austria.* Brussels: European Comission [Pdf]. Retrieved from https://ec.europa.eu/agriculture/sites/agriculture/files/statistics/factsheets/pdf/at_en.pdf

EC (2016b). Forestry_statistics [Html]. Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/Forestry_statistics

EC (2016c). Wood products – production and trade [Html]. Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/Wood_products_-_production_ and_trade

EUROSTAT (2010). *Urban-rural typology*. Statistic Explained [Html]. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Urban-rural_typology&oldid=42414

FAO (2012). *Statistical Pocketbook 2012 – World Food and Agriculture*. Rome: Food and Agriculture Organization of the United Nations.

Grüner Bericht (2016). Bundesanstalt für Agrarwirtschaft, Ministerium für ein Lebenswertes Österreich, Wien [Pdf]. Retrieved from http://www.burgenland.at/fileadmin/user_upload/Downloads/Umwelt_und_Agrar/Agrar/Publikationen/Gruener_Bericht/Gruener_Bericht_Final.pdf

Hutvágnerné Kasper, J. (2012). *Ausztria LEADER megvalósítása.* Budapest: Magyar Nemzeti Vidéki Hálózat.

Jámbor, A., & Mizik, T. (Eds.) (2014). *Bevezetés a Közös Agrárpolitikába.* Budapest: Akadémiai Kiadó.

Jankuné Kürthy, G., & Tikász, I. E. (Eds.) (2016). *Az osztrák élelmiszer-gazdaság működésének és sikereinek elemzése*. Budapest: Agrárgazdasági Kutató Intézet.

LKÖ (Landwirtschaftskammer Österreich) (2017). Gutes vom Bauernhof [Html]. Retrieved from http://www.gutesvombauernhof.at/burgenland.html#content_top

Probáld F., Szabó, P., Bernek, Á., Hajdú-Moharos, J., Karácsonyi, D., Szegedi, N., & Varga, G. (2014). *Európa regionális földrajza 2. Társadalmi földrajz*. Budapest: ELTE Eötvös Kiadó.

Törzsök, É. (1998). Az osztrák agrárgazdaság csatlakozási tapasztalatai. In I. Mikus (Ed.), *Az Európai Unió agrárrendszere a gyakorlatban* (pp. 131-148). Budapest: Agrárszakoktatási Intézet.

WKÖ (Wirtschaftskammer Österreich) (2017). Nahrungsmittel und Geträenke – zahlen und fakten [Html]. Retrieved from http://www.advantageaustria.org/international/zentral/business-guide-oesterreich/importieren-aus-oesterreich/branchen/nahrungsmittel-und-getraenke/zahlen-und-fakten.hu.html

Professional paper

INTRODUCTION TO THE THEORETICAL ANALYSIS OF SOCIAL EXCLUSION OF PUBLIC TRANSPORT IN RURAL AREAS

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Abstract

Western societies are facing the same problems worldwide regarding the provision of public transport services in rural, sparsely populated and peripheral areas. One of the main reasons is that due to the increasing number of cars (which can satisfy the mobility needs much better), the number of passengers of public transport services are steadily decreasing (ITF, 2015). However, we do not forget that supplying these areas with public transportation have in fact always been problematic: the dispersed settlement network is a given fact as well as the low population density that never generated high demand (Ambrosino, Nelson & Romanazzo, 2003).

Passengers of public transport in rural areas are not classified by the majority of international literature as voluntary travellers on public transport vehicles, but who belong to those groups which stand in need of travelling by them. Regarding this issue, the major starting-point is the ability to have access to car which can be modified by other factors (financial situation, sex, age, physical condition, type of household, foreign language skills etc.). Those people who have limited or no access to car are thus constrained by the schedule of public transport vehicles and depend on its reliability or even no access to any transport mode belongs to the group of transport deprived.

The purpose of this article is twofold: to introduce those groups who are suffering from the decline of public transport in rural areas and to highlight the necessity of these researches in Central and Eastern Europe.

Keywords: Public transport, Rural areas, Transport related social exclusion, Transport poverty

INTRODUCTION

Transport accessibility is one of the most important issues for the people living in rural areas, since they need to use some means of transport (individual or public) to reach almost all existing activities, which is a cardinal issue, especially in those areas where quality education or health service networks do not exist at all and the number of local jobs are relatively constrained (SEU, 2003).

Passengers of public transport in rural areas are not classified by the majority of international literature as voluntary travellers on public transport vehicles, but who belong to those groups which stand in need of travelling by them. Regarding this issue, the major

starting-point is the ability to access to car which can be modified by other factors (financial situation, sex, age, physical condition, type of household, foreign language skills etc.) (Gašparović, 2016; Stanley & Stanley, 2004; Chapman & Doug 2008; Ferreira, Charles & Tether, 2007). In addition, the factors are overlapping each other. Moreover, the demand side in rural areas is characterized by strong fragmentation, since the main social groups of users (young people, the elderly, the disabled, etc.) have different needs in terms of both time (morning peak, daytime, afternoon) and their purposes (employment, education, shopping, healthcare, etc.). Again, the number of passengers on public transport is steadily declining, which is a problem not only in Central and Eastern Europe, but also in the developed Western European countries, where it was an existing phenomenon in the 70s and 80s (Erdősi, 2000). This decline is caused not only by the growing number of cars but the rural depopulation and the decrease of natural growth, as well (Ambrosino, Nelson & Romanazzo, 2003).

Those social groups which are the most affected by the decline of public transport have been forced into a kind of exclusion status. This form of social exclusion is called transport poverty or transport related social exclusion (e.g. Preston & Rajé, 2007; Stanley & Lucas, 2008; Rankovic Plazinic & Jovic, 2014; Pyrialakou, Gkritza, & Fricker, 2016).

During the compilation of this thesis, I leaned mainly on Western European literatures because there are very few relevant literatures published by Eastern and Central European authors. This shortage was a particularly inhibitive factor for me.

In line with the foregoing, the aim of the article is twofold: on the one hand, to show those groups who are suffering from the decline of public transport in rural areas. And, on the other hand, to highlight the lack of researches on the social aspect of public transport from Central and Eastern Europe.

LITERATURE REVIEW

Definition of social exclusion

The definition of social exclusion has abundant literature (Kenyon et al., 2002; Preston & Rajé, 2007; Stanley & Lucas; 2008; Cass, Shove & Urry, 2003). The most accurate definition is given by the researchers from the LSE (London School of Economics): an individual is considered to be socially excluded if (s)he does not participate in social activities from time to time but at the same time (s)he wants to join them, however something prevents her/him from participating in them (Stanley & Vella-Broderick, 2009; Shergold & Parkhurst, 2012).

Social exclusion can be measured in five different dimensions (Currie & Delabosc, 2010):

1. income of the individual / household

2. exclusion of the individual from the labor market (job seeker or diseases of the unemployed)
3. lack of access to basic services (e.g. electricity, transport, water, gas)
4. lack of social activities, social isolation, willingness to social support, lack of involvement in the civil sector etc.
5. physical inability to leave the apartment

It can be seen that the lack of access to transport (as a basic service) is also mentioned as a major dimension of social exclusion, but its impact is much greater because it has an important role in other dimensions, as well (Kenyon et al., 2002). The lower the status of the individual is, the more dimensions (s)he is involved in, and it is more likely that the access to any basic activities can be delivered not by car but by public transport. In addition, the poor transport supply itself can also create a social-excluded situation, which hits those social groups in an unfortunate way who are affected by more dimensions of social exclusion (CTA, 2003). Hereinafter, social exclusion is presented from the point of view of transport.

Definition and appearance of transport exclusion

The transport-related researches – carried out mainly by engineers and transport economists – - neglected the social aspect until the beginning of 2010. At the same time – as part of social exclusion – traffic-based exclusion at the public policy level has been dealt with since the late 1990s (first in the United Kingdom to government order) (Fransen et al., 2015).

Since then most of the researches in this issue are listed by scientists of the UK but it is also significant in Australia and in the Scandinavian countries, however, it has not yet been in the focus of research in the US (Jeekel, 2014). Unfortunately, in Central and Eastern Europe, apart from a few exceptions, a relevant literature is not available (as mentioned before).

Transport related exclusion can be briefly identified by positing that the person does not have the suitable access to any means of transport to reach the place where important social activities are taking place in which (s)he would participate in (Meert, 2003). In other words, the person is unable to travel wherever and whenever others can get through without difficulty (Pyrialakou et al., 2016).

There are six categories of exclusion connected to transport by Church, Frost, and Sullivan (2000)

1. physical exclusion (where physical barriers inhibit the accessibility of services which could be experienced by mothers with children, elderly or frail etc.)

2. geographical exclusion (where poor transport provision and resulting inaccessibility can create exclusion)
3. exclusion from facilities (the distance of facilities – e.g. shopping, health, leisure, education – from people's homes, especially from those with no car, make access difficult)
4. economic exclusion (the high costs of travel can prevent or limit access to facilities or jobs and thus income)
5. time-based exclusion (where other demands on time such as caring restrict the time available for travel)
6. fear-based exclusion (where worry, fear and even terror influence how public spaces and public transport are used, particularly by women, children and the elderly)

However, it is not easy to define and quantify who is suffering from transport exclusion, as relevant data can only be reached for area units, although this phenomenon can be found at individual and household levels, as well. Moreover, what "good access" means is not easy to determine, because it can have a different meaning in each social group as well as by individuals: reaching the educational sites is more important for students than older people; in contrary, the access to care institutions is much more important for the older generations (Fransen et al., 2015).

The factors of potential access to car

One of the crucial bases of transport exclusion is the possibility of access to car concerning the individual. There are two theoretical forms of car dependency (structural and comfort) which are closely related to the local level of public transport:

- Comfort addicts are those individuals who have other accesses but for some reasons (e.g. comfort or freedom) they prefer to choose car.
- Structurally dependent individuals use their own cars because there is no other means of transport (e.g. bus or train) to reach their destinations; or if it does exist, does not provide a realistic alternative to car.

A specific group of structurally dependent individuals is the "constraint car owners", who are mainly the residents of low-status households in rural areas with no adequate public transport. These households would not otherwise maintain a car but they have to – due to

public transport being unusable – and this is a tremendous financial burden for them (Pyrialakou et al., 2016).

In rural areas, it is even more important to maintain an own car (or access to it), because without a car it is difficult or impossible to reach (Gašparović, 2016; Kenyon et al., 2002)

- shopping centres in the suburban areas of cities without bus connections or if it exists, the connection is between the shopping centre and the city centre only.
- the non-priority healthcare centers or workplaces located not on the main public transport routes;
- workplaces where working time is not between 8 to 18, but starts or ends much earlier or later (e.g. workplaces with two or three-shift schedules), therefore, the employees (inward/outward or both cases) are not sure to use public transport vehicles, and privately organized bus services (running at the end and start of the shifts) do not operate either;
- workplaces where weekend work is also taking place; and whose locations are also far from the major public transport routes;
- each such service which ends after 8-10 pm. in the city or is performed in the weekends (in which cases the inward route can also be problematic).

Based on the above, it can be concluded that the absence of access to car causes both spatial and time (dimensional) barriers for the individual to achieve the desired activities. Moreover, in many cases, it is realized only in one direction (inward or outward) making it even more difficult to organize the journey. So, the availability (as well as directions and frequencies) of public transport vehicles are cardinal (out of necessity) in the everyday life of those people who suffer from the lack of access to car. Thus, these people must adapt their lives almost completely to the schedule of public transport services which is a crucial cornerstone for them, so it can be declared that their free movements are limited and impaired in a sense. Undoubtedly, residents of those settlements are in the most disadvantaged situation where no public transport services are available at all.

It is important to note that as long as jobs and educational institutions are visited regularly (daily or at least five times a week on business days / school days); the demand for access to other services is required much less and rather irregularly. There are, of course, several exceptions regarding the mode of the required services which can be forced (e.g. someone must visit the hospital for treatment on a given day, every week) or optional (e.g. shopping or visiting friends one week on Tuesdays or another week on Thursdays, too). In the latter case,

it should be taken into account that the realization of optional activities is determined by the timetables of public transport services, so from one aspect, they are actually "forced" to happen (e.g. there are buses only on Tuesdays or suitable possibilities of further connections with which the relatives can be visited and the outward route back to home is possible, as well).

Relativity of public transport demand

The public transport demand itself is quite relative as it depends on the accessibility of the given settlement and its social structure. In those settlements which can be easily reached by any kind of public transport modes, life can be relatively convenient without having a car. However, the residents of settlements supplied with less public transport ("less public transport equipped" settlements) are heavily reliant on the use of cars, which may be due to the fact that the needed services are not located in one central settlement but can be found scattered in the surrounding areas (in the surrounding bigger settlements/cities) and the accessibility of those cities is not always managed equally by public transport services (Litman, 2003). In these communities, people without cars are more vulnerable to the possibility of transport exclusion and therefore to a wider exclusion, too. It is also worth mentioning that the phenomenon of transport exclusion cannot be necessarily perceived in settlements having a good level of services but having insufficient public transport possibilities (Pyrialakou et al., 2016).

It is not easy to determine who are considered as disadvantaged in a settlement, since the transport needs of different social groups differ regarding space and time.

As an example, it is possible that public transport services give appropriate access for pupils to reach school regarding both time (morning and after school-time) and space (inward to school and outward to home), and, at the same time, it is also convenient for the elderly regarding space, but not necessarily in time. Thus, those elderly people who want to get to a settlement which provides social and health care (e.g. outpatient clinic) for them are supplied with typically mid-day inward and mid-afternoon outward journeys. If there is no suitable means of public transport access for the elderly regarding both time and space – e.g. to the outpatient clinic located in the city – the elderly residents of the given settlement will be affected by transport exclusion regardless of the situation of the given settlement in the public transport network. This is the case since an important service for their livelihoods can only be taken with more financial expenditure (e.g. they have to use a taxi) and much longer time to get there (e.g. they have to change between the transport services even several times). Thus,

transport exclusion can also be applied to people or groups who are unable or do not want to access public transport services because they run to inappropriate destinations and/or at not suitable times (Gašparović, 2016).

Based on the above, it can be detected that different groups of society are affected by the risk of transport exclusion to different extents depending on the public transport location of the given settlement and the possible access to the surrounding major centers (Kenyon et al., 2002).

CLASSIFICATION OF SOCIAL GROUPS AFFECTED BY SOCIAL EXCLUSION IN PUBLIC TRANSPORT

It is essential to present the social groups in detail who are concerned in transport exclusion. These groups can be classified in lots of ways, I will use three such classifications: A) age, B) sex, C) income status.[43]

A) age

1. Small children (0-4) and their guardians

The kindergarten and child care facilities are the most important among their destinations, and obviously, small children are always travelling with adult supervision. It is a problem – especially for the adults – to take their carriages onto the bus/train so they are – besides the people living with disabilities – the ones who particularly urge that low-floor buses should be introduced (Stanley & Stanley, 2004).

2. Youths between 5 and 16 years of age

Their destinations include school and post-school activities (e.g. sports clubs, swimming pools, etc.). Most of the public transport services are made up for them and not just during the school term, but school holidays, as well, especially during daytime periods. It is a problem for them that there are no public transport services (which are suitable for them regarding time and space) to the location of post-school activities. In addition, they expect the last buses to depart later from the cities and would like more dense public transport provision on Saturdays (Stanley & Stanley, 2004).

[43] The public transport demands of people with disabilities are not discussed in this paper as their cases are quite specific and complex.

When the parents choose an appropriate high school for their children, it is also necessary to consider how the children get there if the household does not have such a car which they can regularly be carried with. The farther the young person lives from the school, the longer (s)he needs to spend on public transport vehicles, so learning and refreshing themselves (regeneration) takes less time. Youths between 14 and 16 are more likely to use the public transport services from constraint, because they do not yet have the driving license and they have no earnings either. Furthermore, it is important to mention that households (with young people and) with cars can travel anywhere on weekends but for households without a car this is less possible due to the deficient public transport provision on weekends (Gašparović, 2016).

3. Young adults (up 16 years of age)

Older teenagers and young, already working adults belong to this sub-group. They might have a driving license considering their age, but they do not have their own cars for financial reasons, or if the household even has one, it is used by the head of family for daily commuting. Their destinations can be either secondary and higher education institutions, unemployment centers or low-paid workplaces. The recreational trips among them are just as important as for the elderlies. If they can no longer benefit from travel allowances (because of their age), they will have to pay much more money for the travel (Cartmel & Furlong, 2000).

4. Elderlies

The proportion of elderlies in our society is steadily increasing worldwide, so their expectations are more and more important regarding public transport. Their mobility needs to differ from those of the groups discussed above in many segments (e.g. they specifically require non-conventional public transport provision, the long walking to the bus station is uncomfortable for them etc.). Their relationship to cars changes by continents. Among other things, this means that older people in the heavily vehicularized cultures (USA, AUS) use their cars until their health permits (Nutley, 1996; 2003).

For the elderlies, access to shopping, social-health and recreational facilities is primary, so the proportion of early morning / late-night and weekend trips (except for Sunday family visits and religious trips) is low among them, therefore the existence of these accesses are not as important as for the youth. What can pose problems to them in particular include the low proportion of low-floor buses, the long waiting time for buses in uncovered stops, the absence

of a direct public transport provision to local hospital, clinic, bigger pharmacy, post office, doctor (Stanley & Stanley, 2004).

There is a special group of wealthy elderly people with cars who moved to rural areas for their retired years. But due to illness, invalidism or death of the partner with driving license they are no longer able to use up the benefit of the car, thus, they increase the number of people living in transport exclusion. According to Tolley & Tourton (1995), their numbers are not negligible, in the UK it is 1/3 of the rural population.

B) Sex

Women

Women's travel needs are much more complex compared to men's, as their activities related to household and child care induce far more travel (Noack, 2011), however, these travels are much shorter than the commuting journey to work of the family head (SEU, 2003). In the case of the women, the most important aspect is the number of cars in the household: if there are two, then they are in a more advantageous position because they can use the car without problems; but if the family has only one, then it is most likely to be used by the family head for daily commuting purpose. Thus, regarding transportation, the situation of women in one-car families are not far better (than where is no car at all) so they might be affected by transport exclusion, too (Rankovic Plazinic & Jovic, 2014).

Housewives using public transport services have to face further problems: most of the activities (e.g. shopping etc.) take place in peak hours when the public transport provision is infrequent (those women taking care of elderlies or cleaning up in daytime or in late evenings / early mornings face similar problems).

Researches have shown that in many Western European countries (e.g. in the UK) it is essential for women to have their own cars and with them they are able to carry out their tasks regarding work, household activities, child care in the same time etc. In addition, women have a lower share of owning a driving license than men (this gap is being decreased towards the developed countries), but women are more likely to be public transport oriented. For this reason, women in rural areas have lower chances to find well-paid jobs (Gašparović, 2016). One of the solutions to these problems can be the implementation of their tasks in a flexible way. It means the support of part-time work from the employers and demand responsive

transport provision from the side of public transport service providers (Granson, 2011; Siren, 2006).

A special group is formed by immigrant women who have relatively little information on their problems and even less scientific researches. For cultural reasons or because of the fear of all kinds of oral or physical atrocity, they already use the public transport services only in the most necessary cases. Moreover, it can be difficult to be understood (e.g. by the bus driver) because of the lack (or low knowledge) of local language (Social exclusion and the provision of public transport - Main report).

C) Financial situation

1. Unemployed and jobseekers without a car

One of the most heterogeneous groups, their situation resembles the status of young adult jobseekers in many cases, however, these people – because of their age – are less able to seek help from their parents. The hardest problem for them is the failure to reach the potential workplaces with public transport services, and this negative effect can be further increased by the tight schedule supply and its relatively high cost. Again, the lack of early morning and late evening buses, as these people (due to their low level of qualifications) mainly apply for 2 or 3 shift jobs. In traditional industrial areas this problem is even more complicated: these cities used to offer plenty of workplaces to the residents, there were traditions of local employment, but they no longer provide job opportunities as a result of the economic collapse of these areas (both in Western and Eastern Europe) (Cartmel & Furlong, 2000).

According to a survey from 1999, the job seekers in the UK did not get the job because 52% of them could not get to work individually and 23% of them had no public transport provision to their future workplaces (Social exclusion and the provision of public transport - Main report).

In most cases there are no public transport provision on weekends – especially on Sundays – and generally for shifts starting early morning, so these young people involved have to solve this problem (e.g. call a taxi etc.) which is not economically viable in the long term. For this reason, many employers prefer candidates who are able to solve to reach the workplace individually – this is also a rather tangible example of transport exclusion (Cartmel & Furlong, 2000).

Overall, it can be concluded that ensuring adequate public transport in time and space provides completely new opportunities for job seekers, which is a very important aspect in areas where the unemployment rate is high.

2. Low-status families without a car

Similarly, it is a problem for them to get to the workplace in time, but in their case, it is not just theory, but have to be done in practice. And in these cases, the public transport vehicles have to be on time and exist in early mornings and late evenings, as well. Furthermore, the recreational programs can only be reached by public transport vehicles, which, in many cases, can be very exhausting and circuitous on weekends. Inauguration of demand responsive transport systems can fix this problem.

However, a struggling situation can occur not only on weekends and daytime, but if the employee travels by such a bus – even in one direction – which runs only in school-time, (s)he has to find another solution to reach his/her workplace in school vacation. As a result, in most cases, the employees with mobility difficulties have to ask e.g. one of their family members or friends to drive them to work or ask anybody to lend them a car. In addition, in rural areas not only the employment, but other training opportunities are constrained for the residents if there is no public transport provision to the location of the training (Social exclusion and the provision of public transport - Main report).

Both above-mentioned groups may ask a lift from anyone (e.g. friends) who has a car, but this may lead to dependence on others, which is more of an inconvenience for many than an advantage, so if it is possible, this form of transport will be ignored (Gašparović, 2016).

Transport exclusion in a wider context

Rankovic Plazinic and Jovic (2014) examines the exclusion from a wider context (from economic, socio-cultural and transportation aspects) in rural areas, and find as a result of their research that there is a vicious circle among the transport, economic and socio-cultural exclusions whose basis is the lack of a car. This situation results in an immediate transport exclusion and due to it, it is much harder to find a (well-paid) job, because these workplaces are found mainly in larger settlements. If the application of a job-seeker for a well-paid job does not lead to results, s(he) will have to accept a less paid local job or in a worse scenario the unemployment benefit. Therefore, the economic position of an individual is getting worse and worse so s(he) becomes economically excluded, too (Rankovic Plazinic & Jovic, 2014). The effect of different aspects on each other is illustrated by the following table:

Table 1 The impact of different aspects of social exclusion

The origin of exclusion	The effect of other exclusion	The individual…
Economic	to cultural	has low salary, so (s)he does not allow to participate in social and cultural activities
Economic	to transportation	has no money to buy and maintain a car, so (s)he depends on the public transport provision
Transportation	to economic	has no car (and there is no appropriate public transport provision for him/her), so (s)he has got less chance to find a (well-paid) job
Transportation	to cultural	has no car (and there is no appropriate public transport provision for him/her), so (s)he cannot maintain his/her cultural life (e.g. going to cinema) and social relations located in further cities
Cultural	to economic	visits no more social events, so his/her relationships with distant acquaintances are getting lost, and even some of his/her abilities are also forgotten, so (s)he has even less chance to find a (well-paid) job.
Cultural	to transportation	lost touch with some of his/her relations, distant acquaintances and friends, which has an impact on his/her local social connections, so reluctantly asks for any help (e.g. a lift) to get anywhere.

Source: Author's elaboration based on Rankovic Plazinic & Jovic (2014)

CONCLUSION

Transport related exclusion can be briefly identified by positing that the person does not have the suitable access to any means of transport to reach the place where important social activities are taking place in which (s)he would participate in. One of the crucial bases of transport exclusion is the possibility of access to car concerning the individual, which can be structural or comfort. A specific group of structurally dependent individuals is the "constraint car owners", who are mainly the residents of low-status households in rural areas with no adequate public transport. These households would not otherwise maintain a car, but they have to – due to public transport being unusable – and this is a tremendous financial burden for them. Those social groups are concerned in transport exclusion who have reduced mobilities because of various reasons. These groups can be classified in lots of ways (e.g. age, sex, income status).

For the elderlies, access to shopping, social-health and recreational facilities is of primary relevance, so the proportion of early morning / late-night and weekend trips (except for

Sunday family visits and religious trips) is low among them, therefore, the existence of these accesses is not as important as for the youth.

Regarding the women, their travel needs are much more complex compared to men‘s, as their activities related to household and child care induce far more travel, however, these travels are much shorter than the commuting journey to work of the family head. In the case of the women, the most important aspect is the number of cars in the household: if there are two, then they are in a more advantageous position, because they can use the car without problems; but if the family has only one, then it is most likely to be used by the family head for daily commuting purpose. Thus, regarding transportation, the situation of women in one-car families are not far better (than where is no car at all), so they might be affected by transport exclusion, too.

REFERENCES

Ambrosino, G., Nelson, J. D., & Romanazzo, M. (2003). *Demand Responsive Transport Services: Towards the Flexible Mobility Agency.* Italian National Agency for New Technologies, Energy and the Environment.

Cartmel, F., & Furlong, A. (2000). *Youth unemployment in rural areas.* Joseph Rowntree Foundation.

Cass, N., Shove, E., & Urry, J. (2003). *Changing Infrastructures. Measuring Socio-Spatial Inclusion/Exclusion, report for DfT*. Lancaster: Lancaster University, Department of Sociology.

Chapman, S., & Doug W. (2008). *Accessibility planning methods.* NZ Transport Agency Research Report 363. Wellington: NZ Transport Agency.

Church, A., Frost, M., & Sullivan, K. (2000). Transport and social exclusion in London. *Transport Policy*, 7(3), 195–205.

Community Transport Association (CTA) (2003). *A guide to Demand Responsive Transport for rural Community Transport operators.* The CTA Rural Good Practice Guide series, No 7. DRT.

Currie, G., & Delabosc, A. (2010). Modelling the social and psychological impacts of transport disadvantage. *Transportation*, 37(6), 953–966.

Erdősi, F. (2000). *A kommunikáció (közlekedés-távközlés) szerepe a terület- és településfejlődésben*. Budapest: VÁTI Kht.

Farrington, J., Gray, D., Martin, S., & Roberts, D. (1998). *Car Dependence in rural Scotland: Challenges and Polices*. Edinburgh: Central Research Unit HMSO, Scottish Office.

Ferreira, L., Charles, P., & Tether, C. (2007). Evaluating Flexible Transport Solutions. *Transportation Planning and Technology*, 30 (2-3), 249–269.

Fransen, K., Neutens, T., Farber, S., De Maeyer, P., Deruyter, G., & Witlox, F. (2015). Identifying public transport gaps using time-dependent accessibility levels. *Journal of Transport Geography*, 48, 176–187.

Gašparović, S. (2016). Theoretical Postulates of Transport Disadvantage. *Hrvatski Geografski Glasnik,* 78(1), 73−95.

International Transport Forum (2015). International Experiences on Public Transport Provision in Rural Areas [Pdf]. Retrieved from https://www.itf-oecd.org/sites/default/files/docs/15cspa_ruralareas.pdf

Jeekel, H. (2014). Social exclusion, vulnerable groups and driving forces: towards a social research based policy on car mobility. *Soc. Exclusion Ctries. Adv. Transp. Syst.*, 2(2), 96–106.

Kenyon, K., Lyons, G., & Rafferty, J. (2002). Transport and social exclusion: investigating the possibility of promoting social exclusion through virtual mobility. *Journal of Transport Geography,* 10, 207–219.

Meert, H., Bourgeois, M., Van Hoof, K., & Asperges, T. (2003). *Immobiel op het platteland. Omtrent rurale vervoersarmoede in Vlaanderen.* Brussel: Koning Boudewijnstichting.

Noack, E. (2011). Are rural women mobility deprived? case study from Scotland. *Sociologia Ruralis*, 51(1), 79–97.

Nutley, S. D. (1996). Rural transport problems and non-car populations in the USA. *Journal of Transport Geography*, 4, 93–106.

Nutley, S. D. (2003). Indicators of transport and accessibility problems in rural Australia. *Journal of Transport Geography*, 11, 55–71.

Preston, J., & Rajé, F. (2007). Accessibility, mobility and transport-related social exclusion. *Journal of Transport Geography*, 15, 151–160.

Pyrialakou, V. D., Gkritza, K., & Fricker, J. D. (2016). Accessibility, mobility, and realized travel behavior: Assessing transport disadvantage from a policy perspective. *Journal of Transport Geography*, 51, 252–269.

Rankovic Plazinic, B., & Jovic, J. (2014). Women and transportation demands in rural Serbia. *Journal of Rural Studies*, 36, 207–218.

Shergold, I., & Parkhurst, G. (2012). Transport-related social exclusion amongst older people in rural Southwest England and Wales. *Journal of Rural Studies*, 28, 412–421.

Social exclusion and the provision of public transport - Main report. Department of Transport. University of North London [pdf]. Retrieved from http://test.ricerchetrasporti.it/wp-content/uploads/downloads/file_459.pdf.

Social Exclusion Unit (SEU) (2003). *Making the Connections: Final Report on Transport and Social Exclusion.* London: HMSO, Office of the Deputy Prime Minister.

Stanley, J., & Lucas, K. (2008). Social exclusion: What can public transport offer? *Transportation Economics,* 22, 36–40.

Stanley, J., & Stanley, J. (2004). *Improving Public Transport to meet Community Needs: A Warrnambool Case-study*. Melbourne: Bus Association Victoria and Warrnambool Bus Lines.

Stanley, J., & Vella-Broderick, D. (2009). The usefulness of social exclusion to inform social policy in transport. *Transport Policy Special Issue International Perspectives on Transport and Social Exclusion,* 16, 90-96.

Tolley, R. S., & Turton B. J. (1995). *Transport Systems, Policy and Planning: A Geographical Approach.* Harlow: Pearson Education Limited.