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Hungarian industry in a context of settlement network and pattern

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Abstract

The economic sectors have always played an important part in shaping the actual settlement pattern and network. Agriculture used to dominate for centuries, whereas industry came to the fore during the past two hundred years and its immanent changes have formed the settlement network. The present paper is aimed to describe the post-1989 impact of the transformation of the industry and its branches upon the settlement pattern and prospects are outlined for the forthcoming decades. It has become evident that in the post-industrial phase the impact of the sector upon the settlement network is less spectacular and rather indirect. The industrial enterprises have kept on concentrating in urban settlements of the 20–50 thousand and over 100 thousand population size categories. The distribution of various branches of industry according to settlement pattern shows considerable differences. In the future a further diminishment of the weight of the industry within the economy is anticipated and it is going to shape the settlement network to an even lesser extent.

Keywords: industry, settlement network and pattern, Hungary

Introduction

The present settlement network of Hungary is a result of long historical development. Various factors (natural, social, economic etc.) have played different part in its emergence. In the beginning the natural conditions were deterministic in the formation and pattern. Later, at a higher stage of development other factors had gained growing relevance.

Over long centuries agriculture dominated, then during the past two centuries industry came to the fore and has been the key force in the formation of the network of settlements. The impacts of industry on the settlement network also depend on the changes taking place in it. The main purpose of

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this study[2] is to demonstrate the effects of changes taken place in industry after 1989 on the network, the size of settlements and their functions. Will the industry keep being formative in the post-industrial phase or other factors are going to be decisive? Among others these are the questions to be answered in the present essay based on the elaboration of secondary sources which might contribute to the understanding of the interrelationship between industry and settlement network and pattern.

The linkage between industry and settlement network is presented below using databases of statistical publications and firm catalogues. Along with the experience with special literature it was the distribution of industrial enterprises (1999 and 2009) and that of industrial employees (1990 and 2001) by statistical microregions (LAU 1, formerly NUTS 4 by the EU standards) that provided further information. No doubt data by individual settlement and more recent figures would be more adequate. However, data by settlement is available only about the enterprises without subdivision by profile. A conclusion can be made that the more enterprises operate in the settlement in concern, the higher the probable number of the industrial ones. On the other hand only the 2001 census data is available and will be that for a couple of years to come. Another hindrance when comparing the data between microregions is posed by slight modifications of administrative divisions in the meantime. Further information was provided by industrial parks (there were 210 estates declared as industrial parks by 2010) and by a survey conducted among them in 2006. Moreover, industrial enterprises with more than ten employees (7,300 firms) as to late 2008 and sectoral distribution by settlement were examined to reveal structural specificities of the industrial branches.

Naturally it should be taken into account that international effects i.e. processes of world economics and politics exert their impact upon the domestic economics including the industrial sector thus modifying settlement network. With the advancement of globalization this influence tends to strengthen partly because Hungarian industry is going to be increasingly dependent.

First of all some concepts are to be defined. Primarily it is settlement network which denotes settlements of a given area taken together, in our case those of Hungary (Kovács, Z. 2001). It is akin with settlement pattern which is the sum total of the settlements taken by size. Thirdly, industry is the secondary sector of the economy and incorporates mining, manufacturing and energy, gas, steam and water supply. Of them manufacturing is the most important one either by the number of the employed or by the share of export and of production value within the sector as a whole. It should be also accentuated that nowadays settlement network is still affected by several factors and industry is

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only one of them. Furthermore those changes will be basically mentioned that have occurred in the organization, structure, ownership, spatial pattern etc. of industry and have influenced directly or indirectly the settlement network or might have an effect upon it.

Apart from the introduction this study has two main parts. First the linkage between industry and settlement network is traced in the times prior to 1989, as the knowledge about the past is indispensable for the interpretation of current processes. Then some aspects of changes following 1989 will be outlined in detail. Finally, a summary follows with an outline of future prospects.

Characteristic features of the industry- settlement relations prior to 1989

The relationships between the economy (including industry) and settlement network in Hungary and their historical development have already been studied by several experts (Barta, Gy. and Enyedi, Gy. 1981; Becsei, J. 2000; Beluszky, P. 1999; Beluszky, P. and Sikos, T.T. 2007; Dövényi, Z. 2003; Szigeti, E. 2002), even though in different depth. This is why this study is to focus on the most important phases relevant from the viewpoints of the current and future processes. It is because the inherited settlement pattern has left its imprint on the actual structure and its impact is here to stay for the future decades as well.

For centuries industry had not played a particular role in shaping the network of Hungarian settlement. In the preindustrial phase it was the farming that determined the settlement pattern with dwarf villages as its basic component. The first clusters of settlements with 100 to 200 inhabitants came into being between the 11th and 13th centuries (Szigeti, E. 2002). Preconditions for the emergence of urban settlements were created by the early 13th century due to non-agricultural activities, primarily craftsmanship and commerce (Beluszky, P. 1999). Urban development flourished in the 14th–15th centuries generated by industrialization in the free royal towns from the mid-14th century. In contrast, urbanization on the Great Hungarian Plain (Alföld) accelerated with an almost century's delay and could be explained by the growing importance of cattle breeding (Becsei, J. 2000). Although the strengthened position of craftsmanship and cottage-industry had promoted urbanization, it had not induced either spectacular development or foundation of new settlements. So industry did not play significant role in this phase but its influence was growing steadily.

A relevant turn only followed from the second half of the 19th century: since then industry has become a more and more influential element of shaping and developing settlements. Big industry gave an especially strong impetus to economic life of larger, populous settlements. In 1880 barely more

than one fifth (21%) of industrial employees was occupied in large factories, but their ratio had risen to 40% by 1900 and kept on growing in the early 20th century (Berend, T.I. and Szuhay, M. 1973). Industry had contributed to the acceleration of urbanization considerably and mainly resulted in improving living standards and provision of infrastructure. It had enriched the functions of the settlements, changed the local social structure and outward appearance of towns and cities. New urban settlements had appeared at a modest rate (1900: 42; 1914: 45). Concomitantly there had been a persistent decrease of settlements due to the accession of villages to urban settlements, from 13,170 in 1870 down to 12,557 by 1910 (Beluszky, P. 1999).

Rural development in the second half of the 19th century was also the consequence of industrialization. Along with the craftsmanship (still a major employer where 85% of the workers in the villages were occupied back to 1900) big industry had started to expand (Barta, Gy. and Enyedi, Gy. 1981). The industrialization of villages mainly occurred in the vicinity of extractive industries in the stripe of middle mountains (industrial axis of the country). Several new mines and quarries were opened and in some places (e.g. Felsőgalla, Karancsalja, Komló, Mecsekszabolcs, Pilisszentiván, Zagyvapálfalva) mining had become the leading branch employing with more than 50% of the earners in 1910 (Edvi, I.A. and Halász, A. eds. 1920).

In the early 20th century the number of industrial employees did not reach one hundred in most of the settlements whereas their share among active earners reached 30% only in few villages (e.g. Abaújszántó, Bajót, Hollóháza, Mezőcsát, Nyergesújfalu, Piszke, Putnok). Nevertheless a close relationship between the settlement size and degree of industrialization could be recognized even at that time. The number of industrial employees as a rule showed a fairly direct correlation with the number of inhabitants. This is also supported with the fact that in the settlements with no industrial employees (e.g. Kámaháza, Keménygadány, Kispöre, Kosárháza, Ladomány, Simaháza, Szőgye, Zalaszombatfa) in most cases population did not reach 200 in 1910. Although, it is also possible that industry did not develop because of the few inhabitants.

There was a profound difference between rural craftsmanship and big industry in their function and spatial distribution. The former was purposed for the satisfaction of the local needs so it had a much more uniform pattern. The expansion of the large industrial estates had also transformed the structure of rural industry but spatially they kept on being confined to the industrial axis. The spatial concentration of rural industry is also indicated by the fact that the 76 thousand rural miners and industrial employees worked only in 226 settlements in 1930 (Barta, Gy. and Enyedi, Gy. 1981). As a whole the industrial sector imposed a highly concentrated spatial effect in the late 19th and early 20th century. The major locations of the industry could be found in

Budapest and its agglomeration and in north, northwest Hungary (Edvi, I.A. and Halász, A. eds. 1920).

As a consequence of the state border changes following First World War the number of settlements dropped and roughly their one-fourth remained within the current state territory (Beluszky, P. 1999). Thus quite many smaller settlements known about their raw material or energy sources, became the territory of a neighbour state. Also towns and cities as important centres of manufacturing (e.g. Pozsony/Bratislava, Zágráb/Zagreb, Temesvár/Timişoara, Arad, Nagyvárad/Oradea, Kolozsvár/Cluj-Napoca) shared the same fate. These towns with 10–18 thousand industrial employees in 1910 mainly belonged to the 50–100 thousand settlement size category and formed the majority of medium-sized cities (*Figure 1*).

Between the world wars industrial development slowed down and its impact on settlement network decreased. At the same time no substantial shift occurred in regard to the previous spatial distribution of industrial concentrations.

The second huge wave of industrialization took place during the decades of socialism, in the beginning in a concentrated spatial pattern and later in a more diffused manner. Starting with the 1950s the emphasis was primarily put on the branches of heavy industry (mining, iron- and steel industries, energetics) spatially confined to major mineral deposits and energy sources within the middle mountain zone and led to the emergence of several so called socialist towns (e.g. Ajka, Kazincbarcika, Komló, Oroszlány, Várpalota). Partly this is why the number of urban settlements had grown from 50 to 63 until 1960, and the ratio of urban population had also increased from 36% to 39%. The overwhelming majority of the new towns had less than 20 thousand inhabitants which is far less than nowadays. Consequently, after granting the urban status their population number had grown rapidly mainly due to in-migration induced by the attraction of local manufacturing and/or extracting industry. In some places, predominantly along the industrial axis, industry appeared as a new function. However, beyond the industrial district stretching northeast–south-west, i.e. in the Great Hungarian Plain and South Transdanubia the rural regions were chiefly dominated by farming activities and only slightly affected by industrialization and urbanization.

Industrialization of rural spaces that started with the 1970s and expanded over the major part of the country had already affected much more settlements. On the one hand it has played a positive role with strengthening the sector in urban settlements of the countryside and accelerated the urbanization process over the country. As a result the number of settlements with urban status had grown from 63 up to 96 between 1960 and 1980 stemming partly from a deliberate development of the network of small and medium towns. On the other hand, industry settled in a growing number of villages

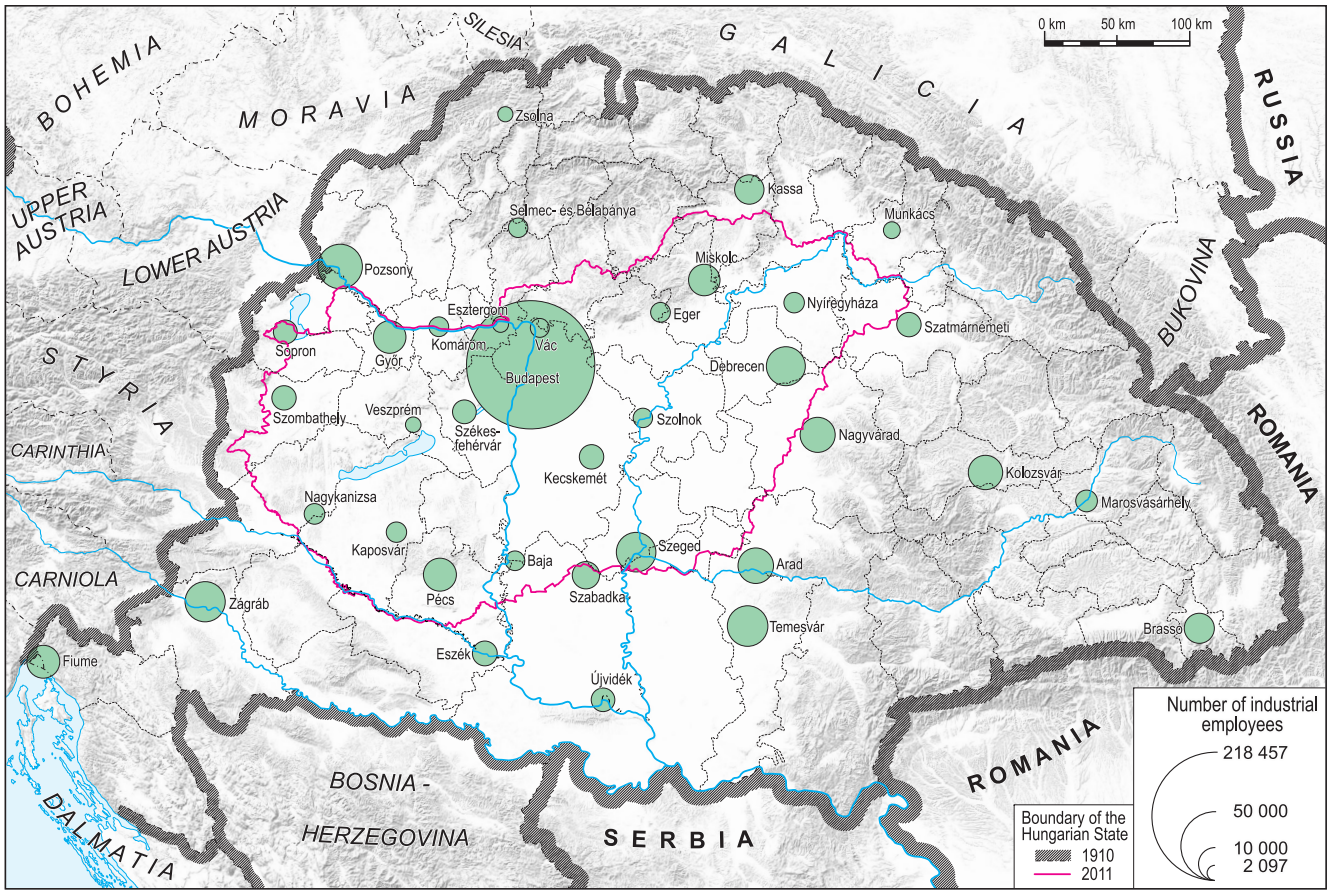

Fig. 1. Number of industrial employees in some settlements, 1910 Source:Hungarian Statistical Review. (48) 1910

and made them "multi-functional". But the real impact of industrialization on the villages depended on the weight of industry within the settlement and the time of its emergence (Beluszky, P. and Sikos, T.T. 1982). Accordingly, rural transformation was typical of the villages where significant big industry settled as early as the late 19th and early 20th century.

During the socialist era industry appeared in many places as a subsidiary of a company with its headquarters in a large town or an ancillary of an agricultural cooperative in the form of e.g. dressmaker's workshop or a unit to manufacture fittings. Important companies operated only in few villages. Thus the impact of industrial firms with different size and profile on the life and economy of villages was very diverse. Industrial sites pursuing mostly primitive labour intensive activities caused deep changes only rarely, still they provided work and income for the manpower released by farming. This dichotomy had been surfaced by typifying rural settlements in early 1980s. At that time Beluszky and Sikos (1982. p. 52) distinguished altogether 46 settlements (e.g. Almásfűzitő, Lábatlan, Nyergesújfalu, Rudabánya) belonging to the V. category entitled "Dynamically developing industrial villages with fast growing population...".

These were rural settlements with industrial plants of national importance and average population number of 4,000 persons. At the same time much more villages belonged to the two types of rural settlements (III. and IV. categories), where industrial function appeared along with the agricultural or urban functions. Bodrogkeresztúr, Nemesgulács were examples for the former type, whereas Barcs, Vasvár, Devecser were those for the latter one. Partly, the consequence of them was that a mere 16–17% of the industry operated in the rural settlements in the 1980s whereas 40% of the country's population lived there (Beluszky, P. and Sikos, T.T. 1982).

Possibilities for extensive industrialization exhausted by the late 1970s and the switch to intensive development had not proven to be successful. An outdated industrial structure had preserved while problems surmounted in the operation of the socialist industry during the 1980s. In addition, unfavourable changes in global economy had expanded onto Hungary by the end of that decade. These factors in a cumulated way had led to the radical changes in the industry following 1989.

Major changes after 1989

A closer insight into the impact of industry upon the settlement network after the change of regime can be partly gained by the analysis of industrial enterprises. More enterprises at a given settlement might provide job opportunities for more people probably improving its position in ranking by size.

Prior to 1989 few thousand industrial companies operated with several thousand subsidiaries. After the change of regime these huge companies had gone through substantial transformation together with their branches. Most of them and/or subsidiaries ceased to operate owing to their uneconomic and inefficient production. Others were reorganized whereas in many of them all of the subsidiaries or part of them withdrew and became independent firms. Many of the latter have not proven to be viable for different reasons (e.g. outdated technology or technical equipment, lack of adequate local management, unskilled workforce). This way the number of industrial plants has decreased from 12,934 to 7,052 between 1990 and 1997 (Kiss, É. 2002). The shrinkage was especially drastic in the capital city with a drop by almost three thousand industrial plants. This can be explained by environmental pollution, congestion, growing tertiarization, and higher production costs. Nowadays there are much less enterprises with one or more subsidiaries all over the country but no exact data are available in this respect. Probably, the enterprises with headquarters at Budapest have branches in the countryside. In the 1990s the number of industrial plants outside the county where the firm's headquarters was located became less (with the exception of Komárom-Esztergom County), thus organizational dependence coupled with spatial dependence has eased considerably.

In the decisive majority of industrial units productive activities still are going on, even though since the late 1990s an increasing number of establishments shifted to non-productive profiles (e.g. trade, logistics, services) (Kiss, É. 2002). This trend is in accord with the transformation of industrial production, its tertiarization (Szalavetz, A. 2002). The part of Budapest played in the guidence of industry has reduced with a concomitant growth of the role of county seats (e.g. Debrecen, Győr, Miskolc, Nyíregyháza, Székesfehérvár), but most of the headquarters still are to be found at the capital city. This is mainly due to its favourable conditions which are convenient to the enterprises and their top managers.

Parallel with organizational changes the number of industrial enterprises was on the increase, partly due to the units having gained independence, partly to the emergence of newly established firms, most of them are SMEs. The number of registered industrial enterprises with legal entity amounted to ca three thousand in 1990 and had grown to 50 thousand by 2009. The latter still form nearly 9% of all enterprises, but only about three-fourth of them actually operates. Even though their number was growing steadily over the past decades, they share a decreasing part because more firms have been established in other sectors. The considerable proportion of industrial enterprises were concentrated in early 1990s and even nowadays in Central Hungary Region, primarily in the national capital. Explanation of this is manifold: central location, industrial traditions, advanced infrastructure, substantial skilled workforce, large consumer market, population of considerable means and responsive to innovation. So Budapest as far the largest settlement of

the country, in conformity with its traditions keeps playing a key role in the industrial production with most of enterprises and employees. In 1992 37% of companies with legal entities operated in the capital and 19% of the employees of the sector worked there. By 2009 there had been some diminishment (29% and 16% respectively) but their share still is significant. The remainder was distributed among 3,061 settlements in 1992 and among 3,151 in 2009. There were 2.8 registered industrial enterprises with legal entity per settlement in 1992 and already 15.4 firms in 2009.

The number of sole proprietors in industry exceeded 25 thousand in 2009 but their occurrence is similar to that of companies with legal entities. 25% of them are to be found in Central Hungary Region. However, these small-scale industrial enterprises have a restricted impact on the settlement network due to their limited size.

In compliance with the inherited traditions industry was mainly concentrated in urban settlements after the change of regime too. Along with Budapest industrial establishments were found primarily in towns with 20–50 thousand and cities with 100–300 thousand inhabitants concerning both the number of plants and that of employees. At the same time the share of villages with more significant industry remained very low and no substantial change is expected in the future *(Table 1)*.

In the 1990s the importance of industry had primarily grown in the smaller urban settlements (which belonged to the 2–10 thousand size category), because new units emerged and employment widened, meanwhile its weight diminished in cities with 100–300 thousand residents. While the former phenomenon is due to the appearance of newly declared towns (over this period the number of urban settlements had grown from 177 up to 218), the latter one can be explained with the expansion of other sectors in the big cities.

Table. 1. Number of industrial firms and employees in the towns of Hungary by size categories of population, 1992–1997

Towns by size categories of population	Number of local industrial units, firms		Number of industrial employees	
	1992	1997	1992	1997
2,000–4,999	33	85	1,922	5,164
5,000–9,999	350	461	35,623	36,500
10,000–19,999	817	917	112,886	103,340
20,000–49,999	919	1,001	157,190	125,742
50,000–99,999	583	602	115,587	88,864
100,000–299,999	692	797	156,597	124,552
Budapest	1,000	848	149,823	91,908
Total	*4,394*	*4,711*	*729,628*	*576,070*

Source: Regional Statistical Yearbook, 1992, 1997.

In the beginning of the 21st century urbanisation continued and the number of small towns, especially those with less than 5,000 inhabitants has increased very fast. (Even though, nowadays there are not exact statistical data on the distribution of industrial enterprises by town-size categories, the latest data by settlement size were available for us.) In 2009 only 12% of all registered enterprises of industry (including construction) operated in settlements with less than 2,000 inhabitants (probably, in the rural ones) and 35% of them did in settlements with 100–300 thousand inhabitants. Moreover, 23% of industrial enterprises were located in Budapest and 24% in settlements with 20 to 50 thousand inhabitants. These indirect statistical data also confirmed that the share of industrial enterprises by settlement size categories has not changed basically in the last decade.

Using the number of all industrial enterprises (including incorporated enterprises and sole proprietors) per 1,000 inhabitants and by microregions is another approach to study the industry in a context of settlement network. During the past decade the number of industrial enterprises has increased, but their spatial distribution has not changed considerably. Their occurrence has been enhanced in the capital city region and in large towns. Generally, their density (number per 1,000 inhabitants) shows a close correlation with their population number: the larger is the settlement, the more significant its industry is. Apart from the settlement size there were obviously other factors (e.g. geographical location) that have also contributed to the specific spatial distribution of industrial enterprises *(Figures 2* and *3).*

Back to 1999 the number of industrial enterprises per 1,000 inhabitants showed high values in the Budapest agglomeration and in some areas of Transdanubia, e.g. in Győr and Székesfehérvár microregions named after their big cities (Győr, Székesfehérvár) with more than one hundred thousand residents. The seats of Tatabánya, Veszprém and Zalaegerszeg microregions had inhabitants between 50 and 100 thousand. The exceptions were represented by microregions surrounding the capital city (e.g. around Budaörs, Dunakeszi, Pilisvörösvár, Ráckeve, Szentendre) and Lake Balaton (e.g. around Balatonfüred, Keszthely, Siófok), both with less populous centres. In the former case it was the presence of population well provided with capital that promoted the high occurrence of industrial enterprises, but in the latter case it was mainly associated with tourism (with the high number of sole proprietors). By 2009 the number of industrial enterprises per 1,000 inhabitants has grown in every microregion so the industrial function seems to have expanded. Considerable spatial concentration took place as the number of industrial firms had risen, especially in microregions with less populous urban settlements (e.g. Aszód, Dabas, Monor) in the Budapest agglomeration ring and in northern, north-western parts of Transdanubia (e.g. Dorog, Csorna, Esztergom, Kapuvár, Tata, Zirc) and in some other regions of the country (e.g. in the Eger, Kecskemét, Nyíregyháza, Pécs microregions).

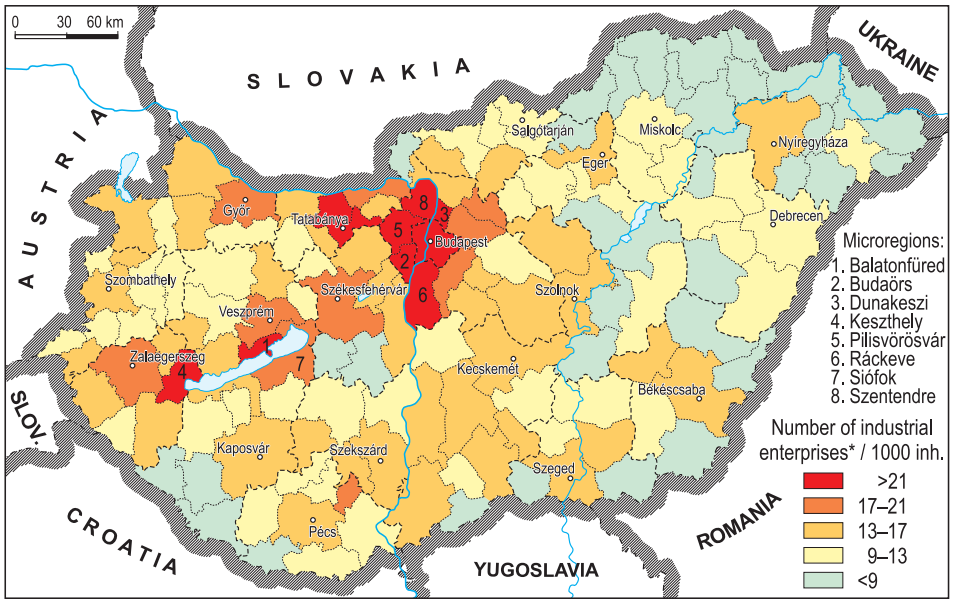

Fig. 2. Number of industrial enterprises by 1,000 inhabitants and microregions, 1999. * included enterprises in construction. *Source:* Regional Statistical Yearbook, 1999

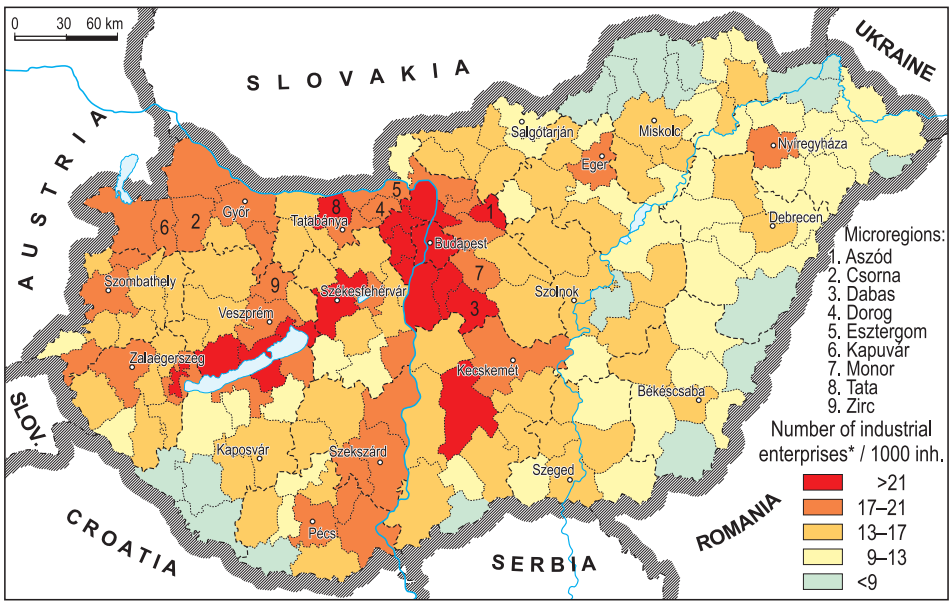

Fig. 3. Number of industrial enterprises by 1,000 inhabitants and microregions, 2009. * included enterprises in construction. *Source:* Regional Statistical Yearbook, 2009

Relationship between the industrial enterprises and settlement pattern is described in a most realistic way by the database of firm catalogue presenting the state-of-the-art in late 2008 (Cég-Kód-Tár 2008). The files contain records about 44 thousand industrial enterprises; those with a staff of more than ten persons i.e. altogether 7,318 of them were analyzed by their whereabouts (settlement size categories) and by affiliation to industrial branch. At the end of 2008 one-fifth of them operated at Budapest, followed by urban settlements with 20–50 thousand inhabitants. Categories of 100–300 thousand and 10–20 thousand ranked next as far as the number of industrial enterprises was concerned. It is interesting that urban settlements with 50–100 thousand population was not too attractive for industrial location as they had roughly the same number of enterprises over ten persons' staff as the small towns between 5 and 10 thousand inhabitants. It is also worth mentioning that several branches of manufacturing (leather, footwear, paper, printing and publishing, primary metal production) did not have any enterprise at settlements with residents between 500 and 1,000. The share of settlements with less than 1,000 inhabitants which have some kind of smaller industrial enterprises amounted to some per cents only (*Table 2).*

The spatial pattern of the enterprises by manufacturing branches according to settlement size categories only partly resembles to that of the whole manufacturing sector. Food industrial enterprises by settlement size categories have the most uniform distribution which is due to the specific features of the branch. Food processing is strongly linked to consumer market and should be located relatively closely to it. On the contrary, in big cities with over 100 thousand inhabitants, pharmaceuticals and printing are located in a most concentrated pattern (61% and 53%, respectively) which could be attributed to the strong demand on highly skilled manpower and consumer market from a relatively qualified population. Wood processing, rubber and plastics manufacturing and metalworking also show a more or less uniform distribution among settlement size categories. Primary metal production preferred three categories apart from the capital city. Several sub-branches of engineering (machinery and equipment, computers, electronic and optical devices and electric engineering) preferred the same settlement categories, namely towns with inhabitants between 20–50 thousand and cities over 100 thousand. In contrast enterprises of road vehicles manufacturing are to be found in urban settlements with residents of 10–50 thousand and 100 thousand plus categories. The capital city is the only settlement where the number of industrial enterprises of each branch is very high.

Of the industrial enterprises those with foreign interest should be treated with special attention as their presence is important for the fate of the host settlement. About 40% of FDI that has arrived in Hungary since 1989 have flown into the industrial sector. Industrial enterprises with foreign inter-

Table 2. Number of industrial enterprises with more than 10 employees by branches and settlement size in Hungary, 2008

Denomination	Number of industrial enterprises in settlements by population size group										Total
	–499	500–999	1,000–1,999	2,000–4,999	5,000–9,999	10,000–19,999	20,000–49,999	50,000–99,999	100,000–299,999	Above 1,000,000	
Manufacture of basic metals	3	–	6	19	7	14	19	9	19	23	119
fabricated metal products	22	38	72	149	120	223	283	122	237	287	1,553
machinery and equipment	3	10	24	32	49	69	117	64	96	136	600
electrical equipment	1	3	6	18	19	21	58	27	24	64	241
computers, electronic and optical equipment	–	4	4	21	5	38	51	28	33	104	288
transport equipment	2	4	12	18	21	32	39	24	32	18	202
non-metallic mineral products	6	8	16	31	33	38	73	43	41	58	347
chemical products	2	3	10	23	17	27	12	11	12	48	165
rubber and plastic products	8	11	37	83	67	69	74	50	103	98	600
pharmaceuticals, medicinal chemicals, botanical products	1	1	–	6	–	2	8	3	2	22	45
textiles and textile products	8	11	38	81	37	79	98	61	103	147	663
leather and leather products	2	–	4	23	9	29	18	10	24	23	142
wood and wood products	20	29	40	77	50	71	44	31	43	42	447
pulp, paper, paper products	1	–	5	17	23	18	22	13	25	36	160
Publishing, printing, reproduction of recorded media	3	–	2	10	8	22	46	36	56	144	327
Manufacture of food products and beverages	18	45	124	234	157	208	181	91	130	231	1,419
Total	100	167	400	842	622	960	1,143	623	980	1,481	7,318

Source: Cég-Kód-Tár. (Database of enterprises), the end of 2008.

est have grown rapidly for the past two decades and had come close to 3,600 by 2008. This accounts for 12% of all companies with foreign interest that is slightly below that of the year 1998 (16%). Budapest is highly attractive for industrial enterprises with foreign interest. At the turn of the millennium it was host to 32% of these enterprises while the rest 2,274 was located at the other 3,134 settlements of the country. Ten years after 2,497 industrial enterprises with foreign interest operated at 3,151 settlements of Hungary, which means that theoretically, on the average at two settlements out of three there was one industrial establishment with foreign interest. But the reality is different.

The spatial distribution of industrial enterprises with foreign interest (outside of the national capital) is even more concentrated than that of all industrial enterprises. Their large majority is located in the northern part of Transdanubia, along the Vienna–Budapest axis, in West Transdanubia and in the largest settlements of Budapest agglomeration, mostly in urban settlements of different size (e.g. Győr, Esztergom, Komárom, Szombathely, Szentgotthárd, Tatabánya). In this respect no spectacular change occurred between 1998 and 2006 as it was verified by the examination of databases of two catalogues on *Large and Medium Enterprises of Hungary* (Magyarország nagy- és középvállalatai, Hoppenstedt Bonnier) published in 1998 and 2006 (Kıss, É. 2010). In the other regions of Hungary these enterprises now are confined mainly to the county seats which as a rule belong to the size category of 50–100 thousand population. Naturally, there are substantial differences by industrial branches because printing and publishing is confined to large urban centres, whereas industrial units of light industry are dispersed among settlements with highly diverse sizes and functions.

A closer association of the foreign capital with the larger centres is probably due to the availability of highly skilled workforce, fairly good infrastructural provision and of rich cultural and recreational opportunities at these settlements. These are more and more important factors in site selection. In other words, in the very focus of capital flows the larger centres are located as the targets of foreign investments.

Since the change of regime the spatial pattern of the industrial sector has been basically defined by the decisions of the investors as to site selection, which settlement is to be chosen from the "market of settlements". The central government has only very limited means to interfere in these decisions. Site selection for an enterprise is a resultant of several factors. During the past decade with the abatement of differences between the settlements in terms of their capacities (e.g. qualification of workforce, provision of infrastructure) "homogenization" of the hard factors occurred. Consequently, soft factors (quality of built environment, townscape, flexibility of local administration) emerged as increasingly decisive, and generally they are more favourable at the populous settlements (Kıss, É. 2010). In fact, these are the settlements, where industry is

Table 3. Industrial parks by the occurrence of enterprises with foreign interest in Hungary, 2006

Denomination	Size of settlement									Total
	–499	500–999	1,000–1,999	2,000–4,999	5,000–9,999	10,000–19,999	20,000–49,999	50,000–99,999	100,000–499,999	Above 1,000,000	
Number of industrial parks with foreign enterprises	–	–	–	2	5	12	16	4	7	1	47
Number of industrial parks without foreign enterprises	–	–	1	5	4	7	4	1	3	–	25
Total	–	–	*1*	*7*	*9*	*19*	*20*	*5*	*10*	*1*	*72*

Source: Survey by the author in 2006.

to survive longer because foreign enterprises usually are bigger and better provided with capital than the domestic ones.

Further information about the distribution of industrial enterprises with foreign interest was provided by a survey of those operating in industrial parks and conducted in 2006. The survey extended to 72 industrial parks of the 181 which operated in the country at that time. (Only they had shown willingness to fill out the questionnaire distributed.) 1,718 enterprises were registered that made up 53% of the total settled in industrial parks. Of them 109 were those with foreign interest. Most of them (54%) preferred urban settlements with 10–50 thousand inhabitants and the less had chosen the smaller ones. This way an ideal settlement size for the industrial parks and enterprises with foreign interest could be determined *(Table 3).*

Industrial parks have been expanded in Hungary since 1997 and this process can be considered as a new wave of industrialization. The 210 parks that existed in 2006 were located in 165 places, in over 5% of the settlement stock; in some settlements there were two or more of them. The majority of the industrial parks are to be found in urban settlements and this is not by accident: towns and cities are able to insure the conditions for their operation.

Most of them preferred small towns in the 10–20 thousand population size class but many have fallen in the 5–10 thousand and 20–50 thousand categories. For two thirds of the industrial parks these categories have proven to be ideal. Those established in villages (e.g. Pacsa, Sóskút, Timár, Tuzsér, Zalaszentiván) preferred the 1,000–5,000 size. The only one at a settlement below 500 residents is Nagylak Industrial Park in Makó microregion *(Table 4).*

Table 4. Industrial parks by size and function of settlements in Hungary, 2010

Denomination	Size of settlement										Total
	–499	500–999	1,000–1,999	2,000–4,999	5,000–9,999	10,000–19,999	20,000–49,999	50,000–99,999	100,000–499,999	Above 1,000,000	
Number of industrial parks in towns	–	–	1	16	32	46	34	11	8	1	142
Number of industrial parks in villages	1	4	8	9	1	–	–	–	–	–	23
Total	1	4	9	25	33	46	34	11	8	1	165

Source: Ministry of Economics, 2010.

Those industrial parks are the most viable ones which accommodate enterprises with foreign interest. Based on different estimations 30–35% of the industrial parks are on shaky economic grounds and 10–20% of them do not really work (Regős, Zs. 2007). The most advanced and mature of them are to be found in North Transdanubia and in Central Hungary Region. The majority of enterprises with foreign interest have settled here as testified by the survey of 2006 (*Figure 4).*

The relevance of industry for settlement network can be deduced (with some reservation) from the distribution of industrial employment by statistical microregions *(Figures 5* and *6).*

Back to 1990 1.3 million industrial employees worked in Hungary but the deep structural recession cut their number and it had dropped down to 760 thousand by 1995. Especially the settlements of microregions in the industrial axis along middle mountains were affected. Owing to the deep industrial crisis many settlements, socialist towns became nailed similar to villages qualified in 1982 as highly industrialized and granted with urban status by 1990. A lot of mines and factories were closed down and industry had lost in weight within the local economy as reflected by employment too.

Starting with the mid-1990s the sector gathered strength and new industrial spaces emerged. In some places, particularly at the urban settlements of the North Hungarian Mountains (e.g. Miskolc, Ózd, Salgótarján) the recovery from the profound restructuring process of industry is still going on. By 2001 industrial employment had mainly grown in the northern half of Transdanubia whith a prevalence of small villages. The increase was especially significant in e.g. Celldömölk, Kisbér, Mór and Sárvár microregions. In

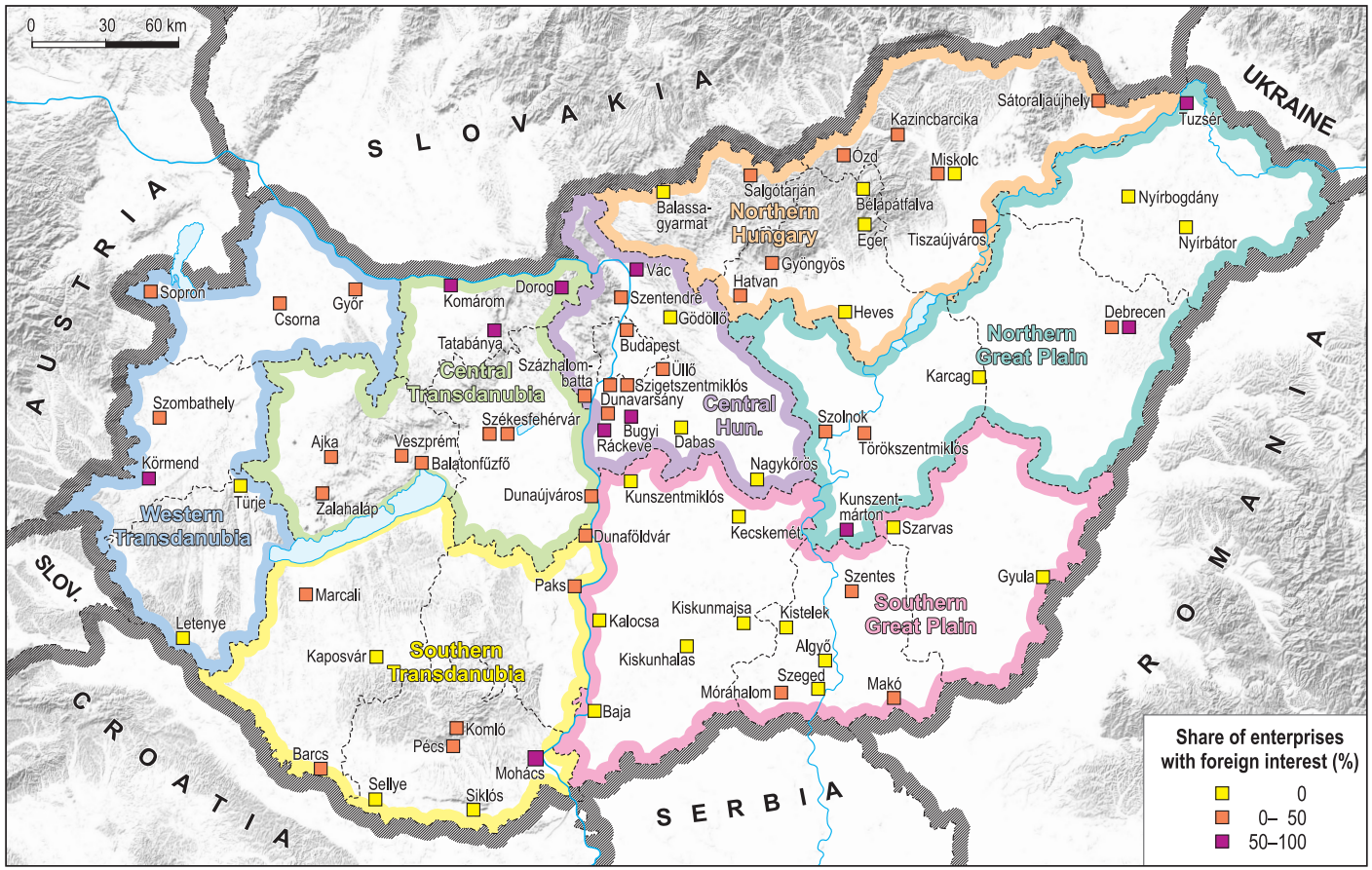

Fig. 4. Enterprises with foreign interest in industrial parks, 2006. *Source:* Survey carried out by the author in 2006

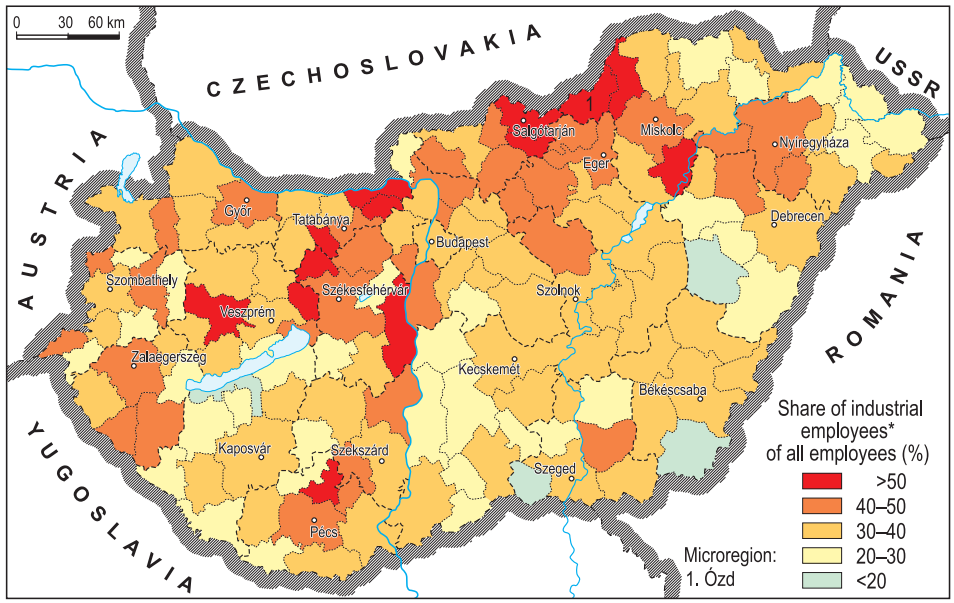

Fig. 5. Share of industrial employees by microregions, 1990. * included enterprises in construction. *Source:* Regional Statistical Yearbook, 1990

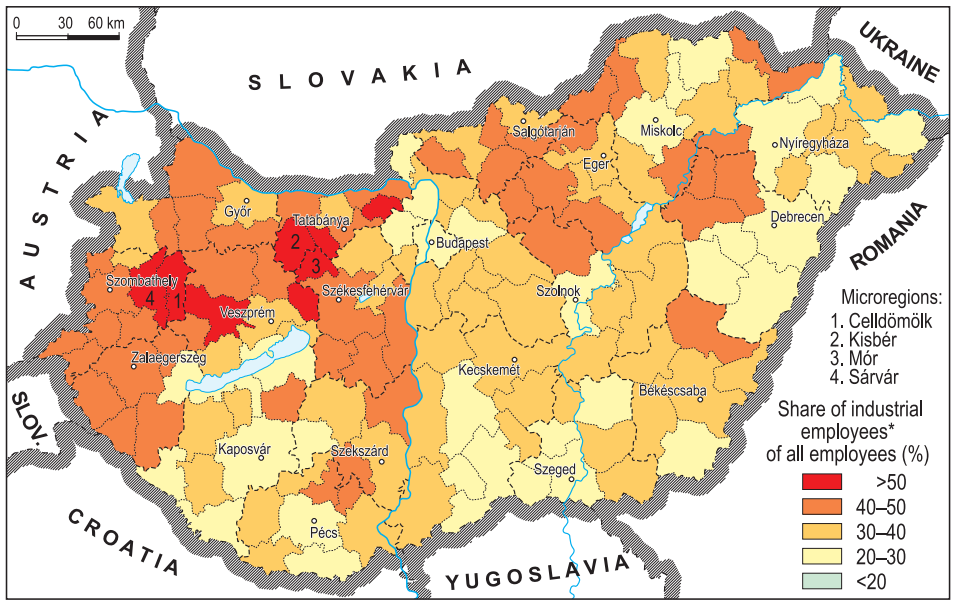

Fig. 6. Share of industrial employees by microregions, 2001. * included enterprises in construction. *Source:* Regional Statistical Yearbook, 2001

many of the small villages (based on the map compiled by Beluszky and Sikos in 2007) industrial employment (including construction) reached 50–65% – a considerably high ratio.

A comparison of two figures (villages with population below 1,000 and ratio of active earners employed in industry by settlement) published by Beluszky and Sikos in 2007 also indicates unambiguously that the share of industry had became significant in the local employment in the minor settlements of the northern and western parts of Transdanubia by the early 21st century (Beluszky, P. and Sikos, T.T. 2007, p. 142, 172). This is probably due to the low number of jobs in the local tertiary sector. Here should be mentioned that industrial workers from the small villages are not employed locally but they mainly commute to work to a nearby urban settlement. This is one reason why category V. of the types of rural settlements of the 1982 survey virtually disappeared by the beginning of 21st century. So when performing typification of villages in the early 2000s no category referring to rural industry could be established (Beluszky, P. and Sikos, T.T. 2007). Another reason might be that since 1982 many settlements with relevant industry have been granted urban status.

At the same time in the industrial employment of the microregions located in the other parts of the country (e.g. on the Great Hungarian Plain, South Transdanubia) there has not been recorded any significant change, except for a slight decrease by 2001, and this could be continued in the last decade too.

Conclusions

While during the period of socialism industrial development "revolutionized" the settlement network, after the change of regime its impact became less spectacular and rather indirect. Whereas industry was losing its positions the settlements have not disappeared but their economic basis was shaken. New settlements were not founded either as it had occurred during socialism because industrial investments were made at the already existing ones. A further difference was that the new objects (e.g. industrial parks) were confined primarily to the urban settlements.

Thus industry rather became an urban phenomenon again in late 20th and early 21st century. In most rural settlements industry was pushed to the background and the circle of villages virtually without industrial activities has widened. Indisputable that their declaring a town has also contributed to this. Craftsmanship, cottage industry, repair and services are more frequent again in villages while big industry disappeared almost completely (Beluszky, P. and Sikos, T.T. 2007).

A further specific feature of industry is a high concentration so it does not play any part in the mitigation of disparities between regions and settlement; just the other way round, it generates spatial differences. Another difference is that industrialization did not coupled with urbanization during the past twenty years and their close relationship has loosened a lot. Nowadays it is not typical at all that e.g. industrial companies give assistance to the development of local infrastructure. In many cases there is no connection between the enterprise and local government or local social and economic organizations; the former exists and operates as an alien element. This is especially valid for the enterprises with foreign interest; the duration of their presence is almost incalculable.

The outcome is that even if a settlement flourishes and has several such enterprises at the moment, in fact it is highly vulnerable. As a consequence of the dependence and exposedness of the industry forming its economic basis there is a permanent risk of losing this function partly or completely. However, these settlements usually are populous therefore the collapse or cessation of the industrial function would not probably lead to the vanishing of the settlement. Even more that in almost all of them tertiary sector is the dominant one. With no doubt the economy of settlements is going to be hard hit by the cessation of industrial activity in the future as well. This is because in them there is only few possibilities for the emergence of new functions (cultural economy, knowledge-based economy, creative industries) representing the new challenges of the 21st century. It is clear that within the Hungarian settlement network it is the capital city and the largest urban settlements in the countryside that have the best chances to join the process of globalization absorbing new economic functions. At the same time in the rest of the settlements "traditional" economic functions are to survive for a longer time along with a more restricted impact of industry upon the settlement network.

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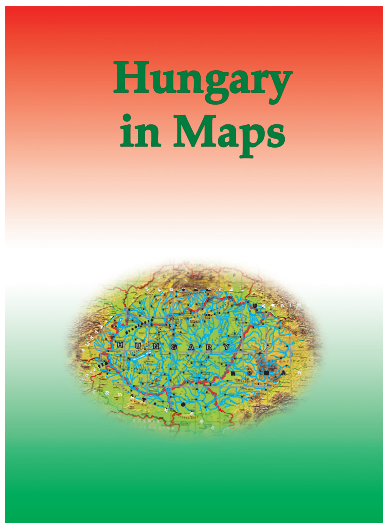
Hungary in Maps

Edited by
Károly Kocsis and Ferenc Schweitzer

Geographical Research Institute Hungarian Academy of Sciences
Budapest, 2009. 212 p.

'Hungary in Maps' is the latest volume in a series of atlases published by the Geographical Research Institute of the Hungarian Academy of Sciences. A unique publication, it combines the best features of the books and atlases that have been published in Hungary during the last decades. This work provides a clear, masterly and comprehensive overview of present-day Hungary by a distinguished team of contributors, presenting the results of research in the fields of geography, demography, economics, history, geophysics, geology, hydrology, meteorology, pedology and other earth sciences. The 172 lavish, full-colour maps and diagrams, along with 52 tables are complemented by clear, authoritative explanatory notes, revealing a fresh perspective on the anatomy of modern day Hungary. Although the emphasis is largely placed on contemporary Hungary, important sections are devoted to the historical development of the natural and human environment as well.

In its concentration and focus, this atlas was intended to act as Hungary's 'business card', as the country's résumé, to serve as an information resource for the sophisticated general reader and to inform the international scientific community about the foremost challenges facing Hungary today, both in a European context and on a global scale. Examples of such intriguing topics are: stability and change in the ethnic and state territory, natural hazards, earthquakes, urgent flood control and water management tasks, land degradation, the state of nature conservation, international environmental conflicts, the general population decline, ageing, the increase in unemployment, the Roma population at home and the situation of Hungarian minorities abroad, new trends in urban development, controversial economic and social consequences as a result of the transition to a market economy, privatisation, the massive influx of foreign direct investment, perspectives on the exploitation of mineral resources, problems in the energy supply and electricity generation, increasing spatial concentration focused on Budapest in the field of services (e.g. in banking, retail, transport and telecommunications networks), and finally the shaping of an internationally competitive tourism industry, thus making Hungary more attractive to visit.



This project serves as a preliminary study for the new, 3rd edition of the National Atlas of Hungary, that is to be co-ordinated by the Geographical Research Institute of the Hungarian Academy of Sciences.

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