The ranking of cities as centres of the Hungarian economy, 1992–2012

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Abstract

This analysis has relied on an empirical method to identify and rank cities as centres of the Hungarian economy from 1992 to 2012. After the change in the political and economic system of Hungary, a new economic climate emerged (e.g. Hungary joined the European Union, foreign direct investments appeared in the economy, special taxation regulations were introduced), which changed the position of cities. During this two-decade-long transformation, the dominance of the capital, Budapest, and its agglomeration considerably increased; the east-west dichotomy became more pronounced, while the economic role of the traditional industrial centres and that of some large cities weakened. Because of these processes, new types of economic centres emerged, which did not have a significant role in the national economy. Cities that became crucial economic actors because of the offshore operation of foreign multinational corporations are exceptional in this.

The ultimate goal of this study is to introduce a straightforward urban hierarchy, establish a classification based on the economic profile of cities, and address the typical anomalies after the change in the political system.

Keywords: urban hierarchy, industry profile, transformation, economic power, Hungary.

Introduction

In recent decades, a number of studies have been concerned with the role of cities in the Hungarian economy. For example, Enyedi (2000), Barta (2001) Beluszky & Győri (2004), Rechnitzer et al. (2004), Kukely (2006), Koltai (2007), and Lux (2013) represent this line of research, which is fundamentally void of a survey of the economic power of cities, as well as an urban hierarchy that falls from a mathematical model. However, the need for this kind of empirical research is obvious. In the past two decades, Hungary has been influenced by external and internal economic effects, which have changed the position of cities in the economic system. The most significant effects are as follows:

- Before the change in the political system in 1989, cities were arranged in a straightforward manner in the relatively closed Hungarian economy. The most important economic centre was the capital, followed by the county seats, whose development was of great importance for the government, and some industrial cities. In state socialism, the economic development of cities was centrally

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controlled while unplanned economic processes – if there were any – could take place only locally (Bajmócy–Hegedűs 2008). The change in the political system also altered Hungary's economic system: Central economic planning vanished, and foreign direct investments entered the markets, which then became the most important actors in the economy.

- The former state-owned large companies were often privatized by multinational corporations (Barta 2001), which were directly linked to their foreign headquarters. This is also confirmed by the TOP500 rankings published annually by the World Economy Weekly (HVG): the majority of the largest companies/banks operating in Hungary are owned by foreign entities. Thus, they are not commanded from Hungary, but from the headquarters of their respective parent companies.
- Initially, most of the foreign multinational corporations that appeared in Hungary established their national (or in some cases even Central European) headquarters in Budapest or its agglomeration. There were a number of production companies (e.g. Opel, Audi, Suzuki, IBM, and Nokia) that implemented green field investments to set up factory units in Western Hungary, where the infrastructure had already been well developed. In contrast, some large cities where establishing production facilities had demanded significant financial resources during state socialism lost their significance in the national economy. This was due to the new owners of these facilities that had been privatized, initiated cutbacks and in some cases, the closure of factories (Diczházi 1997).
- The east–west dichotomy that had characterized Hungary's spatial structure for a century was further aggravated, meaning that the gap between the settlements of East Hungary and their counterparts in Western Hungary further widened (Rechnitzer 2004). However, certain large cities in East Hungary (e.g. Debrecen, Szeged, and Kecskemét) that had a relatively developed infrastructure and skilled labour also became a target area for foreign investments, which in turn made these cities stand out from their environments.
- The economic performance of a number of small and medium-sized cities is primarily determined by individual, large, foreign-owned multinational companies, which are economically dominant despite the fact that these cities have a wide range of businesses. Typical examples are the national centres of the automobile industry, such as Szentgotthárd (Opel) and Esztergom (Suzuki). It has been demonstrated that positive and negative effects of the global economy can potentially influence the local economy of these cities to the same extent. In addition, these cities respond to these effects in the same way by either sinking into recession or growing.
- The taxation regulations associated with business associations have been gradually changing since the early 1990s. Some offshore companies have been registered mainly in small towns near Budapest, albeit outside the agglomeration. This was because these towns benefited these companies by waiving local taxes and have thus become seemingly crucial actors of the Hungarian economy in spite of the fact that the offshore companies do not pursue any domestic economic activities.

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Consequently, the economic potential of Hungarian cities has changed significantly over the past 20 years: some cities that occupied outstanding positions before the change in the political system have weakened, and have been replaced by newly emerging economic centres. The analysis below examines how the economic performance of cities altered from 1992 to 2012, and why these changes occurred. I have classified these cities based on their similar economic structures and concluded that they respond to global economic changes in the same manner.

Data and methods

In most analyses that focus on examining the economic performance of cities, it is crucial to use well-defined data and methods.

In previous analyses (see Csomós 2013, Csomós–Derudder 2014), we used data from Forbes 'The Global 2000' to define the world's leading command and control centres through the financial performance of large corporations headquartered in cities. In this paper, we have used data from the National Tax and Customs Administration of Hungary (NTCA) database from the years 1992 to 2012. These data correspond to the main financial data (e.g. net income, sales, total assets, equity and value-added) of firms headquartered and registered in Hungary. Of course, most of these firms, even the largest ones, are subsidiaries of foreign multinational corporations; however, with regards to taxation, they can be regarded as domestic ones. The most typical example is the Audi Hungária Motor Kft. (headquartered in Győr), one of the largest taxpayers and employers in Hungary. Nevertheless, the NTCA data used in the current analysis are slightly different from data of Forbes since NTCA combines specific financial data of all firms registered in cities into a single data.

The level of the economic performance of cities is expressed by the Economic Power (EP). $EP_{x,y}$ of a given city x in a given year y is calculated as follows:

$$EP_{x,y} = \sqrt{\frac{(NI_{x,y}+S_{x,y}+A_{x,y}+E_{x,y})}{4} * VA_{x,y}},$$

where $NI_{x,y}$ = the proportion of net income in the total dataset; $S_{x,y}$ = the proportion of sales in the total dataset; $A_{x,y}$ = the proportion of total assets in the total dataset; $E_{x,y}$ = the proportion of equity in the total dataset; $VA_{x,y}$ = the proportion of value added in the total dataset.

EP is a cumulative measurement that integrates net income, sales, total assets, equity, and value added of all firms headquartered in cities in a specific way, which enables us to economically rank Hungarian cities. The first part of the formula refers to the power of the city. However, some offshore companies (even some Hungarian companies) have impressive financial parameters while their value added is zero or almost zero; therefore, their headquarters cities do not contribute to Hungary's GDP. If value-added had not been used as a multiplier in the formula, those cities would have had very significant economic power; which, they do not have. Given how EP has been calculated, its yearly value concerning Hungary is 100 and is equal to the combined value of all selected cities and towns.

Among settlements included in the NTCA database (1074 settlements in 1992, 2736 settlements in 2012), 1000 settlements with the largest EP values were selected. We did

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this for two reasons: 1. The change in settlement position can be realistically compared if the database features the same number of elements for every year. 2. The rest of the settlements following the TOP1000 (all of them are small villages) have negligible economic performance.

Classification of economic centres and changes in their positions

In 1992, only three years after the change in the political and economic system, settlements were ranked in the hierarchical system that had evolved in the era of state socialism. Hungary's major economic centre was the capital, Budapest, followed by large and medium-sized cities of complex industrial profiles (county seats that had been intensely developed during socialism), as well as several special industrial nodes. By 2012, two decades later, this historically well-defined structure had evolved into something more complicated while the emergence of new types of economic centres had been triggered almost solely by external economic mechanisms. Budapest retained and even reinforced its unquestionable leading role, but the formerly homogeneous group of cities with complex industrial profiles broke up; the positions of the traditional industrial centres changing depending on the successfulness of privatization. However, the intensive foreign direct investments (FDI) that had been launched after the change in the political system elevated new actors among the economic nodes including settlements that had previously not had any significant economic function. As a special element, Hungary saw the emergence of settlements that accommodated the offshore entities of foreign multinational corporations (MNCs). These settlements of typically less than two thousand inhabitants became – at least seemingly – very important actors in the Hungarian economy despite the fact that the offshore companies did not pursue domestic economic activities at all. Therefore, in 2012, the following settlement groups could be found based on their economic functions:

1) Metropolis with a complex industrial profile;
2) Large- and medium-sized cities with a complex industrial profile;
3) Traditional industrial cities;
4) New economic centres;
5) Tourism cities;
6) Offshore cities/towns;
7) Other cities, towns and villages with insignificant economic power.

Table 1 shows the classification and EP values of the 25 leading economic centres while Figure 1 reflects changes in the EP values between 1992 and 2012.

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Table 1

TOP25 economic centres, 1992/2012

Rank	City/town	Type	EP 1992	City/town	Type	EP 2012
1	Budapest	Metropolis	46.68	Budapest	Metropolis	51.07
2	Győr	Complex industrial profile	2.20	Győr	Complex industrial profile	3.37
3	Debrecen	Complex industrial profile	1.90	Szombathely	Complex industrial profile	1.53
4	Pécs	Complex industrial profile	1.79	Debrecen	Complex industrial profile	1.48
5	Szeged	Complex industrial profile	1.61	Budaörs	New economic centre	1.42
6	Miskolc	Complex industrial profile	1.58	Hajdúszoboszló	Tourism cities and towns	1.23
7	Paks	Traditional industrial cities	1.52	Dunaújváros	Traditional industrial cities	1.10
8	Székesfehérvár	Complex industrial profile	1.14	Székesfehérvár	Complex industrial profile	1.05
9	Szombathely	Complex industrial profile	0.80	Újlengyel	Offshore cities/towns	1.00
10	Nyíregyháza	Complex industrial profile	0.79	Szeged	Complex industrial profile	0.89
11	Nagykanizsa	Complex industrial profile	0.78	Kecskemét	Complex industrial profile	0.84
12	Dunaújváros	Traditional industrial cities	0.77	Miskolc	Complex industrial profile	0.77
13	Tiszaújváros	Traditional industrial cities	0.75	Bicske	New economic centre	0.69
14	Szolnok	Complex industrial profile	0.74	Nyíregyháza	Complex industrial profile	0.59
15	Bőcs	Traditional industrial cities	0.65	Csomád	Offshore cities/towns	0.56
16	Kecskemét	Complex industrial profile	0.62	Pécs	Complex industrial profile	0.55
17	Hajdúszoboszló	Tourism cities and towns	0.60	Törökbálint	New economic centre	0.47
18	Békéscsaba	Complex industrial profile	0.59	Százhalombatta	Traditional industrial cities	0.43
19	Zalaegerszeg	Complex industrial profile	0.56	Gödöllő	New economic centre	0.42
20	Százhalombatta	Traditional industrial cities	0.56	Kazincbarcika	Traditional industrial cities	0.41
21	Veszprém	Complex industrial profile	0.55	Veszprém	Complex industrial profile	0.40
22	Kaposvár	Complex industrial profile	0.53	Komárom	New economic centre	0.40
23	Szekszárd	Complex industrial profile	0.48	Paks	Traditional industrial cities	0.40
24	Siófok	Tourism cities and towns	0.46	Siófok	Tourism cities and towns	0.38
25	Tatabánya	Complex industrial profile	0.45	Biatorbágy	New economic centre	0.37

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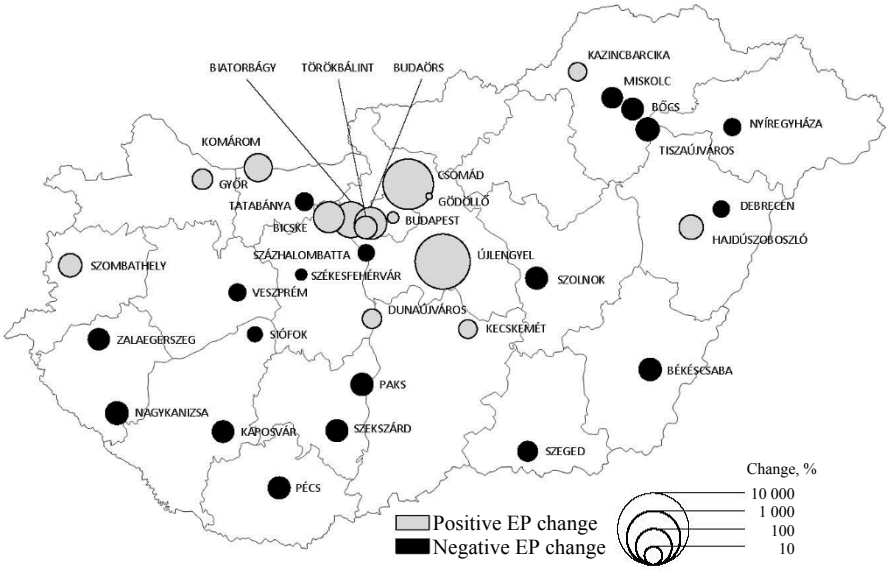
Figure 1

Change of the Economic Power of the TOP25 Hungarian cities, 1992/2012



This chapter discusses the characteristic groupings of the centres of the Hungarian economy. The economic mechanisms that influence the positions of settlements and give rise to the various groups are also described. It will clearly demonstrate that the open Hungarian economy is moved mostly by external global effects instead of endogenous forces. Positive economic decisions made abroad can quickly raise any settlement to the top ranks or, alternatively, negative investment decisions can cause a decline at the same swift pace.

Metropolis with a complex industrial profile: Budapest and its agglomeration

According to Sassen (2006, p. 63.), after the change in the political system, the major Eastern European cities – particularly the capitals – regained their pre-war significance in the economic life of the region. In her opinion, Budapest proved to be the best example of this. Sassen supported his view by referring to the fact that the value of foreign direct investments coming to the Eastern European economies in 1992–1997 was the greatest in Hungary, with the majority of it targeting Budapest. Sassen claims, that at the beginning of the 1990s, one of the underlying reasons was because the Hungarian capital functioned as an international business enclave; one that featured Western patterns in Eastern Europe, and offered business and tourism services that put the city ahead of its regional competitors. It is not surprising that the Globalization and World Cities Research Network (GaWC) ranked Budapest among the highly prestigious group of Gamma world cities, in the same category as Atlanta, Berlin and Shanghai[1] (Beaverstock et al. 1999). By the early 2000s,

1 According to GaWC's 2012 classification, Budapest came to belong to Beta+ world cities, although among the regional competitors, Prague, Warsaw and Vienna overtook it: all three of them were grouped among Alpha– world cities.

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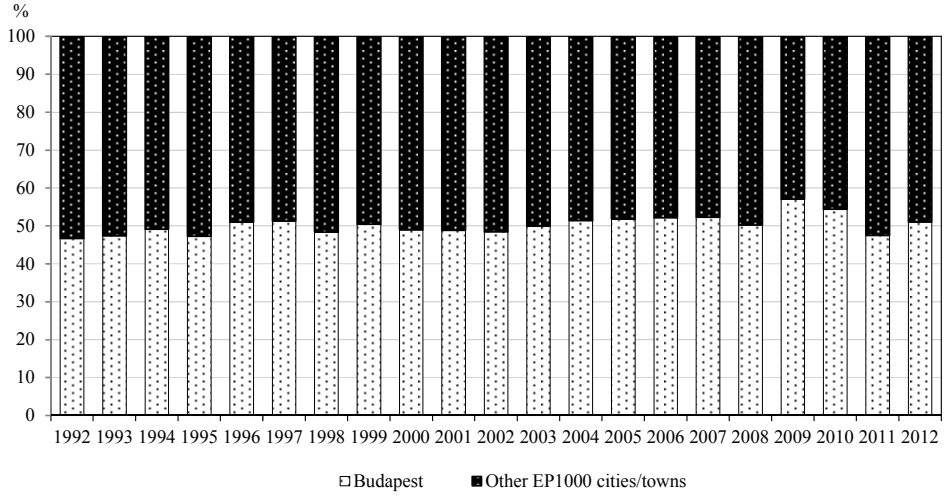
Budapest was followed by other cities such as Győr, Székesfehérvár and Debrecen in becoming parts of the regional economy (Szemző–Tosics 2005).

In spite of these later changes, Hungary's most serious problem in terms of spatial structure (for about a century now) has been and still is the Budapest versus the countryside dichotomy (Enyedi 2000, Cséfalvay 2001). Budapest's dominance can be observed not only in economic performance (yet it is especially striking), but also in its extension into all facets of life, which in certain cases (e.g. financials, governance, R&D) is nearly exclusive (Gál 1998, Wágner 2004, Barta et al. 2007). The capital's economic performance after the change in the political system can, in fact, be regarded as steady with minor fluctuations; in the two decades from 1992 until 2012, it surpassed almost 50% of the EP1000 cities/towns. Figure 2 shows that the EP values of the 999 settlements following Budapest do not often reach the corresponding figure of the capital; moreover, it is indeed the annual fluctuation of Budapest's value that influences variances in the EP values of all the other settlements.

Figure 2

Change of the Economic Power of Budapest and the next 999 cities/towns, 1992–2012



Budapest's extreme economic dominance is clearly reflected by the fact that, in 1992, when the minimum EP value for the capital was recorded, the following 613 settlements could together outbalance the economic potential of the capital. However, throughout the 11 years of the reviewed period – due to its EP value in excess of 50% – even the 999 settlements were not able to show such performance (Figure 2). The capital-oriented nature of the economy is properly demonstrated by the fact that while its population constitutes only 17% of Hungary's total population, its EP value averages 50.27% of the national figure; moreover, the former rate dropped by 14% in comparison with 1992, whereas the latter figure remained virtually unchanged.

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Budapest's massive dominance in the economy is further intensified by the role of 81 settlements belonging to the Budapest Agglomeration[2] (e.g. Budaörs, Gödöllő, Fót, Törökbálint), as they also belong to the group of settlements that have recently aspired to the ranks of the country's leading economic centres. The aggregate EP value of the agglomeration in 1992 was 51.19, while in 2012, it was recorded as 57.80; in 1992, 91% of the overall EP value had been provided by Budapest; this had slid to 88% by 2012. This means that, with the relative stability of the capital's EP value, the settlements of the agglomeration consistently strengthened, i.e., the economic potential of the Budapest Agglomeration is becoming increasingly dominant. One of the best examples is Budaörs, which in 1992 ranked 45th among the settlements, but in 2012 was in 5th position after a nearly 500% rise in its EP value (the associated reasons will be revisited in Section 3.5). The tendencies observed in Budaörs are obviously not at all unique. After the change in the political system, those settlements that offered favourable conditions for tax payments to foreign companies contemplating the creation of local bases were able to snatch numerous greenfield investments away from Budapest (Sági 2000). Additionally, as noted in the analysis of Koós (2004), from the middle of the 1990s, relocation also became a common process in Hungary, meaning that many foreign companies transferred their seats from the capital (for reasons differing from company to company) to the surrounding settlements (e.g. Szentendre, Budaörs, Törökbálint, Érd, Szigetszentmiklós). Budaörs hosts foreign companies, such as British American Tobacco, Kaiser + Kraft, Tchibo, Metro, Tesco and Auchan, whereas Törökbálint hosts the Hungarian headquarters of e.g. Telenor and Johnson & Johnson.

Large- and medium-sized cities with a complex industrial profile

From the early 1970s, a key element of regional planning became the moderation of Budapest's dominant position in the Hungarian urban system, as well as the reinforcement of the larger regional centres by the decentralization of certain economic functions (Perczel 1989; Rechnitzer 1998; Csomós 2009a). In fact, Hungary imported and adapted the growth pole strategy worked out by Perroux (1955) and subsequently refined by Boudeville (1966) and Lausén (1969). In this context, so-called counterpole cities (Debrecen, Győr, Miskolc, Pécs, and Szeged) were designated, and their development was prioritized for decades.

Table 1 shows that in 1992 – immediately after the change in the political and economic system – Budapest was followed by five counterpole cities in the ranking. Nevertheless, the combined EP value of the five counterpole cities – indicative of the inefficiencies of the intensive economic development programs launched in the 1970s – did not reach 20% of the capital's EP value. From 1992, regional centres took a considerably different course of development. As is apparent from Table 1, in both years, Győr was Hungary's most significant economic centre in the countryside, primarily due to its developed automobile industry (Lengyel 2012). Audi Hungaria Motor Kft made its appearance in Győr in 1993 (one of Hungary's largest companies as measured by sales), and undoubtedly added to the increase in Győr's EP value, although, it did not substantially influence the city's position. In the period under review, only Győr had a steady position (only left behind by

2 Act LXIV of 2005 on Spatial Planning in the Agglomeration of Budapest.

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Székesfehérvár in 1997 and 1998), while the other regional centres lost more (Szeged, Miskolc, and Pécs) or less (Debrecen) from their respective EP values and positions.

After the change in the political system, large cities in Western Hungary – especially Székesfehérvár and Szombathely – enjoyed extremely favourable positions (Baráth et al. 2001, Kukely 2006), as they attracted many more foreign companies (and foreign direct investments) than did their counterparts in the eastern part of the country. According to Table 1, Szombathely ranked 9th in 1992, while by 2012, it occupied 3rd position with its EP value having nearly doubled. Szirmai et al. (2003: 37) suggest that by 2002, Székesfehérvár had come to follow Győr as the most important city in the countryside to host foreign direct investments, as its EP value had consistently increased since 1992 (the city even ranked ahead of Győr in 1997 and 1998). On the other hand, after 2002, some of the major domestic and foreign companies stopped their production operations in Székesfehérvár (IBM and Kenwood in 2002, Ikarusbus-Irisbus in 2003, Parmalat Hungária in 2004, Cornexi in 2008); therefore, it is not surprising that the drop in its EP value was accompanied by a deteriorating position.[3] In 2012, Székesfehérvár was one of the largest Hungarian economic centres (8th rank), yet some of the over-developed segments (e.g., manufacturing of car parts) were considered crisis areas.

Among the regional centres, Pécs was the most sorely affected by economic processes following the change in the political system; this downturn was reflected by the fact that by 2012, its EP value had dropped by nearly 70%, with the city falling 12 places. In the case of Szeged and Miskolc, EP values also decreased materially, yet to a smaller extent in comparison with Pécs (45 and 51%), and they became just less low-ranked. The reasons are extremely complex, and the associated explanations are sometimes ambiguous at best. Most researchers agree that Debrecen, Pécs and Szeged are unexceptionable regional centres, quite closely followed by Miskolc and Győr (Beluszky–Győri 2004, Rechnitzer et al. 2004). It is clear, however, that there is no significant correlation between the regional functions of the cities and their economic performance (which is also supported by this analysis). The former aspect is much more complex and influenced by the role of the given city in public administration (Pálné Kovács 2001), its functions in the healthcare system, or higher education (Beluszky 2003, Csomós 2009b). Lengyel (1999) claims that Miskolc, Debrecen and Szeged could claim relatively well-trained labour resources – owing to their universities of national significance – but to no avail, as the private sector did not appreciate them; there was no demand for them. In light of the survey made by Koltai (2007), ranking Hungarian cities as business sites on the basis of questions answered by companies, the most competitive cities in the countryside were Győr, Székesfehérvár and Sopron, although this last settlement has never been one of the leading 25 localities in the EP rank. In Koltai's (2007) competitiveness ranking, cities in Western Hungary (Győr, Székesfehérvár, and Sopron) come ahead of the most populous cities in the countryside, Debrecen, Pécs and Szeged. As did Koltai, Kukely (2006) also mentions Győr, Székesfehérvár and the other regional centres (Debrecent, Pécs and Szeged) as Hungary's most quickly developing cities in the countryside, though he calls attention to the

3 When in 2002 IBM – having employed 7000 workers from 1997 to 2000, and in 2000 having an 8% share in Hungary's overall exports (UNCTAD, 2002) – closed down its facilities, it was a major event in the national economy, and Székesfehérvár's position weakened by three spots.

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remarkable progress of certain settlements belonging to the Budapest Agglomeration (e.g. Budaörs). Given the economic performance of these cities, a key issue is the concentration of foreign direct investments (FDI). FDI is an important factor in the economy of Hungary because the majority of domestic companies pursuing large-scale production operations are owned by foreign multinational corporations and banks (Barta 2001, Antalóczy et al. 2011). Studies examining the territorial implications of FDI, have found that Pécs has relatively poor capital-attracting abilities (Juhász–Schottner 2003) while, according to Antalóczy & Sass (2005), Szeged, Debrecen and especially Miskolc can be characterized by growth in their FDI volumes, they also supersede the national average. Therefore, it is not by mere chance that Szeged, Debrecen and Miskolc (only after Győr, Székesfehérvár and Szombathely, of course) hold more favourable positions in the EP ranking than the not-so-dynamically developing Pécs, which attracts less FDI.

In general, recent EP values and positions of other county seats that do not function as regional centres weakened in comparison with 1992. The only exception was Kecskemét (1992: 16th position, 2012: 11th position), which has reached the ranks of the leading cities of the countryside by its competitiveness (Koltai 2007). With respect to the positive effects of the giant investments of the automobile industry on the economic performance of the cities – as implied by the presence of Audi in Győr, Suzuki in Esztergom and Opel in Szentgotthárd (see Rechnitzer–Smahó eds. 2012) – it is expected that the Mercedes-Benz project, launched in 2012, will further improve Kecskemét's current position. At the same time, Nyíregyháza, considered one of the northeastern Hungarian focal points of FDI (Barta 2001), is witnessing promising capital expenditures; in 2014, LEGO Manufacturing Kft., which settled in the Industrial Park of Nyíregyháza in 2008, further increased its production output.

Traditional industrial cities

Unlike regional centres featuring complex economic structures, the positions of traditional industrial cities are usually determined by some larger individual companies performing special activities. Particular cities belonging to the top ranks include Dunaújváros, Tiszaújváros, Jászberény, Bőcs and Kazincbarcika. Cities in this group had two features in common; even before the change in the political system, they had considerable production capacities; while after privatization, many of them took relatively successful development paths. Understandably, the economic performance of dominant companies exercised strong positive or negative influence on the achievements of these cities. Among these cities, Dunaújváros has the largest EP value. Not only its population makes it stand out from this category but also its economic structure approximates those of the complex centres. The city owes its current position primarily to ISD Dunaferr having Ukrainian owners (it is indirectly owned by the Russian Vnesheconombank), as well as the Hungarian subsidiary of South Korean tyre-manufacturing Hankook Tire launched in 2007. Yet, the EP value of Dunaújváros shows strong fluctuations: in 1992, it ranked 9th; in 2011 it dropped back to 18th position, but in 2012 it stood at 7th position. This fluctuation evidently results from changes in Dunaferr's operations, and because of the consistent weakening of the company's international position from the 1990s, the situation of the city became increasingly critical (which could not be counterbalanced even by new investments). Then,

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following state-of-the-art developments at the company, its aspiration to open to the Russian market generated positive changes. The EP value of Tiszaújváros fell to nearly one-fifth of its corresponding value in 1992, and the city reached its nadir ranking 56th in 2012. With its population of less than 16 thousand, the position of Tiszaújváros is fundamentally determined by the presence of Mol Nyrt's subsidiary, TVK Nyrt., which attracted such a global enterprise to the city as the American Jabil Circuit, currently 7000 employees strong. The city's position was negatively influenced (2010: 25th position, 2012: 56th position) by the American AES Corporation closing its steadily loss-making Tisza II Power Plant of Tiszaújváros in 2012 and the consequential dismissal of three-quarters of the workforce.

Unlike Dunaújváros and Tiszaújváros, which boast relatively complex economic structures, the positions of most traditional industrial centres are determined by only one company such as the Swedish Electrolux in Jászberény, BorsodChem Zrt. owned by the Chinese Wanhua Industrial Group in Kazincbarcika, and Borsodi Sörgyár Zrt., a subsidiary of Molson Coors Brewing in Bőcs. During the two decades under review, among the leading economic centres, only Százhalombatta had a stable position (ranging from 20th to 30th) thanks to two companies. Those companies were 1) the Dunamenti Power Plant (owned by the French GDF Suez), the biggest power plant in Hungary, consisting of six blocks with a combined capacity of more than 2000 MW, and 2) Hungary's only oil refinery, the 8.1 million ton capacity Duna Refinery run by Mol Nyrt.

A common characteristic of chemical, industrial (Tiszaújváros, Kazincbarcika, and Százhalombatta) and metallurgic centres (Dunaújváros) is that the energy demands of the factories are satisfied by smaller or larger power plants. On the other hand, there are certain extraordinary cases when solely the power plant determines the position of the city. The most important power plant city is Paks, with Hungary's only nuclear power plant. Although in 2012 this four-block power plant of 2000 MW capacity produced a record 45% of the country’s overall electric power output, the position of Paks weakened; its EP value dropped to nearly one-quarter of its former value, and the city lost 16 points in rank. This can be explained by the fact that, while the operating costs of the power plant steadily increase, because of its full state ownership, the price of the generated energy must be kept low. However, the projected expansion of the nuclear power plant in Paks has the potential to improve the position of the city again. A special example is Visonta, with less than 1100 inhabitants, as its position (2012: 46th place) is almost exclusively determined by Mátrai Hőerőmű Zrt., with a 950 MW capacity plant owned by the German RWE and EnBW energy companies, as well as lignite mines integrated with the power plant.

Tourism cities and towns

According to the National Tourism Development Strategy[4], Hungary's tourist attractions with the most significant international appeal are the capital, Budapest, and the Balaton region. In view of the geographic distribution of guests in commercial accommodation units, Behringer and Kiss (2004) concluded that Hungary can be described as having a very

4 National Tourism Development Strategy of Hungary 2005-2013 (http://neta.itthon.hu/szakmai-oldalak/strategiai-dokumentumok/nemzeti-100112)

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strong concentration around Budapest/Lake Balaton but with very different annual preferences. According to the analysis provided by Sulyok and Kiss (2006), Budapest receives tourists at nearly the same intensity throughout the year. However, in the case of Lake Balaton, significant summer (from June to August) seasonality can be detected; with nearly two-thirds of the guest nights purchased for this part of the year. Besides Budapest and Balaton, only the spa cities and towns (e.g. Bükfürdő, Gyula, Hajdúszoboszló, Hévíz, and Zalakaros), which are less affected by seasonal effects, are tourist attractions of international appeal.

In all respects, Budapest can be regarded as Hungary's most significant tourist destination; however, it cannot boast of such an outstanding position that it can be assumed based on its EP value. In 2012, the capital's EP value exceeded the combined EP value of the next 999 settlements (Figure 2), but – for instance – with respect to the number of guest nights, the following 20 settlements (Table 2) exceeded that of Budapest. Among the leading tourist cities and towns, the bathing towns (e.g. Hévíz, Hajdúszoboszló, Bük, Sárvár, Zalakaros, Gyula, Harkány, and Egerszalók) have outstanding roles, including the settlements around Lake Balaton (e.g. Siófok, Balatonfüred, and Balatonszemes) and the large cities (e.g. Sopron, Győr, Eger, Szeged, Debrecen, Miskolc, and Pécs) offering complex tourist attractions.

Table 2

Most visited cities and towns in Hungary by overnight stays in hotels, campsites and other collective accommodation establishments, 2012

City/town	Rank by overnight stays	Overnight stays	Population	Proportion (Hungary = 100%)	EP Rank	EP
Budapest	1	7,412,561	1,735,711	33.99	1	51.07
Hévíz	2	1,004,622	4,663	4.61	157	0.02
Hajdúszoboszló	3	712,764	23,988	3.27	6	1.23
Bük	4	635,181	3,454	2.91	295	0.01
Siófok	5	625,333	25,441	2.87	24	0.38
Balatonfüred	6	479,711	13,313	2.20	117	0.04
Sárvár	7	453,000	14,812	2.08	80	0.08
Zalakaros	8	403,133	1,849	1.85	211	0.02
Sopron	9	369,103	60,528	1.69	34	0.25
Győr	10	357,916	128,567	1.64	2	3.37
Eger	11	304,187	54,867	1.40	36	0.24
Gyula	12	296,690	31,199	1.36	101	0.05
Szeged	13	250,649	161,837	1.15	10	0.89
Debrecen	14	248,397	204,333	1.14	4	1.48
Miskolc	15	243,622	162,905	1.12	12	0.77
Pécs	16	203,138	147,719	0.93	16	0.55
Visegrád	17	180,914	1,795	0.83	212	0.02
Harkány	18	163,625	4,087	0.75	233	0.02
Balatonszemes	19	149,602	1,827	0.69	–	0.00
Egerszalók	20	137,828	1,927	0.63	356	0.01
Total		*14,631,976*		*67.10*		*60.50*

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A comparison of the EP ranking (Table 1) with the list compiled based on the number of guest nights (Table 2) highlights the fact that settlements with mainly tourism profiles carry outstanding significance, yet their positions tend to be weak. Nine settlements of the leading tourism centres could not manage the TOP100 in the EP ranking (Balatonszemes was not in the TOP1000, either), while their combined EP value was only 0.27, corresponding to Kaposvár's EP value (45th position). This means that tourism – no matter the outstanding significance this segment of the national economy is attributed in Hungary (Tóth 2009) – influences the positions of the individual settlements to a negligible extent. In the case of large cities, the role and significance of tourism can be observed even to a smaller extent.

However, the EP ranking includes two medium-sized cities whose tourism attitudes have a crucial influence on their leading positions, although they both host a manufacturing firm and utility company with a determining nationwide role. One of these medium-sized cities is Siófok (2012: 24th position), the most important node of tourism in the Balaton region. According to Beluszky & Győri (2004), beside its role in tourism, Siófok has already established typical urban institutions, while its economic function is strengthened by the presence of the German Eckes-Granini Group-owned Sió-Eckes Kft., Hungary's largest producer of fruit juices. The other important tourism centre of the EP ranking is Hajdúszoboszló (2012: 6th position), which is considered a highly visited bathing town even on a European scale (Erfurt-Cooper–Cooper, 2009). In addition, it hosts the headquarters of Tigáz Zrt. (owned by the Italian ENI), one of Hungary's largest gas suppliers, operating in nearly 1100 settlements and serving some 1.2 million consumers.

New economic centres

After the change in the political and economic system, the tendencies and territorial allocation of foreign direct investments (FDI) strongly influenced which settlements – how and when – could become the new nodes of the economy. At the beginning of the 1990s, foreign multinational corporations first appeared in Budapest, and then in the cities of the Western Transdanubian region (Barta 2005). Lux (2005, p. 85.) suggests that a west-to-east decline became prevalent due to the distance, but, even among the areas of the Transdanubian region, only those that had appropriate transportation facilities could attract capital. Consequently, it was the settlements of the Budapest Agglomeration (e.g. Budaörs, Gödöllő, and Törökbálint) that first closed the gap with the traditional economic centres. The large cities of the Western Transdanubian region (e.g. Győr, Székesfehérvár, and Szombathely) later strengthened their positions.

At the beginning of the 1990s, the target areas of FDI were generally small- or medium-sized cities and towns, where foreign multinational corporations established considerable manufacturing subsidiaries within the framework of greenfield investments. A general characteristic of the new economic centres is that a small number of (or frequently just one) multinational corporations determine their EP value, while previously they used to have very weak power. Immediately after the change in the political system, one of the largest investments was the establishment of General Motor's Opel factory in Szentgotthárd, which started to manufacture engines in 1992. In that year, based on its EP value, Szentgotthárd was still not among the first 1000 settlements. Although, in 1993, it

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ranked 25th, by 1995 – ahead of large cities such as Szeged, Székesfehérvár, Pécs and Miskolc – it was the 5th most important economic centre. Naturally, Szentgotthárd could preserve that position only until other settlements also became scenes of investments of a similar scale. Therefore, it is not surprising that in 2012, it was only 65th in its EP ranking. Other new economic nodes, such as Bicske, Esztergom, Hatvan, Jászfényszaru, Komárom, Rácalmás, and Tab, witnessed very similar economic processes. These processes also contributed to the growth of the Budapest Agglomeration's new economic centres (e.g. Biatorbágy, Budaörs, Fót, and Törökbálint).

The course of growth taken by Szentgotthárd is characteristic of all the new economic centres. Table 3 shows that these settlements had much poorer positions in 1992 than in 2012; moreover, in terms of the rate of EP growth (more than 1000 %), Jászfényszaru, Rácalmás, Biatorbágy and Szentgotthárd were entirely special cases.

Table 3

Change of the position and Economic Power of the new economic centres, 1992/2012

City/town	Population, 2012	1992		2012		EP change, 1992=100%	Headquartered MNCs
		EP	Rank	EP	Rank		
Budaörs	27,306	0.24	45	1.42	5	491.76	BAT, Tchibo, Metro, Tesco, Auchan, Total
Bicske	11,813	0.14	72	0.69	13	382.53	Spar
Törökbálint	13,015	0.26	41	0.47	17	76.39	Telenor, dm-Drogerie Markt
Gödöllő	32,792	0.40	28	0.42	19	3.38	Teva, Avon Cosmetics
Komárom	19,200	0.13	79	0.40	22	214.40	Nokia, Foxconn
Biatorbágy	12,638	0.03	178	0.37	25	1021.19	Lindab, Scania, Atlas Copco, Ruukki
Jászfényszaru	5,664	0.01	562	0.36	26	6755.63	Samsung Electronics, Samsung C&T
Jászberény	26,809	0.26	42	0.36	27	36.37	Electrolux
Esztergom	28,550	0.10	92	0.35	28	245.88	Suzuki, Tyco Electronics
Fót	18,927	0.09	97	0.33	29	243.74	Philip Morris
Vecsés	20,164	0.04	165	0.30	31	715.32	Wizz Air (until 2011)
Hatvan	20,525	0.12	83	0.23	39	93.26	Robert Bosch
Rácalmás	4,479	0.01	442	0.22	40	2715.10	Hankook Tire
Szentgotthárd	8,787	0.00	–	0.11	65	–	General Motors

A particular correlation can be detected between the territorial allocation of the new economic centres and the types of settled multinational corporations. The settlements of the Budapest Agglomeration (primarily Biatorbágy, Budaörs, Fót, Gödöllő, and Törökbálint) mostly accommodate retail companies (e.g. Metro, Tesco, Auchan, and dm-Drogerie Markt) as well as the Hungarian or Central European regional commercial centres of manufacturing companies (e.g. BAT, Teva, Avon, and Philip Morris). On the other hand, the new economic centres lying farther from the capital (e.g. Esztergom, Jászfényszaru, Jászberény, Komárom, and Szentgotthárd) tended to attract manufacturing firms (e.g. Suzuki, Samsung, Electrolux, Nokia, Foxconn, and Opel).

Nevertheless, a critical factor is that the new economic centres – even the relatively populous Komárom and Esztergom – have fairly one-sided economic structures because they are determined by a single or a small group of manufacturing units. The inherent risks are most clearly observed in the example of Esztergom. The Japanese Suzuki Motor Corporation launched its Hungarian production in Esztergom in 1992; in the same year, the city ranked 92nd in the EP ranking. By 1994, manufacturing was expanded to two shifts, export production commenced, and the city found itself rising to the 42nd position. In 1996,

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one of every five new cars commissioned in Hungary was released from Esztergom's Suzuki factory, resulting in the 31st position for the city. In 2007, Esztergom was the 16th largest economic centre, although this upward trend was broken by the economic crisis. The same view is reflected in Magyar Suzuki Zrt's announcement made in December 2008: "*As a consequence of the global financial and economic crisis as well as the deterioration of market conditions, Magyar Suzuki Zrt's sales volumes have been drastically dropping, and therefore it has become necessary to reduce the production output in adaptation to the actual demands. On 8 December 2008, manufacturing was reset to the two-shift work schedule*."[5] Therefore, it is not surprising that in 2009, Esztergom slid back to 63rd position in the ranking. It is true, however, that due to the improvement of the global economic environment and Magyar Suzuki Zrt's more massive export operations, today the city has re-established itself as one of the leading economic centres (28th position in the 2012 EP ranking).

The case of Szentgotthárd and Esztergom clearly reflects the fact that individual multinational corporations settling in the new economic centres have the potential to influence the positions of these cities radically. For similar reasons, it is expected that in the future, Komárom will lose its 22nd position of 2012; the parent company of the city's largest firm, Nokia, announced at the beginning of 2012 that the manufacturing of smartphones will be relocated from Komárom (similarly to the Mexican Reynosa and Finnish Salo) to Asian plants. By the end of 2012, Komárom's Nokia factory had dismissed half of the employees (2300 workers), and the production output was cut back; in 2014, the firm ceased operation. Obviously, similar external effects may be suffered by economic centres of the Budapest Agglomeration, although because of the proximity of the capital as well as the retail and non-producing character of these companies, it is not very likely.

Offshore cities/towns

Countries that impose relatively small tax burdens – if any – on multinational corporations have become highly important actors of the global economy (Hines 2004). A common characteristic of tax havens is that, by keeping their corporate income tax rates low, they offer appropriate business environs to multinational corporations (Dharmapala 2008). As Hines (2004) suggests, the pivotal point in this respect is the application of a tax rate that is much smaller – or even 0% – than the effective 35% corporate income tax rate in the United States. This encourages corporate giants of the world's largest economy to find a place for their profits in tax havens so that, consequently, income-related taxes paid will be reduced in the United States,[6] and instead paid – yet obviously to a much smaller extent – in tax havens. Although opportunities to achieve considerable savings encourage multinational corporations to take similar steps in all developed countries, it is companies from the United States that excel in trying to avoid domestic tax payment. Dharmapala and

5 Announcement of the Magyar Suzuki Zrt. on the reduction of the workforce (http://www.suzuki.hu/pages/display/magyar_suzuki_zrt./cikk/cikk:2008_december_19._-_a_magyar_suzuki_zrt._kozlemenye_a_letszamcsokkentessel_kapcsolatban)

6 Bloomberg claims that Microsoft, Apple, and Google together keep a fortune of USD 134.5 billion outside the United States. The offshore list compiled by the news agencies is topped by the conglomerate of General Electric, with USD 108 billion followed by the pharmaceutical giant Pfizer, with USD 73 billion. (http://www.bloomberg.com/news/2013-03-08/offshore-cash-hoard-expands-by-183-billion-at-companies.html)

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Hines (2006) identified nearly 40 tax havens, such as Bermuda, Hong Kong, the Cayman Islands, Liberia, Panama, and Singapore, as well as Cyprus, Ireland, Luxemburg and Switzerland in Europe. In the past, Hungary was not classified by the OECD (2000) or researchers (Hines 2004, Dharmapala–Hines 2006, Dharmapala 2008) among official tax havens, but according to Gravelle (2009, 2013), it would be justified to apply this category to Hungary, in the same company as Austria, the United States (Delaware, Nevada, and Wyoming), the United Kingdom and Canada.[7]

In Hungary, foreign companies were first allowed to establish offshore entities not involved in domestic economic operations in 1994. These companies did not pay local taxes or VAT, and until 2004 they were required to pay 3%, and then until 2005 4% corporate tax. It is not surprising that the number of offshore entities steadily rose, while after the initial few billions of Hungarian Forint (HUF), the aggregate amount of their registered capital in 2005 exceeded HUF 2000 billion. This growth of offshore companies came to an end with the country's accession to the European Union because the corporate income tax rate was increased to the standard 16% level (which is still much lower than the 35% rate applied in the United States); currently, it is 19%. Despite this, the tax regulations still permitted the entities registered in Hungary to transfer profits to the foreign parent companies without paying withholding taxes, and arrange funding within the individual groups with no need to pay the local trading tax. In spite of the increased corporate tax rate, these allowances proved to be extremely favourable conditions.

Table 1 reflects that in 2012, Újlengyel (ranked 9th) and Csomád (ranked 15th) were among Hungary's leading economic centres. The former settlement first hit the level of the EP 1000 ranking as early as 1994; the latter reached this category in 2004, yet their EP values drastically increased until 2012. Csomád's EP value showed a growth of 17.616%, whereas Újlengyel's EP value rose by 41.742%. The following question can be legitimately raised: which giant domestic companies or large foreign multinational firms have created huge manufacturing units in these settlements (similarly to e.g. Győr or Székesfehérvár), or which international retail chains or banks have relocated their Hungarian headquarters there (similarly to e.g. Budaörs or Törökbálint)? The answer is simple: there are no such companies or banks. Neither Újlengyel, with a population of 1672, nor Csomád with a population of 1546, has factories, banks, or retail chain headquarters. These small towns in Pest County are the most well known Hungarian offshore towns where companies state compelling financial parameters while failing to perform any actual domestic operation. Obviously, there are also large cities where offshore companies have settled – one of the best examples being Szombathely (HVG 2011). However, offshore towns, e.g., Újlengyel and Csomád, are not scenes of any considerable economic activity.

Based on the economic performance of registered offshore companies, Hungary's largest offshore town is Újlengyel in Pest County, as the combined assets of companies headquartered in the town correspond to the combined assets of Miskolc, population 163,000, or Kecskemét, population 112,000. In Újlengyel, a seemingly powerful corporate empire has been built up by Transocean Ltd, the world's largest offshore drilling contractor, under the name of Triton. Obviously, the offshore subsidiaries of foreign multinational

7 Others state that Hungary is not a tax haven, but rather a country of low tax regime. (OECD Tax Database: http://www.oecd.org/ctp/tax-policy/tax-database.htm#C_CorporateCaptial)

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corporations have also established themselves in other settlements, such as Fibria Celulose[8] (Sao Paulo, Brazil) operating in the pulp and paper industry in Csomád or the Petrobras (Rio de Janeiro, Brazil) oil giant in Szombathely (HVG, 2011).

After Hungary acceded to the European Union, foreign multinational corporations still saw benefits in running offshore enterprises in Hungary despite the increased rates of incomes tax and the bureaucratic tax regime, as it proved to be a huge advantage that Hungary was not declared a tax haven. The tax authorities of the United States tend to sharply distinguish companies that have registered themselves in tax havens from those settling in countries of average tax rates[9], irrespective of whether they are actually involved in offshore operations. It is highly likely that the – otherwise not too substantial – correlation unveiled between the 2010 disaster of the Deepwater Horizon drilling rig and Újlengyel may contribute to Hungary's judgment as an offshore tax haven[10] (Gravelle 2013). In case this negative image does affect the offshore operations of multinational corporations, the positions of domestic offshore settlements are expected to weaken considerably in the future.

Summary

This study has attempted to use a method, applied in international practice, to identify and rank cities and towns as centres of the Hungarian economy. Therefore, a complex indicator (Economic Power – EP) has been introduced to integrate financial parameters describing economic entities that operate in the individual cities and towns. As data were available from the early 1990s, it was possible to demonstrate relatively long-term changes in the positions of the economic centres instead of their less-informative static conditions. The strong centralization of the Hungarian economy is clearly reflected in that, every year, the 100 largest economic nodes provided an average of 80% of the national EP value, whereas Budapest itself covered 45–50%. The other 900 settlements involved in the analysis made only a 15% contribution overall to Hungary's economic performance.

The EP values of the cities and towns were influenced by vastly different economic factors that varied over time; however, it was possible to establish a classification corresponding to the objectives of the analysis. In the analysis, we identified the following categories of leading economic centres: a metropolis with a complex industrial profile (Budapest); large and medium-sized cities with a complex industrial profile (the county seats and the quasi-regional centres); traditional industrial cities; new economic centres; tourism cities and towns; offshore cities/towns, and other cities, towns and villages. The

8 Fibria Celulose SA (http://www.fibria.com.br/rs2012/fibria-sustainability-report-2012.pdf)

9 The International Consortium of Investigative Journalists. Authorities Announce Tax Haven Investigation. (http://www.icij.org/blog/2013/05/authorities-announce-tax-haven-investigation)

10 Of course, Újlengyel's offshore function has always been known in Hungary (it is indicated by the numerous newspaper articles written about offshore activities in the settlement), yet international organizations have started to focus on the settlement just recently. The underlying reason is that in the Gulf of Mexico, 2010 witnessed the sinking of the Deepwater Horizon deep-sea drilling rig rented at that time by BP, the British oil multinational corporation, from its owner, Transocean Ltd. In the history of the United States, it has been the largest environmental disaster so far. In terms of the expanse of the oil contamination over the sea, it was the second largest such catastrophe of all time. The follow-up investigation and court proceedings revealed that the drilling rig was once owned by Triton Hungary Asset Management LLC, based in Újlengyel, although in 2009 – less than a year before the disaster – it was transferred to Triton Asset Leasing GmbH, headquartered in Zug, Switzerland.

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economic structures of Budapest and the regional centres are highly complex; for them, no dominant economic factors can be observed, although there is no doubt that the economic performance of regional centres was perceptibly affected by changes in FDI. Traditional industrial centres featuring mostly weakening positions were gradually replaced by the new economic centres.

These generally small- or medium-sized cities and towns, which used to be negligible actors of the economy, have become significant economic nodes because of investments by foreign multinational companies. On the other hand, their achieved positions are very unsteady – probably, only the economic centres in the Budapest Agglomeration possess relatively stable positions – because, as a consequence of any negative investment decision, they could disappear as quickly as they emerged. Less-known actors of the Hungarian economy are offshore settlements that are usually not examined in similar analyses (primarily because they do not contribute at all to employment). In these settlements with a population of 1000-2000, offshore companies pursue activities only on a superficial level – yet they have real economic power (which is reflected by the huge amounts of corporate tax they pay). Offshore cities and towns have tried to exploit the particular characteristics of domestic tax regulations to become the target areas of foreign multinational companies pursuing offshore activities, while their positions – moreover their existence in this case – are primarily influenced by external factors.

In 1992, the leading economic centres were arranged along a relatively logical scheme: Budapest with its complex economic structure was followed by the regional centres and larger county seats, and just certain special industrial centres were included among them. By 2012, this structure had been transformed, becoming more complicated, with domestic and foreign effects equally influencing its changes.

* * *

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