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EDITORIAL INTRODUCTION

Gábor Pirisi – Viktória Szirmai

Since its inception, *CITY.HU – Urban Studies Review* has pursued two central missions. First, to present the major economic, spatial, and social issues shaping different types of urban areas; and second, to analyze both the historical background of these determining mechanisms and the most recent transformations affecting spatial development, since Hungary's EU accession and its integration into the globalized world. While the journal primarily focuses on Hungarian urban development processes, it also aims to foster cooperation between researchers and urban policy-makers by providing a forum for dialogue and knowledge exchange.

This current issue is *the first English-language edition of CITY.HU.* Beyond the journal's founding goals, one of the key objectives of this issue is to introduce the most significant Hungarian urban development processes to the international scientific community. To realize this ambition, the editors have prepared a *special issue* that presents both to the wider international readership and to Hungarian urban policy circles the economic, social, and spatial issues of Hungarian cities and towns within a European and global context. The majority of ongoing urban transitions in Hungary's urban network is deeply embedded in global processes, a fact this issue seeks to highlight. Furthermore, the concept of *CITY.HU* intentionally goes beyond describing cities as isolation units. Instead, it adopts a metropolitan perspective examining the complex relationships between core cities and their surrounding suburban or peri-urban areas.

Budapest as the global nexus of the Hungarian urban network

The first focal point of this issue is *Budapest*, which, as Hungary's only true metropolis, has always played a decisive role – not only within the national settlement network but also in urban research more broadly. When exploring Hungary's *global embeddedness*, the capital city is an unavoidable subject. This is due not only to its *gateway function* but also to its size and diversity, which make it the only location where many national phenomena can be observed in their entirety. Consequently, any investigation into the challenges facing Hungary's settlement network, must begin here.

The study by *Gyula Szabó and Réka Tóth* explores Budapest's integration into the global economy, addressing, topics, such as the city's ranking in international comparisons, the role of foreign direct investment and multinational corporations, financial and business services, startups, and potential directions of future economic development. Through this, the authors aim to contribute to a more nuanced and comprehensive understanding of the Hungarian capital's role in the global urban hierarchy.

A similar approach is taken by *Viktória Szirmai* in her study, *"The Issues of the 'New Urban Crisis' and Their Special Manifestations in the Hungarian Settlement Networks"*. Here, Budapest serves as a detailed case study and at the same time as an intellectual gateway to the special issue as a whole. The author surveys the global challenges that urban networks face today, placing *inequalities* at the centre – an essential dimension of the *New Urban Crisis*.

Budapest and its wider urban region are themselves products of inequality. They form part of the global North, concentrating a substantial share of Hungary's human and material resources as well as production capacities. Yet, the capital is also a landscape of internal inequalities: its prospering and declining districts, its affluent suburbs, and socially deprived housing estates together constitute the contemporary reality of Budapest.

The study by *Júlia Schuchmann* further elaborates on this by comparing Budapest and its metropolitan area with the rural urban regions of over 100,000 inhabitants. By using demographic (migration, population change), social (income, educational attainment) and economic (capital investments, taxation) indicators the author identifies patterns of convergence and divergence among Hungary's major urban areas, highlighting the persistent and structural inequalities within the urban system.

Urban resilience and the pandemic

Some challenges have long-term implications, shaping development trajectories over decades. In such cases, adaptation resembles a marathon rather than a sprint. However, in the spring of 2020, a new factor emerged in the world's metropolises, that posed an immediate and unprecedented threat. The relationship between cities and epidemics, evidently, is as old as urbanisation itself – crowded environments have long acted as breeding grounds for disease. Yet, it was widely believed that Western cities had overcome this historical vulnerability through advances in public health. The COVID-19 pandemic revealed how mistaken that belief was.

The *symbolic images of the pandemic* were all urban: empty streets during lockdowns, emergency hospitals built overnight, exhausted health workers, and moments of community solidarity, resilience and hope.

Annamária Uzzoli and her co-author chronicle Budapest's experience as the domestic epicentre of the pandemic. The city, by virtue of its gateway function faced not only epidemiological challenges but also complex health policy and urban governance issues.

Even today, it remains difficult to determine unequivocally how successfully Budapest managed this challenge. Despite an ageing population and the sometimes contradictory measures of central epidemic management measures, the capital's vulnerability was not substantially greater than the Hungarian average or that of comparable metropolises in Central Europe.

Small towns and macro-processes

The second half of this special issue turns to the scale of *small-towns,* whose challenges, while distinct, are rooted in the same global processes that affect larger cities. Although their resources and scope for action are limited, their exposure to global and environmental transformations is growing.

Among these, the most critical factor today is the *climate crisis*. Its recognition and acceptance – both in planning and, in society at large – have developed gradually over recent decades. Consequently, climate change and adaptation have now become an integral part of mainstream planning practice.

The study by Péter Csorba examines small-town planning through an analysis of strategic documents from *34 Hungarian towns* with populations between 10,000 and 25,000, alongside an empirical survey conducted in the small East-Hungarian small town of *Tiszaföldvár*. They underscore not only *spatial disparities* but also the fact that residents' ability to sustain their living standards varies significantly depending on the town's level of development. Importantly, only the most climate-conscious communities can actively engage local residents in the planning process.

Another study by *Gábor Pirisi, Ernő Molnár, and Balázs Berkecz* focuses on *urban shrinkage* as a sustainability issue – specifically the *demographic sustainability* of settlements – which is closely tied to their economic weight and performance. Shrinkage is a primarily European, and particularly Central and Eastern European phenomenon, strongly associated with the small-town condition. While large cities can also experience population decline, the archetype of the shrinking small-town searching for its 21st century role has become widespread across the Western world, and it is especially prevalent in Eastern Europe.

Shrinking is not inherently problematic, but its consequences can be. The study focuses on the *education sector*, exploring how demographic trends manifest in the network of secondary schools in small towns. Two findings are particularly noteworthy: first, that the decline in student numbers often outpaces the overall population decline of the settlement; and second, that in certain smaller towns, this trend increasingly *threatens the very existence of secondary schools* – institutions that have long been emblematic of small-town identity and autonomy.

Urban diversity and social change

Historically, cities have always been home to heterogeneous social structures, where people of different ethnic and religious backgrounds coexisted. The larger the settlement, the more pronounced this diversity tended to be. In Hungary, however, the 20th century brought about a powerful – and in many respects tragic – process of homogenisation. As a result, the re-emergence of *urban diversity* has become a novel experience in the early 21st century.

Since public discourse often focuses not only on the positive, but also on the perceived negative consequences of this transformation, academic research has a crucial role in providing an objective perspective. The paper by *Réka Horeczki and Gábor Lados,* examines the number, proportion, and spatial distribution of *foreign citizens* in Hungarian towns. This indicator – an excellent measure of global integration – reveals highly significant differences across settlements, correlating strongly with the degree to which local economies are embedded in global networks.

Szabó, Gy., Tóth, R. (2025): Budapest in the global economic system. CITY.HU Várostudományi Szemle. 5(2), 11–30.

Budapest in the global economic system

Gyula Szabó[1] – Réka Tóth[2]

Abstract

Cities remain key economic, political and cultural hubs, shaping both their immediate surroundings and wider regional development. This study explores the evolving economic role of Budapest within the context of globalization and the global urban network. While digitalization and the decentralization of production are reshaping traditional spatial structures, large cities continue to act as centres of governance and innovation.

Using key indicators – foreign direct investment, the presence of multinational corporations, business and financial services, startups and human capital – the paper analyses Budapest's integration into the global economy. Maintaining its Beta-position in the GaWC ranking, the city functions as a vital intermediary between Hungary and the world economy. Budapest continues to be a primary location for foreign investment, multinational investment centres and business service centres, while its expanding startup ecosystem highlights the city's innovation potential. Although the financial sector has recently shifted towards domestic ownership, and the concentration of foreign capital has declined, Budapest remains a leading hub for foreign investment and business services.

The findings highlight both the vulnerabilities and opportunities of international embeddedness. The study concludes that Budapest's future competitiveness will depend on strengthening human capital, fostering innovation, and implementing coherent spatial and digital development strategies, while preserving its role as a bridge between East and West in the global urban hierarchy.

Keywords: global city, foreign direct investment (FDI), globalization, urban development, competitiveness

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Absztrakt

A városok továbbra is kulcsfontosságú gazdasági, politikai és kulturális központok maradnak, kihatva a közvetlen környezetükre, valamint a tágabb regionális fejlődésre is. Jelen tanulmány Budapest változó gazdasági szerepét vizsgálja a globalizáció és a globális városhálózat összefüggésében. Bár a digitalizáció és a termelés decentralizációja átalakítja a hagyományos térszerkezeteket, a nagyvárosok továbbra is a kormányzás és az innováció központjaiként működnek.

A tanulmány kulcsindikátorok – a külföldi közvetlen tőkeberuházások, a multinacionális vállalatok jelenléte, az üzleti és pénzügyi szolgáltatások, a startupok és az emberi tőke – segítségével elemzi Budapest integrációját a globális gazdaságba. A GaWC rangsorban megőrzött Beta-pozíciójával a város továbbra is létfontosságú közvetítő szerepet tölt be Magyarország és a világgazdaság között. Budapest elsődleges helyszíne maradt a külföldi beruházásoknak, a multinacionális vállalatok befektetési központjainak és az üzleti szolgáltató központoknak, miközben kiemelt jelentőséget kap bővülő startup-ökoszisztémája a város innovációs potenciálja. Bár a pénzügyi szektor az utóbbi időben inkább a hazai tulajdonban lévő szereplők irányába mozdult el, és a külföldi tőke koncentrációja csökkent, Budapest továbbra is a külföldi beruházások és üzleti szolgáltatások egyik vezető központja.

Az eredmények egyaránt jelzik a nemzetközi beágyazottság sebezhetőségeit, és lehetőségeit. A tanulmány arra a következtetésre jut, hogy Budapest jövőbeli versenyképessége a humán tőke erősítésétől, az innováció ösztönzésétől, valamint a koherens térbeli és digitális fejlesztési stratégiák megvalósításától függ, miközben megőrzi szerepét a kelet és nyugat közötti híd szerepében a globális városhierarchiában.

Kulcsszavak: globális város, külföldi közvetlen tőke-beruházás (FDI), globalizáció, városfejlődés, versenyképesség

Introduction

Historically, cities have served not only as political and cultural hubs but also as key economic centres. Their development – and deliberate planning – extended beyond city boundaries, influencing regional growth (Erdősi 2003). Budapest exemplifies this role: as a "gateway city" it absorbed impulses from abroad, especially Western Europe, and transmitted them not only to its surrounding region, but also to the entire country (Enyedi 1998).

Central settlements often functioned as "*hubs*", concentrating production factors, and industry actors to operate in close proximity benefiting from mutual interactions. Recent decades, however, have seen a profound economic transformation. The free flow of capital, the removal of trade barriers, lower transportation costs, and rapid technological advances have enabled global value chains, allowing production stages to locate where efficiency is the highest. As a result, spatial constraints on corporate location have weakened. Information technology has also reshaped work, giving rise to "*digital nomads*" who change their residence freely while serving distant employers. In this context, proximity to competitors is no longer inherently advantageous, prompting more flexible, global corporate strategies.

Scholars examining cities' economic roles have naturally tried to reflect on these changes, and at the turn of the millennium, they increasingly debated the impact of globalization on traditional hubs.[3] While some production processes – especially assembly – have moved to developing countries with lower labour costs, management and governance activities have become geographical concentrated. Certain sectors, such as information technology, require "*hypercentralised*" infrastructures (Sassen 2000). Consequently, a "*new economy*" has emerged in developed countries and their major cities, driven by services and research and development linked to industry. Here, spatial concentration persists, motivated by opportunities for learning and innovation rather than technological necessity (Enyedi 2016). Cities remain central to global economy: by 2025, the 600 largest metropolises are projected to generate 60% of global economic growth (McKinsey 2011).

[3] For the sake of completeness, it is important to acknowledge that opposing perspectives have also emerged. For instance, Barber (2013) argues that globalization leads to the decline of nation-states and the emergence of "city-states". Enyedi (2016) offers a more nuanced view: he contends that globalization weakens nation-states both "*upwards*", through their integration into supranational structures, and "*downwards*", through their exposure to a "Europe of metropolises".

It is important to note that global cities are not isolated entities, but form complex, hierarchical networks. Networking processes have produced a two-tier structure consisting of nodes and their associated sub-nodes, as well as the connections linking them. Multinational corporations play a central role in shaping these connections (Taylor 2012).

A key question is the extent to which Budapest has integrated into the global economy. This study aims to address this question and to identify key indicators that reflect the capital's international economic role.

Examining the role of cities in the global economy

How can a city's role in the global economy be assessed and what are the determining factors? In parallel with the economic globalization, the criteria for evaluating these questions have also evolved. *Table 1* – without claiming to be exhaustive – provides an overview of the factors that the domestic and international literature considers most relevant for examination.

Table 1.

Factors determining a global city's role in the literature[4]

	Cohen, 1981	Soldatos, 1988	Knox, 1995	Enyedi, 1998	Sassen, 2000	Erdősi, 2003	Kotkin, 2016
Geographical location		X		X			
National center			X				
Population	X		X	X			
Multiethnic		X		X			X
Foreign multinational company headquarters / FDI	X	X	X	X	X	X	X
Domestic multinational companies		X					
Headquarters of international organizations	X	X	X				
Business services center	X			X	X		X
Financial center	X				X	X	X
Significant manufacturing industry	X						
Significant service sector					X	X	
Transportation hub	X					X	X
(Telecommunication) infrastructure		X		X		X	
(International) cultural center, foreign media access			X				
Foreign social, diplomatic relations, relevant institutions		X		X			
Skilled workforce, R&D				X	X		
Other		X		X	X	X	X

Sources: Barta 1998; Enyedi 1998; Sassen 2000; Erdősi 2003; Kotkin 2016

[4] The header includes the author's surname and the publication year of the study in which the analytical points were raised.

There is no complete consensus among researchers regarding which factors are most relevant for understanding a city's role in the global economy. while the presence of multinational corporations and foreign direct investment (FDI) is widely regarded as essential, the importance of other factors, such as population size, is less uniformly assessed. Some studies, such as Erdősi (2003), argue that population size is far less decisive for a city's global status than the presence of large firms. At the same time, the education level of city residents significantly influences which industries can develop locally, as sectors such as business services, research and development require highly skilled human resources. The proportion of foreigners may also provide valuable insight. In the European context, examining the presence of a developed manufacturing industry is less relevant, whereas access to high-quality telecommunications infrastructure is increasingly taken for granted. At the same time, it is important to examine financial and business services, without which internationalization would be unthinkable. In recent sources[5], has also highlighted the presence of startups has emerged as a new factor, reflecting their growing importance in the global urban economy. Based on the literature and current global trends – and with an economic focus – this study aims to address the following sub-areas:

- Budapest within the Globalization and World Cities rankings
- Selected demographic characteristics of the capital
- The role of FDI and multinational corporations
- The startup ecosystem
- Business and financial services

In addition the study seeks to outline the future vision for Budapest, providing a brief overview of current economic development plans for the city.

Budapest within the Globalization and World Cities rankings

Since the 1960s[6], with the rise of globalization, the attention of prominent researchers has increasingly focused on the role of cities in the world economy (Csomós 2015). Based on their studies, various rankings have been compiled emphasising different aspects of urban functions. One of the best-known world city indices, the *Globalization and World Cities, (GaWC) index* was developed by *Peter J. Taylor*. It ranks cities

[5] One example is Joel Kotkin's 2016 book *The Human City: Urbanism for the Rest of Us.*
[6] For example, researchers, such as Peter Hall, John Friedmann, Saskia Sassen, Peter J. Taylor contributed to this field (Csomós 2015).

according to the concentration of advanced producer services (APS) – including transportation, advertising, banking and legal services – and their integration into the world city network (GaWC 2020). Between 2000 and 2020, Budapest's classification changed several times, fluctuating between Alpha-, Beta+ and Beta-level categories *(Table 2)*.

Table 2.

Budapest's ranking based on the GaWC index (2000–2020)[7]

Year / Category	Alpha	Beta+	Beta
2000		x	
2004	x		
2008	x		
2010			x
2012		x	
2016		x	
2018	x		
2020		x	
2024		x	

Source: The author's own compilation based on GaWC (2024) data

The difference between the Alpha and Beta categories attained by the capital primarily reflects the economic weight of the region, which is linked to the circulation of capital in the global economy. According to the 2024 summary, Budapest ranks ahead of several of its Eastern and Central European peers, such as *Ljubljana* and *Bratislava*. Its classification is comparable to that of *Bucharest* and *Prague*, although it remains behind, cities, like *Warsaw* in terms of global significance (GaWC 2025).

Some relevant demographic data for Budapest

The population of Budapest declined from 1,759,209 in to 1,685,209 in 2025 – largely as a result of suburbanization processes (KSH, Table 22.1.2.1, n.d.).

During the same period, the number of foreign citizens living in Hungary increased from 110,028 to 255,443, representing 2.7% of the total population in 2025. A significant share of them (45.7%) reside in Budapest, accounting for 6.9% of the capital's total population (own calculation based on KSH, Table 22.1.2.17).

[7] The first ranking (1998) was excluded, as its compilation methodology differs from that of subsequent rankings.

A qualified workforce is a key prerequisite for successful integration into the global economy, particularly for the establishment of high-value-added activities. According to the 2022 census, the proportion of people with higher education in Hungary reached 19%, more than double the 2001 figure. A similar trend can be observed in Budapest, where the share of graduates is higher, at 34% (own calculation based on KSH 2022). Jobs in innovation-driven industries increasingly require qualifications in *science, technology, engineering, or mathematics (STEM)*. According to Eurostat (EUROSTAT 2025), only 15.9% of Hungarians aged 20–29 with higher education held a STEM degree in 2023, below the EU average of 22.1%.

The quality of human resources is strongly influenced by the standard of higher education. *Times Higher Education* annually publishes a ranking of the world's leading universities. In 2016, the ranking of nearly 1,800 institutions, only two Hungarian institutions were listed: *Semmelweis University* (501–600) and *Eötvös Loránd University (ELTE)* (601–800). In the most recent 2026 ranking[8], Semmelweis University improved its own position (251–300) and was joined by five other Budapest-based institutions – *Óbuda University* (601–800), ELTE (801–1000), *Budapest University of Technology and Economics* (1201–1500), *Hungarian University of Agricultural and Life Sciences* (1201–1500), *Pázmány Péter Catholic University* (1501+) – as well as six universities from outside the capital (*Debrecen, Szeged, Pécs, Győr, Miskolc, Veszprém*) (Times Higher Education n.d.).

The role of FDI and multinational corporations

Already during the period of Dualism, foreign entrepreneurs played a significant role in the development of Budapest's industry. They not only brought their expertise, but also substantial capital. This greatly facilitated the spread of the achievements of the first and second industrial revolutions, the overall modernization of the economy and its integration into the international arena. At the turn of the century, a considerable proportion of goods produced in Budapest proved to be competitive on the world market. Exports were primarily directed to other parts of the Austro-Hungarian Monarchy, the Balkans and Germany, but in some cases, milling products, electronic equipment and vehicles also reached South America.

It is worth mentioning not only the domestic activities of foreign entrepreneurs, but also the international presence of Budapest-based companies. With the construction

[8] Times Higher Education publishes its rankings one year in advance; therefore by the time the study was finalized (October 2025), the 2026 data had already been released.

of railway lines, from the 1870s onwards, the capital's agricultural traders played a key role in transporting grain from the Balkans to Western Europe. Meanwhile, leading companies from the capital established representative offices in major world economic centres. The boom in agricultural exports came to an end with the influx of cheap crops from the New World and Russia in the early 1900s. The First World War, the subsequent peace treaties and the Great Depression, all had adverse effects on this field but an even more significant turning point when Hungary became part of the Eastern Bloc after the Second World War. The country's high degree of isolation from the world economy was only gradually reduced from the 1960s onwards, when the inflow of working capital became possible – albeit in a limited and controlled manner (Beluszky 1998).

A real change came with the regime change: deregulation and liberalization opened the way for cross-border investments. Following the collapse of state socialism, the country – essentially capital-poor and struggling with significant public debt and technological backwardness – opened its doors wide to foreign, primarily Western investors. Capital inflows took place not only through greenfield investments but also via the privatization of previously state-owned companies.

In the early 1990s[9], the internationally known companies such as *Tungsram* and *Chinoin*[10] were sold, followed by the privatization of banks and certain public utilities in the mid-decade[11]. In other companies, foreign capital was raised through stock exchange listings, such as in the cases of *Richter* and *MOL*. *IBM* and *Phillips* entered Hungary by establishing new subsidiaries (Mihályi 2000; Szanyi 2017).

In international comparison, Hungary was particularly successful in attracting capital. In 1995, about 35% of all FDI directed to Central and Eastern European countries[12] flowed into Hungary. By 2001, approximately 20% of the region's total FDI stock was concentrated in the country (Sass 2004). However, from the outset, the spatial distribution of capital investments showed significant inequalities: investors mainly preferred Central Hungary, and within it, Budapest (Antalóczy, Sass 2005).

[9] Since a comprehensive presentation of all companies privatized or newly established by foreign owners would far exceed the scope of this study, we limit ourselves to a few selected examples only.

[10] *Tungsram* and *Chinoin* were both acquired by multinational corporations: the former by General Electric, and the latter is now part of the Sanofi-Aventis group.

[11] It is also worth noting that following privatization, several formerly state-owned enterprises – such as *Csepel Művek* and *Ganz Danubius Ship and Crane Factory* – were subsequently closed (Mihályi 2010). These closures had significant economic and social consequences, including rising unemployment and a considerable loss of national assets.

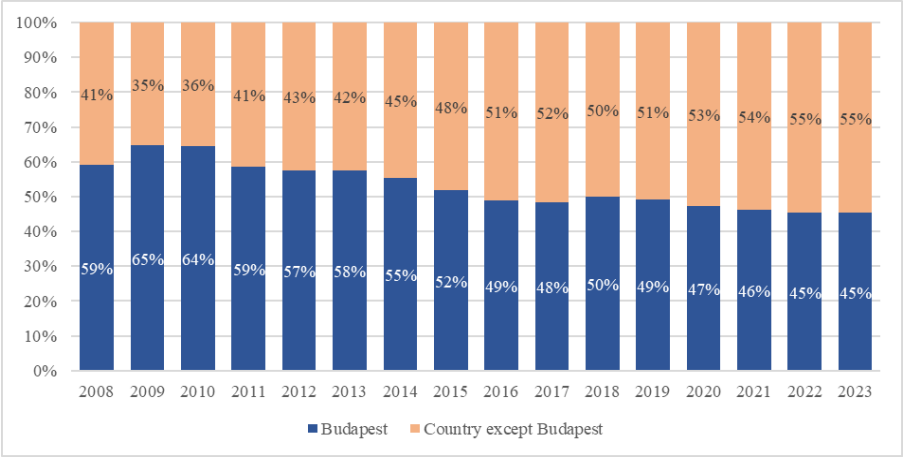
[12] For the purposes of this study, *Eastern Central Europe* refers to *Bulgaria, the Czech Republic, Estonia, Poland, Latvia, Lithuania, Hungary, Romania, Slovakia and Slovenia*.

After Hungary's accession to the European Union, the range of economic policy instruments that available to stimulate investment narrowed considerably[13], which "melted away" the country's previous advantage in the competition for foreign investments. From 2010 onwards, the government has selectively supported certain production sectors, such as the automotive industry (Antalóczy, Sass 2005; Szanyi 2017). However, the key players in these industries are not concentrated in the capital region[14].

Regional disparities in foreign direct investment have not disappeared completely, although they have significantly diminished. Examining the period between 2008 and 2023 *(Figure 1)*, it can be observed that while in 2009 65% of Hungary's net FDI stock[15] was concentrated in Budapest, this proportion gradually declined after 2010, reaching 45% by 2023. In that year, the capital's FDI stock amounted to more than HUF 18,521 billion, compared with a national total of HUF 40,777 billion (KSH BPM6, n.d.).

Figure 1.

Regional distribution of net FDI stock



Source: Authors' calculations based on data from the Hungarian Central Statistical Office (KSH) BPM6 (n.d.)

[13] Examples include the establishment of free zones and the granting of tax incentives, which are largely prohibited by EU law due to their market-distorting effects.

[14] The competition rules of the European Union prohibit the granting of state aid that distorts competition among economic operators. However, subsidies aimed at supporting the development of less advanced regions are permitted (Antalóczy, Éltető 2017). This may encourage some investors to choose a location farther from Budapest, if a sufficient number of potential employees are available in the given region and logistical conditions are also favourable (Stefanovics, Nagy 2021).

[15] Between 2008 and 2023, Budapest's share of foreign direct investment (FDI) reached its highest level in 2009. FDI share.

The spatial distribution of foreign-owned enterprises operating in Hungary is even more pronounced, showing an increasing predominance of the capital. In 2008, 61% of the 28,683 foreign-owned companies were headquartered in Budapest, while 39% were based in other settlements across the country. By 2023, among the 24,012 companies registered the proportions had shifted to 64% and 36%, respectively. Comparing the data for the two years, it can be stated that the change reflects not only a shift in proportions but also an overall contraction in the number of foreign-owned enterprises. Between 2008 and 2023, their total number declined, by around 16% nationwide. However, this trend affected Budapest to a lesser extent, with a decrease of "only" 13%, compared to a 22% decline in other regions (author's calculations based on KSH BPM6, n.d.).

Since Budapest[16] hosts a higher proportion of foreign-owned companies than its share of total FDI, it can be concluded that the most capital-intensive investments were not made in the capital.

To gain a more comprehensive picture of Budapest's global economic embeddedness and connectionist integration into global value chains, a more in-depth examination of the multinational corporations operating in the city is advisable. The COFACE CEE TOP 500 Ranking[17] (2022) provides a useful starting point for this analysis. Of the 500 major companies included in the ranking, 64 are headquartered in Hungary. A higher number is found only in Poland (153) and the Czech Republic (92).

For the companies operating in Hungary mentioned above, the prominent economic role of Budapest is clearly evident. Of the 64 companies, 33 have their headquarters in the capital, while 31 are based in other towns across the country. However, four of the large companies headquartered in Budapest cannot be classified as multinational[18] economic players in terms of either their activities or ownership structure. Therefore, the following analysis focuses on 29 Budapest-based companies[19].

[16] This finding is true for the entire period between 2008 and 2023, except for the years 2009 and 2010. The "divergence" between the two data sets began in 2011 and became markedly pronounced in the latter half of the 2010s.

[17] The publication is issued annually, with the latest edition released in October 2022, presenting data for the year 2021. The list ranks the 500 largest companies in Central and Eastern Europe – that is, *Bulgaria, the Czech Republic, Estonia, Croatia, Poland, Latvia, Lithuania, Hungary, Romania, Serbia, Slovakia and Slovenia* – based on their revenue.

[18] In this study, multinational companies are defined as firms that are members of an international corporate group, domestic subsidiaries of foreign companies, or Hungarian-owned enterprises with foreign subsidiaries, either directly or indirectly. Ownership structures were assessed based on publicly available company data and information published on their official websites. Firms that, although of potential interest due to the location of their headquarters, do not operate across national borders were excluded from further analysis *(Szerencsejáték Zrt., Nemzeti Útdíjfizetési Szolgáltató Zrt., Market Építő Zrt., Magyar Posta Zrt.)*. In The analysis focuses on 38 companies. Although their headquarters are located in Budapest, their economic activities are not necessarily confined to the capital and may extend to other regions of the country.

[19] Although the examined companies are headquartered in Budapest, their economic activities may extend beyond the capital to other regions of the country.

The distribution of these companies by main activity reveals a clear numerical dominance of trade-oriented firms (17). 7 companies operate primarily in the service sector, 4 in manufacturing, and only 1 is primarily engaged in research and development.

Before examining the sectoral characteristics in more detail, it is important to note that the relatively limited presence of firms in "knowledge and technology intensive"[20] sectors is somewhat surprising. As notable exceptions – at least within the scope of the companies analysed in this study – *Richter Gedeon Chemical Plant Plc*.[21] and *Thyssenkrupp Components Technology Hungary Kft.* can be highlighted for their high R&D-intensive operations.

Figure 2.

Distribution of multinational companies in Budapest by main activity

Source: The author's own calculation based on COFACE (2022)

[20] *The US National Science Board* (2020) in its analysis entitled "*Production Patterns and Trends of Knowledge- and Technology-Intensive Industries*" categorizes individual industries based on their R&D intensity, providing a framework for assessing the use of knowledge and technology in each sector. Areas with "high R&D requirements" include, for example, pharmaceutical production and R&D services, which can serve as important "*breakout points*" for a country's economy.

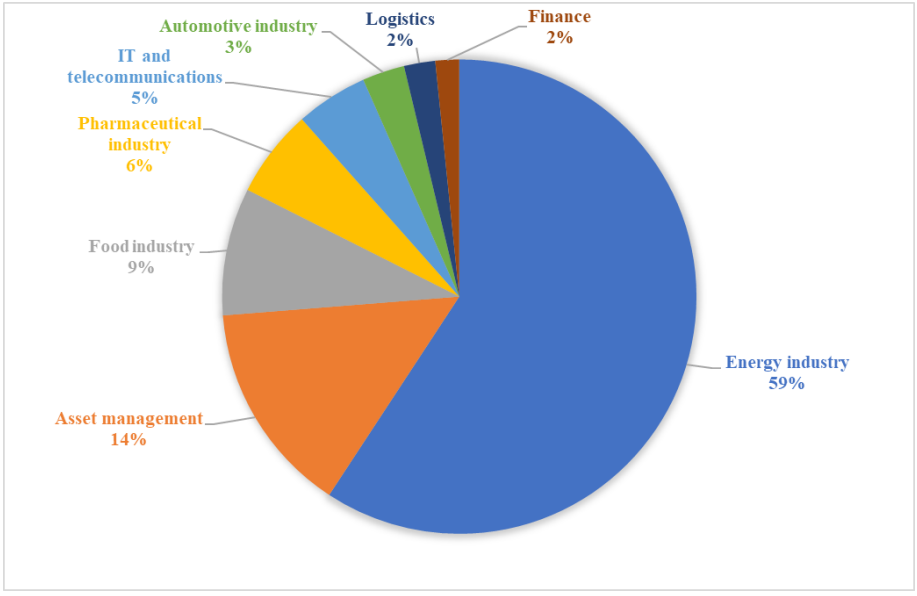
[21] It is important to note that *Richter* is not the only pharmaceutical company headquartered in Budapest. Another significant player in the industry is *Sanofi-Aventis Hungary Trading and Service Co*., Ltd. However, according to the *TEÁOR classification*, this company's primary activity is "*Wholesale of pharmaceuticals and medical products*". Therefore, in this study, it is classified as a trade-oriented company. Sanofi-Aventis conducts its domestic manufacturing activities in *Veresegyház*, near *Csanyikvölgy* in Miskolc, and its distribution centre is in *Nagytétény* (Sanofi n.d.). In addition, *Teva Pharmaceutical Co., Ltd*., headquartered in *Debrecen*, falls outside the scope of this study.

Of the 29 enterprises, the largest group operates in the energy sector (11 companies) *(Figure 2)*, including electricity production, distribution and trade (5), gas and fuel trade (5), and petroleum processing (1). Five companies are active in the food industry, mostly in trade (4), and one in production. In the automotive sector, one company focuses on sales, alongside the previously mentioned R&D specialist; no manufacturing companies are present. The limited role of automotive component production in the capital – despite its national significance – reflects these firms' tendency to locate near car factories.

Based on their sales, three pharmaceutical companies and three IT firms headquartered in Budapest were included in the COFACE summary, along with two logistics companies and one financial services firm. Notably, two asset managers are highlighted separately, as they oversee a broad network of companies engaged in diverse activities, including agricultural and industrial production, tourism, and energy.

Figure 3.

Revenue of Budapest-based multinational companies by industry



Source: Author's own calculation based on COFACE (2022)

The surveyed companies reported total sales revenue of €58,779 million in 2021, with energy companies accounting for 59.24% of this figure. Asset managers and the food industry contributed significantly less, at 14.50% and 8.69% respectively, while all other sectors combined represented 17.57% *(Figure 3)*. The sales revenue of Hungarian-owned and multinational companies[22] operating in Hungary as listed by COFACE, underscores the capital-centric nature of the domestic economy, with firms based in Budapest generating approximately 55% of the country's total output.

Startups

According to a survey by *Startup Genome*, a policy advisory and research institute monitoring the global startup ecosystem, Hungary had approximately 2,900 startups at the end of 2022 employing around 10,000 people. These companies are predominantly based in Budapest[23], where the estimated value of the city's *startup ecosystem* has reached €1.8 billion. In one of the leading sectors of the startup scene – the *fintech*[24] sector – 106 companies were active in Budapest as of January 2023, primarily engaged in financial software development (26%), payment services development (19%), and data analysis and business services (17%) (Startup Genome 2023).

In terms of startup density, Hungary ranks among the leaders in Central and Eastern Europe, with 305 startups per 1 million inhabitants, slightly behind the Czech Republic (310). By comparison, Poland has 209, and Slovakia 237. However, the country lags behind Western Europe, where Germany has 616 startups per million inhabitants and the Netherlands, 2,585 (Bacsó et al. 2023).

In the international *StartupBlink* (2023) ranking of startup ecosystems, Budapest placed 134th[25] out of 1,000 cities, improving by 33 positions compared to 2022 and surpassing Bratislava (279th). Among major regional competitors, *Warsaw* ranked 99th

[22] The results of large domestic, non-multinational companies included in the COFACE summary were not considered in this case either.

[23] Unfortunately, *Startup Genome* does not provide detailed data on the geographical distribution of Hungarian startups. A useful starting point for estimating Budapest's significance is the *Startupbase database*, maintained by *Dealroom* and the *National Innovation Agency*. However, this source has certain limitations: it includes only registered companies and publishes data at the regional level only. According to these records, as of December 2023, 76% of the 1,591 registered startups were headquartered in Budapest or Pest County (own calculation based on Dealroom n. d.).

[24] Fintech: financial technology, referring to digital developments in the financial services.

[25] Within the European Union, Budapest ranked 25th (StartupBlink 2023).

and *Prague* 83rd. The study highlights that Hungary – and Budapest in particular – has been the birthplace of startups such as *Prezi, Ustream* or *LogMeIn*[26].

Although the dynamic growth of previous years has been somewhat disrupted by economic and political challenges, as well as the emigration in the IT sector, Budapest remains a popular destination for "*digital nomads,*" thanks to innovative "*coworking*" spaces, strong networks within the startup community, and a relatively low cost of living by European standards (Koudela 2015; Koudela, Baranyi 2024).

Business and financial services

A characteristic trend among globally operating today is the organization of key support functions into service centres[27]. Since the primary goal of this is cost reduction, the availability of a large, multilingual and well-educated workforce, at relatively low labour costs, is a decisive factor in location selection.

The number of service centres in Hungary has increased significantly in recent years. According to data from the Central Statistical Office (KSH) 9.8.2.4 (n.d.), a total of 340 centres were operating in Hungary in 2023, of which 219 were located in Budapest. In 2019, only 107 centres selected the Hungarian capital as their site.

According to a 2021 survey by the *Hungarian Investment Promotion Agency (HIPA)*, 87% of the 156 business service centres (BSCs) in Hungary with significant added value were located in Budapest, employing more than 70,000 people that year. HIPA conducted a detailed analysis of 78 companies[28] in the sector, revealing that 40% serve global clients, 56% regional (European) clients, and 4% domestic clients. By the parent company's industry, the IT sector (22%) had the largest share, followed by mechanical engineering (15.5%), automotive (11.5%), financial services (7.5%), and the

[26] The aforementioned companies have grown into global players, and, although, publicly available information indicates that their headquarters are now located in the United States, they have not ceased their Hungarian operations, and in some cases continue to maintain research and development departments in the capital.

[27] Several terms are used in connection with business service centres. In addition to the term "*shared service centre*" (SSC), the term "*business service centre*" (BSC) has recently gained prominence, referring to activities with higher added value. Some providers are also described as "*global service centres*" (GSC). In essence, the task of each is to provide administrative, human resources (HR), payroll, logistics, accounting, marketing, IT, and procurement support for their corporate groups. In this study, we collectively refer to these types as *service centres;* where a specific subgroup is discussed, it is indicated separately.

[28] The 78 companies surveyed operate a total of 100 locations in Hungary, 68 of which are in Budapest and 32 in other parts of the country (HIPA 2021).

pharmaceutical and biotechnology (7.5%). Approximately 73% of BSCs perform financial, accounting and controlling functions; 69% provide human resources services, and 64% provide IT support. In addition, albeit to a lesser extent, their activities include procurement and logistics, customer service, marketing, research and development, and legal services.

Notably, 69% of the surveyed companies reported expanding their Hungarian portfolios with new services or functions in the year preceding the survey. At the same time, 22% relocated certain activities abroad, primarily citing the need to reduce operating costs as the main reason (HIPA 2021).

In terms of business services, it is also noteworthy that Budapest hosts all members of the "*Big Four*" global auditing firms – *Ernst & Young, Deloitte, KPMG, PricewaterhouseCoopers*.

In line with the focus of our research, it is important to highlight a key phenomenon of recent years in the financial sector: the radical transformation of the ownership structure of credit institutions.

The liberalization of the Hungarian banking sector began even before the political transition. As a result, from the 1990s onwards – primarily through greenfield investments – an increasing number of major international players entered the domestic banking market. The wave of privatization that started in 1994 and intensified a year later, led to a sharp rise in foreign ownership, which became dominant by 1997. By the turn of the millennium, banks with majority foreign ownership accounted for 76%[29] of the sector. This process significantly enhanced the country's capacity to attract capital, facilitated the spread of modern financial services, and fostered competition among market participants, thereby driving quality improvements even among domestically owned financial institutions (Várhegyi 2001).[30]

An unexpected advantage of this high level of internationalization became evident after the 2008 financial crisis, when foreign parent banks played a crucial role in alleviating the liquidity problems of their Hungarian subsidiaries. However, following the change of government in 2010, the "*nationalization*" of the banking system became a priority, with the aim of achieving a domestic ownership share exceeding 50%. This

[29] By comparison, the corresponding ratio at that time was 65% in the *Czech Republic*, 54% in *Poland*, and only 25% in *Slovakia* (Várhegyi 2001).

[30] It is important to note that the modernization of credit institutions was accompanied by territorial centralization. In the early 2000s, 95% of banking assets and 68% of banking sector employees were concentrated in Budapest. While in 1987 only 11% of bank branches were located in the capital, this ratio had risen to 31% by 2008 (Gál 2007).

goal was achieved by 2017, when the proportion of domestically controlled credit institutions – measured by total assets – rose to 55.7%. By 2021, it reached 61%, and by 2022 62.7% (Várhegyi 2019, 2023; EBF 2022).

The process described above reflects a clear decline in the international embeddedness of the Hungarian financial sector.

Future directions of economic development

In order for Budapest to maintain its cosmopolitan character, the city must respond effectively to the ongoing challenges that accompany this role. *The Budapest 2030 – Long-Term Urban Development Concept,* published in April 2013, sets out the vision of developing and operating a coordinated, Budapest-centred economic space, with the explicit aim of defining and filling with substance a renewed concept of the metropolitan area. The primary source of funding for this initiative is the financial support provided by the European Union through various operational programmes.

The document identifies the key factors of competitiveness as strengthening the R&D&I[31] potential of higher education – thereby promoting a knowledge-intensive economy – supporting urban diversity improving the quality of life, and enhancing the labour market through training and retraining.

The current multi-faceted direction of urban development is guided by the *Budapest Spatial Development Strategy (At Home in Budapest – Integrated Urban Development Strategy, ITS)*, which builds upon the Budapest 2030 concept. The medium-term strategic document – published in 2021 and covering the period until 2027 – focuses on three main priorities: *liveability* (expansion of green spaces), *opportunity creation* (an affordable and healthy living environment) and *democratic urban governance* (broad-based citizen participation in public affairs). These directions primarily serve to improve the quality of urban life, thereby indirectly supporting actors in the corporate sector.

The ITS defines Budapest as "*the meeting place of East and West*". It envisions a city offering innovation-driven business environments, suitable locations for enterprises, and high-quality education, research and training opportunities. The strategy places particular emphasis on promoting the digital transition, which is essential for maintaining economic competitiveness. Furthermore, it highlights the development and operation of supportive institutional frameworks, including the introduction of comprehensive digital administration and the open access provision of the capital's data assets by 2027 at the latest. Furthermore, it highlights the development and operation

[31] The abbreviation R&D&I stands for *Research, Development* and *Innovation*.

of supportive institutional frameworks, including the introduction of comprehensive digital administration and the open access provision of the capital's data assets by 2027 at the latest.

Conclusions

Budapest remains a "beta city" today, serving as an intermediary between the global economy and other regions of Hungary. According to the GaWC index, the city is strongly embedded in global networks, although its level of integration has occasionally experienced setbacks. Following the political transition, Budapest became a prime destination for foreign investment and multinational enterprises; however, in recent years, the spatial concentration of such investments appears to be gradually diminishing.

At the same time, the number of high value-added business service providers continues to expand dynamically, accompanied by the emergence of a startup ecosystem that is significant even by international standards. By contrast, the transformation of the banking sector indicates a certain degree of decline in the international embeddedness of the Hungarian economy.

The proportion of the residents with higher education is high by national comparison, yet still lags behind the European Union average. In terms of human resources, it is noteworthy that foreigners moving to Hungary predominantly settle in Budapest. To ensure that the capital remains attractive both to investors and those seeking to relocate, a comprehensive regional development strategy has been adopted. If successfully implemented, this could strengthen the region's economic competitiveness – primarily through indirect effects.

It is also important to stress that Budapest's resources and competences are limited, and several key policy areas – most notably higher education – lie beyond the city's direct control.

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The issues of the "New Urban Crisis" and their special manifestations in the Hungarian settlement networks

(the case study of the Budapest metropolitan area)

Viktória Szirmai[1]

Abstract

The aim of this study is to present the global phenomenon of the "New Urban Crisis", its theoretical background, and to analyse its manifestations within Hungary's settlement network. A significant part of the paper is devoted to signalling global inequalities on the basis of empirical data, thereby supporting the thesis of global segregation. Another key objective is to clarify the relationship between global and European inequalities, to reveal the differences between these two mechanisms, and to explore the emerging trends of convergence. A central section of the analysis examines the distinctive signs of the New Urban Crisis in the Hungarian settlement network, with particular attention to the case of the Budapest metropolitan region. Within this, the study places special emphasis on identifying the spatial and social structural characteristics of the capital region. The conclusions seek to answer the core research question: to what extent does the Hungarian case reflect the global patterns of the New Urban Crisis, or whether local specificities and contextual factors provide a more adequate explanation.

Keywords: "New Urban Crisis", global inequality, European and Hungarian manifestations, Budapest metropolitan area

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Absztrakt

A tanulmány célja a globális "New Urban Crisis" problémáinak, szakirodalmi hátterének a bemutatása, és annak a hazai település hálózati rendszerekben való megnyilvánulásainak az elemzése. A tanulmány lényeges része a globális egyenlőtlenségek adatokra alapozott jelzése, a globális szegregációs tézis igazolása. A globális és az európai egyenlőtlenségek viszonyának a tisztázása, a két mechanizmus közötti különbségek és a közeledés trendekeinek a feltárása szintén kiemelt cél. Az elemzés egyik központi része az új városi válság sajátos jeleinek az elemzése, a magyar település hálózat példáján. Ezt követi a magyar fővárosi térség bemutatása, közte kiemelt mértékben a térbeli társadalmi szerkezeti sajátosságok számbavétele. A konklúzióból kiderül a fő problémára a válasz, a globális a magyarországi „ új városi válság" közötti megfelelés, illetve inkább a helyi sajátosságok rendje.

Kulcsszavak: „Új Városi Válság", globális egyenlőtlenségek, európai és magyarországi megnyilvánulások, Budapest metropolisz térség

Introduction

"Is it possible to build a new type of city which is free from internal contradictions and promotes and enriches the development of humanity?" This question was posed by Lewis Mumford in his seminal work *The City in History* (Mumford 1961). Based on both earlier and recent research, my current answer to this question is, unfortunately, no. In the following part of my paper I will explain this viewpoint in detail by presenting the realities of global social and spatial inequalities. Before doing so, however, it is important to raise the central theoretical question of this study with introducing the background of the problem, which relates to the notion of the new urban crisis.

Richard Florida, a leading American urban studies scholar, provides a broad analysis of today's metropolitan problems. In his view, the most significant issue of our time – and the key explanatory factor behind many social tensions – is the *urbanization crisis*. This represents a new phase of urbanization, one that affects not only major cities, but all types of settlements, not just in Europe but globally. At this point, it is worth referring to György Egyedi's interpretation as well, since the unfavourable phenomena of the fourth phase of global urbanization that he describes can also be observed in this context.

In his influential work, *The New Urban Crisis*, Florida identifies several processes that indicate the existence of this crisis: the growing gap between "superstar" global cities and other urban areas; the internal structural fragmentation of large cities; the simultaneous

rise of gentrification, and the exclusion of certain middle-class groups from metropolitan centres; the intensification of spatial social segregation; the deepening crisis in suburban areas; and, in the developing world, rapid urbanization without corresponding economic progress, leading to the proliferation of slums (Florida 2017).

Considering Florida's findings, along with research conducted in Hungary, the following question emerges: *Can we speak of a new urban crisis, in the context of Central Europe or Hungary?* This is an important and thought-provoking question. However, its thorough investigation lies beyond the scope of this paper, and would require a comprehensive research project of its own.

Hungarian research, including my own empirical findings, indicates that nearly all forms of inequality described by Florida can also be observed in Hungarian settlements. However, these appear in specific forms, shaped by Hungary's historical context, and by contemporary social and economic processes.

Due to the limitations outlined above, this article will focus on certain indicators of the settlement- or urban-level crises, particularly the various forms of polarizations that have emerged since the regime change of 1990. While I will identify some of the important signs of this crisis, a detailed discussion of each would require a dedicated monograph, (a task I hope to undertake in a future book). My detailed analysis will concentrate primarily on the internal socio-structural polarization of the Budapest metropolitan region, as this represents the most significant and scientifically relevant question within the Hungarian context.

Before proceeding, it is useful to briefly summarize the special manifestations of the new urban crisis in Hungary. In my view, these factors currently constitute the most critical elements of the crisis within the Hungarian settlement and urban networks.

The structure of this study is as follows. First, I will examine existing global inequalities to establish the broader context of the urban crisis worldwide. Second, I will analyse the distinctive features of European urbanization, highlighting both its similarities and divergences compared to the American model. Next, I will describe the particular signs of "the new urban crisis" as they appear within Hungarian settlements and urban systems. Following this, I will present a case study of the Budapest metropolitan region, including an analysis of its socio-spatial structure – an issue that stands at the core of my research. This approach allows for a comparison between global and local patterns of socio-spatial inequality. Finally, I will conclude by considering potential strategies for mitigating or addressing the new urban crisis in the Hungarian context.

Global inequalities

Data from the *World Inequality Reports* demonstrate that social, political and economic inequalities – as well as inequalities in income among the different countries, continents, city types and social groups of city dwellers – have been widening and becoming increasingly acute (http://wid.world/data). To illustrate global inequalities, selected figures from the 2021 report can be cited along with Piketty's interpretation[2]. *(See Figures 1 and 2.)*.

Figure 1.

The extreme concentration of capital: wealth inequality across the world, 2021

Interpretation: *The Top 10% in Latin America captures 77% of total household wealth, versus 22% for the Middle 40% and 1% for the Bottom 50%. In Europe, the Top 10% owns 58% of total wealth, versus 38% for the Middle 40% and 4% for the Bottom 50%.* ***Sources***

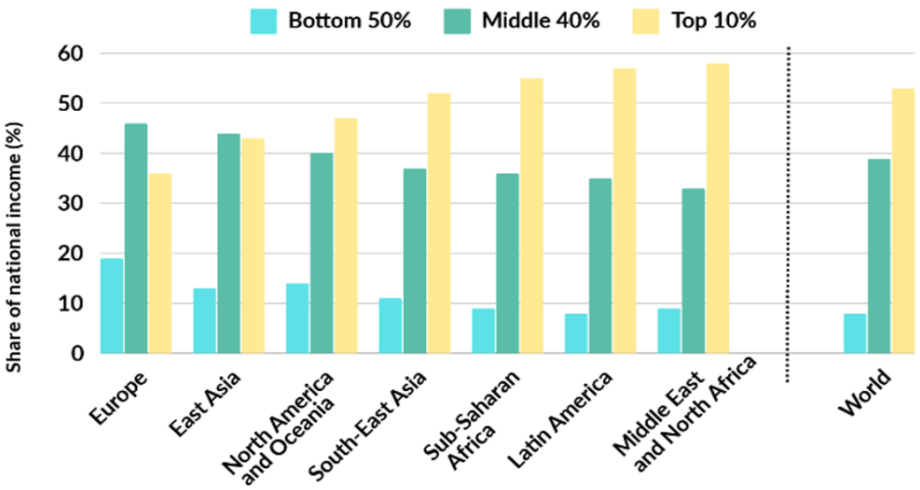
Sources: wir2022.wid.world/methodology

The 2023 report further highlights these inequalities from a complementary perspective. As the authors note: *"Average income data masks inequality within countries, which has been increasing since 1980. The poorest 50% of the population consistently lags behind the top 10% of the population in every region, even though this gap is more pronounced in the Middle East, Latin America, and Africa, compared to Europe"* (World Inequality Report 2023[3]).

[2] https://www.lemonde.fr/blog/piketty/2021/12/14/the-new-global-inequalities/
[3] https://wid.world/news-article/10-facts-on-global-inequality-in-2024/

Figure 2.

Share of national income by world region and income group, 2023



Data source: World Inequality Database (2024) CC BY

The internal inequalities of global cities are particularly concerning, as Saskia Sassen already demonstrated in her seminal work *The Global City* which examined New York, London and Tokyo (Sassen 1991). Global cities consume a disproportionately large amounts of so-called "cornerstone" resources to sustain their global advantages, resulting in polarized employment structures and distorted social stratification. Similarly, the influential volume *Dual City*, edited by Mollenkopf and Castells, shows that the global city of New York is not simply divided, but is instead a sharply structured and fragmented society (Mollenkopf, Castells 1991).

More recent contributions, such as, *Urban Socio-Economic Segregation and Income Inequality. A Global Perspective,* examine the relationship between income inequality and residential segregation in 24 large cities and their urban regions across Africa, Asia, Australia, and Europe, North America and South America. These cities and regions exhibited increasing inequalities and a global increase in socio-economic segregation (M. van Ham et al. 2021). The study finds that socio-economic inequalities and segregation are increasing worldwide. Importantly, while levels of inequality and segregation are higher in cities in lower-income countries, the pace of increase is more rapid in high-income countries, suggesting a convergence of global trends. The authors raise a key question: do we observe global trends in inequality and segregation, or do cities in different regions follow divergent patterns of socio-economic segregation?

The evidence supports what they call a *global segregation thesis*. In general, high-income groups tend to relocate to central districts or attractive coastal areas, while low-income groups are increasingly pushed to urban peripheries. In some contexts, particularly in lower-income countries, wealthy groups also cluster in enclaves or gated communities outside the city centre. Overall, the urban geography of inequality is shifting more rapidly and more starkly than city-level segregation indices suggest. Taken together, these patterns provide strong support for the existence of a global segregation thesis (M. van. Ham et al. 2021:18).

In *Cities and City Residents* (Szirmai 2019) a thesis – closely aligned with recent international findings – was formulated. By examining the structural transformations of global cities and subsequently of European capitals – including Budapest – significant similarities were identified among them: intense inner-city gentrification (and, in more developed districts, suburban gentrification as well), alongside the exclusion of disadvantaged groups to peripheral, less developed areas. These parallel trends are notable because they appear in countries with diverse levels of development and distinct historical trajectories. In my view, this convergence represents a key territorial effect of Enyedi's world model of globalized urbanization: the emergence of a new global social structure. The recently articulated global segregation thesis provides further confirmation of this process.

Several factors can be proposed as underlying causes, but the overarching influence of economic inequality is particularly significant. A useful example comes from a panel discussion at the *2016 Chicago Global Cities Forum*, where experts debated the drivers of rapidly rising inequality in global cities. Edward Luce, a columnist for the *Financial Times*, introduced the session with the provocative question: "*Are successful cities inevitably victims of their own success?*"[4]. The discussion titled "*The Two Cities: Inequality in Global Cities"* emphasized the stark divide between prosperous and struggling cities. In other words, there are successful and failing cities. The central question was why the economic successes of global metropolitan regions do not translate into the reduction of social inequalities. As Tiboris (2016) notes, while economic globalization has generated substantial wealth, the benefits of this growth have been distributed highly unevenly.

Earlier research on the social and economic competitiveness of large cities (Szirmai 2009) argued that under certain conditions economic competitiveness can only be achieved at the expense of social considerations. This is particularly evident in periods when a country, region, or city faces structural deficits, such as infrastructural under-

[4] https://globalaffairs.org/events/2016-chicago-forum-global-cities

development, financial constraints, or limited regional cooperation. In such contexts, the pursuit of economic interests – whether collective or individual – tends to dominate, often side lining social needs and replacing cooperation among spatial actors with unilateral competition. By contrast, in more favourable periods – characterized by stronger state and local government involvement, broader opportunities for social participation, and more functional economic conditions – social and economic competitiveness can be more effectively integrated through sound urban policy.

The panelists at the Chicago forum similarly stressed that such integration is unlikely to occur without national-level financial and political support. Esward Glaeser, a leading advocate of urban values (Glaeser 2012) argued that cities must ensure that wealthy residents contribute more through taxation to finance, to protect social inclusion and address urban problems. However, he also acknowledged the inherent difficulty of this approach, since "*higher taxes can easily drive them out of the city*". Thus, cities, often hesitate to adopt redistributive measures, a reluctance that Glaeser attributed to well-founded concerns during the discussion (Tiboris 2016).

European urban features

According to Matznetter and Musil, globalization processes and European integration, and in particular the end of Europe's division in 1989, made the scientific analysis of European urban themes especially important, including the definition of the essence of the European urban character (Matznetter, Musil 2012). Kazepov (2005) identifies the most general essence of the European city primarily in its differences from American cities. In the introductory chapter of the *Cities of Europe*, which he edited, Kazepov highlights that European cities and their social problems are fundamentally distinct from those in the United States. The relative importance of market mechanisms and state intervention differs: in European cities, market effects are less dominant, while the role of the state is stronger. By contrast, in American cities, stronger market forces and weaker state interventions prevail. This is reflected in the fact that market processes in the U.S. produce sharper social differences, whereas European cities are more effectively shielded by public policy, supported by a higher proportion of public sector employment and by officials shaping urban relations through state functions. Another important distinction, according to Kazepov, is that public services – including infrastructure and planning – are more firmly embedded in the public sector in Europe, where they can mitigate segregation and social poverty (Kazepov 2005:13). Compared to the American model, stronger state coordination of market relations and more comprehensive

social and educational policies also contribute to reducing social risks and enhancing collective well-being (Kazepov 2005:14).

Saskia Sassen, the Dutch-born American sociologist, in her contribution to the same volume, likewise emphasizes the stronger role of the welfare state in Europe compared to the United States. She argues that European cities do more to alleviate social polarization, segregation, and unemployment (Sassen 2005). The benefits of the welfare state are also demonstrated by a study of EU member states, which found that welfare policies reduce polarization between countries by an average of 42%. It is for this reason that the weakening and decline of welfare states has become a growing source of concern.[5]

At the same time, Sassen stresses that the concept of the "European city" encompasses a wide variety of urban forms. It is far from a homogeneous category, not even in terms of size, but varies according to historical, social and regional contexts – for example, the differences between Western and Eastern, and Northern and Southern European cities. Levels of national development also matter: a European city differs from its North American, Asian or Brazilian, Chinese or African counterparts. With the exception of global cities, European cities tend to be smaller in size and population. Their development has historically been driven by industrialization, the industrial revolution, and more recently by globalization, the knowledge-based economy, information technology, and high technology. Enyedi (2012, 165) points out that North American urban development is markedly different: "*It only shows similarities with Australia and New Zealand… The North American city is a 'product' of the past 200 years"* – he added. The North American urban system was shaped by industrialization, mass immigration—mainly from Western Europe—and later by globalization and technological development (Koudela 2014).

By contrast, urbanization in economically and socially underdeveloped countries – such as many in Africa, Asia and South America – is driven less by economic growth than by backwardness: rural overpopulation, lack of employment opportunities, extreme poverty, and large-scale outmigration from impoverished rural areas to cities.

Thus, cities in developed and underdeveloped countries, global cities and others, and North American versus European cities differ not only in size, and driving forces, but also in their internal contradictions. While European cities face social problems, poverty, exclusion, and traffic challenges, these issues are less severe than the tensions characterizing many cities in the Global South. In comparison, European cities – including those in Central and Eastern Europe – may be described as islands of relative peace. Nonetheless, they remain internally divided, full of tension, and marked by social

[5] https://www.eurofound.europa.eu/hu/publications/2024/jovedelmi-egyenlotlensegekkel-es-kozeposztalylyal-kapcsolatos-fejlemenyek-az-eu

polarizations, economic and social inequalities, even if these are less acute than their counterparts in overseas or Asian contexts.

However, recent global developments point to new and largely negative trends: the differences between American and European cities appear to be narrowing, with convergence processes gaining strength. As integration into the global economy deepens under globalization, the characteristics of European cities increasingly resemble those of the American type – marked by the growing dominance of market forces and the declining role of the state. According to the 2022 report of the European Parliament's Committee on Regional Development (REGI), "*the urban population of the European Union is fragmented and polarized; disadvantaged neighbourhoods can be found in the capital of any EU Member State and in many other cities. The pandemic has put additional pressure on vulnerable groups (e.g. Roma, migrants and young people) and the institutions that support them. Local political capacity to respond to the crisis has varied across cities and institutional settings. Participatory and integrated political efforts have often failed to meet the expectations of urban citizens and stakeholders, regardless of the challenges they face.*"[6]

Thus, the European urban character is still preserved, and significant differences remain, but the phenomena of convergence are undeniably strengthening, driven by the broad and pervasive effects of global processes. To better understand these convergence dynamics, it is also essential to consider additional factors – most notably the decline of the welfare state and the constraints on local decision-making caused by the financial deprivation of local governments.

The special signs of "the new urban crisis" in the case of the Hungarian settlement networks

In Hungarian settlements and within the national urban network, nearly all forms of inequality described by Florida can be observed, although they appear in a specific forms shaped by Hungary's historical background. In this article, I will focus only on polarizations emerging after the regime change of 1990, as earlier periods cannot be analysed here and are already extensively covered in the existing literature.

I will highlight some of the most important signs of the current crisis, though their detailed analysis would require a separate monograph, perhaps in the form of a book. The empirical focus of this paper is the internal socio-structural polarization of the Budapest metropolitan region, which I consider the most significant research question.

[6] https://www.europarl.europa.eu/RegData/etudes/ATAG/2022/699632/IPOL_ATA(2022)699632_EN.pdf

In brief, the most relevant manifestations of the new urban crisis in the Hungarian context[7] can be summarised as follows:

1. ***Historical inequalities***
   The delayed urbanization of Eastern and Central Europe, including Hungary, created enduring disparities. A notable discussion between György Enyedi and Iván Szelényi (Enyedi, 1996, Szelényi, 1996) highlights the determining factors of the socialist urbanization model. During this period, the sharpest polarizations emerged between larger and smaller cities (e.g. county centres and new towns) and between urban and rural areas. These disparities were later amplified by globalization during the post-socialist transformation.
2. ***The COVID-19 crisis***
   The pandemic constituted a complex urban, economic, social, and health crisis with territorial consequences in Hungary as elsewhere. Initially concentrated in large cities, it subsequently spread to smaller settlements. Research indicates that disadvantaged groups were disproportionately affected, while better-off groups were less severely impacted (Szirmai et al. 2023).
3. ***Economic disparities across the urban hierarchy***
   Uneven economic development and the emergence of sharply differentiated socio-spatial structures have produced enduring divides between the capital and other settlements, rooted in divergent development trajectories and specific historical conditions.
4. ***Capital-region inequalities***
   The persistent gap between Budapest and its surrounding areas reflects distributional anomalies, the absence of effective regional cooperation, conflicts among various social actors, and weak relations between state and local governments.
5. ***Budapest versus large cities***
   The pronounced economic and social polarization between Budapest and Hungary's other large cities (those with populations above 100,000) represents a significant crisis phenomenon. These cities have long experienced significant population decline, compounded by population aging. Income disparities between residents of the capital and those of large cities contribute to the heightened risks of national social conflict.

[7] It is impossible to reference the full range of literature, as the number of relevant articles and books is extensive.

6. ***Urban–rural inequalities***
   Numerous studies confirm the stark contrasts between Budapest and rural areas. Differences in education, income, skills, well-being, and demographic composition consistently demonstrate the advantages of the capital compared to the disadvantages of the countryside.
7. ***Intra-urban polarization***
   Within Budapest itself, significant disparities are observable across districts, particularly between the city centre and peripheral zones, as well as in suburban areas. This constitutes the most pressing issue that I will examine in greater detail.
8. ***State–local relations***
   Another major factor in the national urban crisis lies in the strained relations between the central government and local administrations, further exacerbated by inflationary pressures. Both journalistic and scientific analyses highlight the government's repeated austerity measures, and its practice of withdrawing financial resources, particularly from Budapest and county towns not controlled by the ruling party.
9. ***Civic disengagement***
   Beyond structural factors, softer social dynamics also contribute to the crisis. These include human carelessness, disinterest, and the irresponsible use of urban resources. Increasing reliance on digital technologies has weakened direct human relationships, raising doubts about the continued relevance of earlier theoretical defences of the city, such as those by Edward Glaeser and by Paulhans Peters (Peters 1973). Both Glaeser and Peters argued that for urban life to remain viable and meaningful, residents must engage with the empirical reality of the city, rather than merely perceiving it through the screen of their mobile phone.

A brief presentation of the Budapest metropolitan area

Several celebratory volumes were produced for Budapest's 150th anniversary, including "*Budapest Metropolis. A Central European Metropolitan Region*", a collection of studies I edited and published in 2024 by L' Harmattan Publishing House. The volume contains 20 studies by 27 authors. The ceremonial and highly successful book launch took place on January 16, 2025, at the Kossuth Club, and to borrow a theatrical expression, it was a full house event.

This book examines the region from a specific perspective, partly focusing on social structures, including various territorial inequalities, spatial and social characteristics, issues of well-being, and partly on economic, infrastructural development, environmental condition and spatial planning aspects. A key aim was to analyse the Budapest metropolitan area from a systemic perspective, considering its position in the global economy, its roles in global processes, and its place within Europe.

Budapest is the only global city in the Hungarian settlement network. According to the literature, it shifted categories several times between 2000 and 2020, moving between the Alpha-, Beta+ and Beta classifications. (Szabó, Tóth 2024:60). The Hungarian capital and its wider metropolitan area, the Budapest agglomeration, are located in Central Hungary. The area covers 2.7% of the country's territory, yet more than a quarter of the country's population (26.7%) resides here. In 2025, Budapest had a population of 1,671,004 with nearly 909,000 people living in the agglomeration. Data from the Central Statistical Office confirm that both the capital and its urban area have retained their role as population centres. However, while Budapest's population has been declining, the population of its surrounding towns – settlements in Pest County that form part of the agglomeration – has been steadily increasing. Demographic change is one major factor, but the health impacts of the COVID-19 pandemic also contributed to this situation. Suburbanization and outmigration from the capital have been particularly important, although most out-migrants "do not go far", and settle in nearby suburbs. According to Central Statistical Office figures, Pest County's population grew by nearly 48,000 between 2018 and 2021, while Budapest lost almost 26,000 residents.

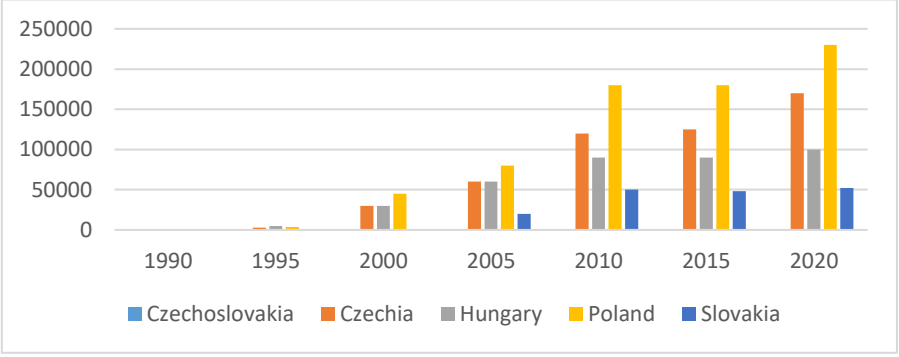
In the 1990s, during the first phase of the social, political, and economic transition, Budapest and its region, proved highly attractive to the private economy, foreign-owned joint ventures, joint-stock companies, small businesses, and incoming Western capital. This appeal was linked to favourable infrastructure and market opportunities compared to the national average, as well as to the availability of mostly qualified workforce, and the population's high level of education. Foreign capital was often tied to formerly state-owned companies located in urban centres and large settlements, or to shares purchased from them. In Budapest, these conditions were strongly present. As a result, 53.2% of the private economy was concentrated in Budapest and Pest County (Barta 1992:36). In 1990, 58.1% of mixed-capital enterprises operated in Budapest, compared to 32.3% in provincial towns and only 9.6% in villages. In terms of mixed-capital enterprises per 1,000 inhabitants, Budapest ranked first (25.35%), followed by Győr-Sopron County (9.63%), and Pest County (7.8%) (ibid.). Moreover, 66% of small private enterprises also appeared in this region (Barta 1992:37).

By the late 1990s, 60–65% of foreign direct investment (FDI) was concentrated in the Budapest agglomeration, according to the Central Statistical Office (KSH) data. This territorial concentration further intensified between 2008 and 2010: by 2010, two-thirds of investments were registered in enterprises located in Central Hungary (KSH 2012:15).

Among the Visegrád countries, (Czechia, Slovakia, Hungary, and Poland), Hungary received the largest share of FDI investment between 1993 and 2009: 43%, compared with Poland's 33%, the Czech Republic's 18%, and Slovakia's 7%. After 2010, however, this situation changed, as Hungary's position deteriorated. The value of FDI (in millions of dollars) declined between 2010 and 2015, but rose again between 2015 and 2020. What is most striking is Poland's outstanding performance (Kalotay, Sass 2021).

Figure 3.

Development of FDI investments in million dollars



Source: Kalotay, Sass (2021)

The Budapest metropolitan area, concentrating the country's most significant economic forces and future potential, plays a distinguished role in the national economy. 47% of Hungary's GDP is generated in Budapest and Pest County, with 37% coming from Budapest and 10% from Pest County (BFVT, 2023: 55). Nonetheless, GDP per capita (measured in euros) remains below that of many major European cities, such as Munich, Stockholm, Vienna (ibid. 18).

The social-spatial structure of the Budapest metropolitan area

Historical influences, spontaneous social and economic processes, and urban planning or policy interventions have all shaped the social-spatial structure of Budapest. The conscious urban policy concept of the Austro-Hungarian Compromise of 1867[8], the joint planning organization of the Hungarian government and the capital, and the development program of the Metropolitan Public Works Council (established in 1870) clearly laid the foundations of the city's territorial and social structure.

To understand the social-spatial structure of the capital, the following point must first be emphasized. The inner city development that took place between 1870 and 1930, historically established the so-called *centre–periphery model.* In this model, the population's position in the social hierarchy gradually declined, and their social status worsened, the further one moved outward from the city centre. A manifestation of this, was that, in the period around the turn of the 19th and 20th centuries, Budapest's higher social status groups resided in the inner-city districts, while the poorer, lower-status groups were concentrated on the outskirts, particularly in the peripheral zones and industrial districts until 1950.

During socialism, this centre-periphery model was modified: the social composition of the zone around the historic centre deteriorated due to wartime destruction, lack of rehabilitation, and middle-class outmigration. Nonetheless – at the time considered high-status – new housing estates constructed in the 1950s-60s in transitional zones temporarily interrupted the process of decline in the central parts.

The post-1990 regime change, the political, economic and social transformations together with decentralization measures (e.g. the Local Government Act, the delegation of rehabilitation to districts, the emergence of profit-oriented development companies) created the preconditions for urban rehabilitation in Budapest—albeit much later than in Western Europe, where urban renewal had already gained momentum by the 1970s-80s.

The rehabilitation projects implemented in Budapest reorganized the traditional centre-periphery model. Renovated quarters in inner Pest attracted high-status, upper- and middle-class residents, raising the prestige of these districts. By contrast, renovated neighbourhoods in the outer districts or outer ring – i.e. on the periphery – tended to attract lower middle-class groups, in many cases preserving the original population. This partly raised, but also partly reinforced the previously lower prestige of outer districts.

[8] The Austro-Hungarian Compromise of 1867 established the Dual Monarchy, designed to stabilize the Habsburg Empire after military defeats and internal revolts. It granted Hungary internal autonomy while preserving joint sovereignty over defence, foreign policy, and finance.

By the early 2000s, centre-periphery divide still persisted but became more differentiated. Inner districts contained both high- and low-status areas. This is partly explained by the rising property prices in the inner city, the deteriorating economic situation of lower middle class groups, their attempts to move into cheaper neighbourhoods within the inner city, as well as the growing demand among higher-income middle-class families for suburban single family housing, which led to the acceleration of both intra-urban mobility and suburbanization.

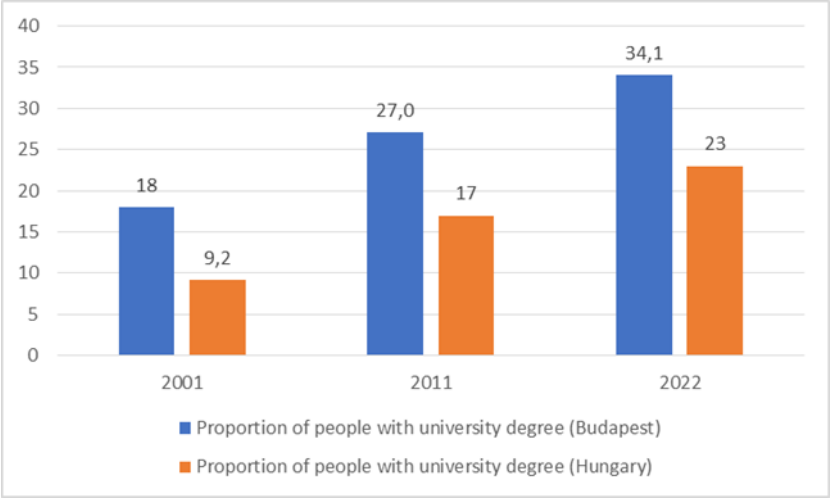
Empirical surveys (2005, 2010, 2014)[9] confirmed *strong gentrification processes* with higher-status groups consolidating their presence downtown and radiating outward into near-centre areas during the early 2000s both in Hungarian large cities and the Budapest region. Although the centre-periphery model endured, the outer zone became socially diversified, comprising both higher- and lower-status segments.

Unfortunately, no original empirical data are available from the period beyond 2014, but census data provide valuable insights. Figure 4 which presents data from the three most recent censuses, clearly demonstrates the concentration of higher-status groups – measured here as people with tertiary education – in Budapest, their increase across the three inter-censual periods, and their significant divergence from the national-level values. These distributions also confirm the ongoing gentrification of the capital.

[9] The 2005 survey, covering 5,000 respondents, was conducted within the framework of the project *Urban Areas, Spatial Social Inequalities and Conflicts - Territorial Social Factors of European Competitiveness* (2004–2009), supported by the National Research Development Programmes. (Reg. no. 5/083/2004) (see Szirmai 2009). A representative survey of 1,000 respondents from Budapest and its surroundings was carried out between 2009 and 2011 within the project *Sustainable Consumption, Production and Communication. Social Mechanisms and Interest Relations Determining Modern Consumption Models. The Social and Spatial Model of Sustainable Consumption,* supported by of the Norway Grants (Norwegian Financial Mechanism) (Ref. no. 0056/NA/2006-2/ÖP.) (see Kerekes, Szirmai, Székely 2011, *Environmental Dimensions of Sustainable Consumption*, Aula Nyomda, Budapest). The 2014 survey was conducted within the project *Social Conflicts – Social Well-Being and Security – Competitiveness and Social Development* (TÁMOP-4.2.2.A-11/1/KONV-2012-0069), also covering 5,000 respondents, and supported by the European Union and co-financed by the European Social Fund (see Szirmai 2015, *From Territorial Inequalities towards Social Well-Being*, Kodolányi János College, Székesfehérvár). In all cases the research sample areas included Budapest and its agglomeration, as well as Debrecen, Győr, Kecskemét, Miskolc, Nyíregyháza, Pécs, Szeged and Székesfehérvár, and their regions.

Figure 4.

Changes in the proportion of people with tertiary education in Budapest and Hungary during the last three censuses (2001, 2011, 2022, %)



Source: Based on data from the Hungarian Central Statistical Office censuses

Data from the Hungarian Central Statistical Office confirm that the agglomeration around the capital is socially highly diversified, divided into zones of high and low status. In 2022 the 10 most educated and the 10 least educated settlements were mapped, clearly showing the gap in educational levels as well as in income and professional qualifications (not reported here).

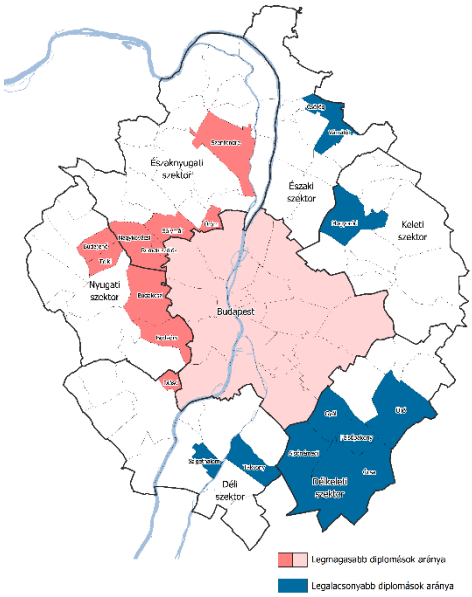
To explain these differences, the primary factors are the varying characteristics of local societies and the differing attractiveness of individual settlements. These contrasts reflect both material conditions and changing residential preferences of social groups. Two distinct suburbanization processes are evident in the outskirts: one involves movement to lower-status areas, driven largely by the high real estate prices and exclusionary mechanisms of the capital; the other involves relocation to higher-status areas, motivated by the desire for a family-oriented environment. As a result, a significant proportion of well-educated, high-status residents have moved outward.

Figure 5 illustrates the pronounced social diversification of Budapest metropolitan area, divided into high and low status zones. It shows the 10 most educated and the 10 least educated settlements. The highly significant gap in educational attainment is clearly visible (data on income and professional qualifications are not included here).

Figure 5.

The proportion of people with university degree in the Budapest metropolitan area, 2022, (%)

(The red colour indicates the highest percentage of the population with university degree, the blue colour indicates the lowest percentage of the population with university degree)



Source: Hungarian Central Statistical Office, census data

The central questions to be answered here are: what kind of spatial-social structure characterizes the Hungarian capital today? Does Budapest primarily exhibit a globalized or a European pattern, or is it rather shaped by a combination of influences, due to the global, and the European simultaneous impacts, while the local, historical effects also prevail?

In my view, the second question offers the most relevant answer. Budapest's spatial-social structure reflects long-standing historical, social, economic, (and political) influences, but simultaneously affected by global and European trends, as well as historical legacies.

The future remains uncertain. Current global and national processes – rising poverty, the decline of many members of the middle class, the problems of rural societies, and the impact of climate changes on migration patterns – may generate new urban forms not only in Hungary and the Budapest metropolitan area, but also worldwide. Whether these forces will produce stability or further disruption is unknown. We can only hope for a more peaceful world. Mark Leonard may be correct in arguing that we are living in "*The Age of Unpeace. How Connectivity Causes Conflict"* (Leonard 2021)

Conclusions

This study closes with a set of theses summarizing the main findings rather than repeating the preceding analysis:

1. ***Global relevance of Florida's "new urban crisis***
   Florida's concept of the new urban crisis represents a genuine global challenge that must be mitigated at all levels: international, national, and regional levels. Addressing its effects requires coordinated action by all stakeholders – states, local governments, civil societies various economic actors, and organizations.
2. ***Conditions for mitigation***
   When considering how to mitigate the new urban crisis, the fundamental conditions – along with the necessary social tools– should be identified that are required to address or manage its various manifestations. As Arturo Bris of the World Competitiveness Center observes: "Government efficiency is key to fighting social divides and keeping economies afloat". He emphasizes the importance of stakeholder cooperation, stating that "In a fragmented world, in the context of a trade war with economies protecting their own assets and investments, it's important that the private and public sector work together."[10]
   Unfortunately, in Hungary, cooperation among social and economic actors and urban areas is weak. Competitive rather than cooperative relations dominate. This is compounded by the scarcity of national capital, fragile institutions of coordination, and an underdeveloped regional approach to urban policy.

[10] https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-competitiveness-ranking/

3. ***Presence of the new urban crisis in Hungary***
   In addition to the lack of cooperation among the previously mentioned partners, the weak regional orientation of professional groups and the absence of a regional-level urban policy help explain the current relationship between the Hungarian capital and its surroundings, which limits the region's potential for stronger global competitiveness. The most significant question here, is whether the phenomena of the new urban crisis are present in Hungarian settlements and Budapest. The answer is yes, but they appear in specific forms, shaped by local historical, and global, and national factors, as well as by the particular of urbanization mechanisms.
4. ***Magnitude of urban–rural inequalities***
   Disparities between Budapest and other large Hungarian cities – and especially between urban and rural areas – are significant, though less severe than those observed in the global urban hierarchy.
5. ***Convergent global and European influences***
   Political, economic and social transformations following the 1990 regime change – together with the new urban rehabilitation laws, legal and financial conditions, globalization impacts and the effects of European integration – have created many convergent processes that align the spatial and social structures of the Budapest metropolitan area with broader global and European patterns.
6. ***Mechanisms of social reordering***
   These convergent processes include the occupation of desirable urban areas by well-educated, higher income groups, and the exclusion and displacement of lower-income, less-educated populations.
7. ***Gentrification dynamics***
   The convergence is clearly reflected by pronounced gentrification processes. In Budapest, including previously run-down inner districts, lower-status populations (less-educated, lower-income residents) are gradually displaced to ecologically poorer inner districts, the suburbs, and primarily to the metropolitan periphery. These areas are increasingly occupied by higher-status populations (educated, higher-income groups). In both cases, higher-status groups are concentrated in the city centre and the more desirable suburbs, while lower-status groups are more prevalent in less-developed surrounding areas. The emergence of affluent suburban areas reflects the combined effects of dynamic suburbanization, inner city deterioration, and increasing environmental damage.

8. ***Temporal lag in global patterns***
   These patterns clearly demonstrate that the social structural features of the Budapest metropolitan area – particularly the mechanisms of gentrification – aligns with global and European trends, albeit with a district time lag. Gentrification historically unfolds in successive waves, expanding outward from high-status centres toward lower-status peripheries, while the core itself grows and the periphery evolves into a more socially stratified space, divided into zones of higher and lower social status.
9. ***Unresolved divergences and research gaps***
   In addition to the convergence processes, there is also a significant divergence. However, our current research lacks the methodological depth to fully capture these differences. While higher education serves as a useful indicator, other dimensions– such as income, lifestyle or well-being, which are not examined here – likely exhibit even greater variability. More granular, local-level studies would reveal substantial heterogeneity within the Budapest metropolitan area. Unfortunately, the precise income and material conditions of the gentrified population, as well as the proportion of the super-wealthy among them, remain largely unknown. Similarly, the current distribution of income and qualifications across different types of settlements – urban and rural – is not fully mapped. However, to explore these, further comprehensive, representative empirical research would be essential not only for generating robust answers to these questions, but also for strengthening the European competitiveness of the capital region and enhancing its integration into global urban networks.

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Determinants of social and economic inequalities between the Budapest metropolitan area and Hungary's larger urban centres

Júlia Schuchmann[1]

Abstract

Hungary's only large urban area with a population exceeding one million that can be considered significant on both the global and European scales is the Budapest metropolitan area. Beyond Budapest, there are eight major urban centres in Hungary[2] with populations beyond 100,000. These regional metropolitan areas serve as important economic hubs and university towns. Despite their regional significance the economic and social dominance of the Budapest metropolitan region remains overwhelming. A further unfavourable trend is that these large regional cities are continuously losing population, due to substantial outmigration – particularly those struggling with persistent economic difficulties. The primary aim of this study is to reveal the socio-economic disparities between the Budapest metropolitan region and Hungary's eight largest urban regions.

Keywords: Budapest metropolitan area, Hungarian rural urban areas, inequalities, Czech urban development trends, similarities-differences

Absztrakt

Magyarország egyetlen, egymillió fő feletti lakosságú nagyvárosi térsége, amely globális és európai szinten is figyelembe vehető, a Budapesti agglomeráció. A budapesti agglomeráción kívül még nyolc, 100 000 főt meghaladó vidéki nagyvárosi térség található

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[2] The study examines the Budapest agglomeration defined by the Hungarian Central Statistical Office (KSH) within the framework of the Budapest urban region. For the rural metropolitan agglomerations, the definitions provided by the KSH are likewise applied, primarily due to data availability considerations.

hazánkban. A magyar vidéki nagyváros térségek fontos regionális központok, gazdasági erőterek, egyetemi városok. A regionális vidéki városközpontok ellenére a budapesti agglomeráció gazdasági és társadalmi dominanciája határozza meg az ország gazdasági és társadalmi folyamatait. Az utóbbi évtizedben kedvezőtlen tendencia figyelhető meg. A fejlettségbeli polarizáció a főváros és a vidéki nagyváros térségek között egyre élesebbé váltak. A vidéki nagyvárosi területek folyamatosan veszítenek lakosságukból az elöregedés és a tömeges elvándorlás miatt. Különösen azok a nagyváros térségek érintettek ebben, amelyek gazdasági problémákkal küzdenek. A tanulmány fő célja, hogy feltárja a budapesti agglomeráció és a nyolc legnagyobb magyar városi régió közötti társadalmi-gazdasági egyenlőtlenségeket.

Kulcsszavak: Budapesti metropolisztérség, magyar vidéki nagyváros térségek, egyenlőtlenségek, cseh-magyar nagyváros térségek, hasonlóságok-különbségek

Introduction

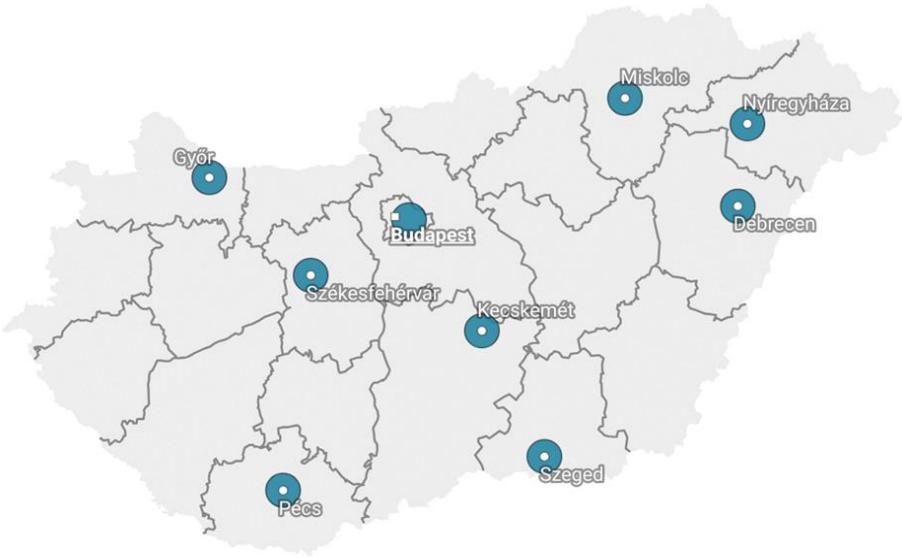
Hungary's only significant metropolitan area, with a population exceeding one million, is Budapest, which, as the national capital, occupies a central and privileged position within the country's spatial, social, and economic hierarchy. Approximately 27% of the Hungary's total population resides in Budapest and its wider metropolitan area, where 48% of the national GDP is produced. The proportion of residents holding a tertiary degree in the Budapest metropolitan area is twice as high as in other regions, and around two-thirds (67%) of the country's research and development potential is also concentrated here (Budapest 2030 Long-Term Development Concept, 2013). The population and economic weight of Budapest and its surroundings have shown a continuous upward trend, while the country's large regional cities – those with populations exceeding 100,000 – have experienced relative stagnation. Together these cities accounted for around 14% of Hungary's population both in 2011 and 2022.

Over the past three decades, the eight major regional urban centres and their respective metropolitan regions – Debrecen, Szeged, Pécs, Győr, Miskolc, Kecskemét, Nyíregyháza and Székesfehérvár – have followed divergent development trajectories. Each began from distinct historical, economic, and social starting points; they differ in terms of inherited structural characteristics, the scale and composition of locally available resources, and the geographical position that has determined their development opportunities after 1990 *(Map 1)*.

As a consequence of these variations marked disparities have emerged among them in both economic performance and social competitiveness (Szirmai 2009; Szirmai 2014; Rechnitzer, Páthy, Berkes 2014). Regional metropolitan areas that integrated earlier and more effectively into European and global economic networks – notably Székesfehérvár and Győr – benefited from early inflows of foreign direct investments (FDI), which significantly strengthened their economic bases and international embeddedness.

Map 1.

Geographical location of the nine largest urban areas in Hungary



Source: Author's own compilation using Datawrapper.

During the last decade the polarization between the central, western and eastern, and south-eastern parts of Hungary has deepened considerably. These regions become increasingly separated from one another in terms of their social and economic development. Growing disparities can also be observed among the largest metropolitan areas outside the capital. During the last decade, the polarisation between the central, western, eastern, and south-eastern parts of Hungary has deepened considerably. These regions have become increasingly separated from one another in terms of their social and economic development. Growing disparities can also be observed among the largest metropolitan areas outside the capital.

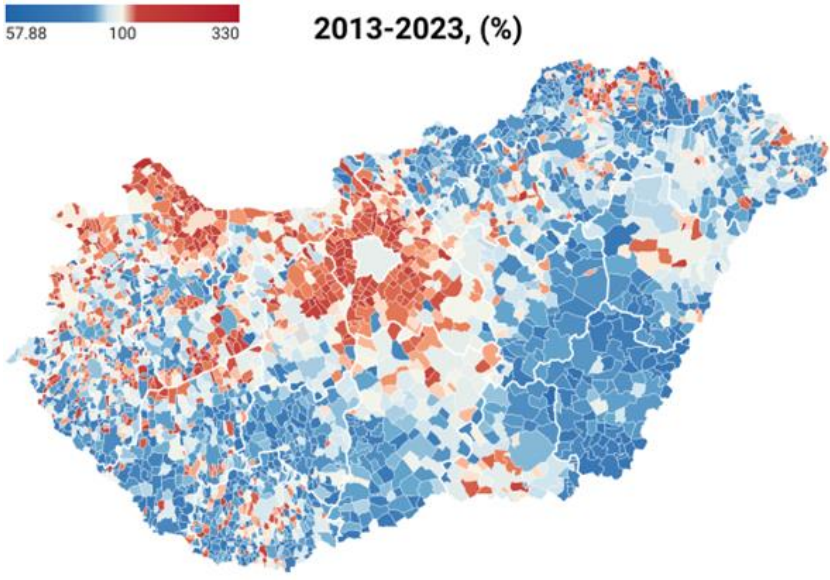
Demographic processes of Budapest and rural metropolitan areas: Growing population in the capital region, declining rural metropolitan areas

Population trends

Hungary's large cities and their metropolitan regions have a pronounced population concentrating potential. This is particularly evident in the case of Budapest, where the population has been continuously increasing over the past decades, and the capital region's share in national demographic processes has been steadily rising (Schuchmann, Váradi 2014:112). In 2000, the Budapest metropolitan area accounted for only 17.5% of Hungary's total population; by 2008 this figure had risen to 25%, by 2018 to 27%, and according to the most recent data, it reached 28% in 2022 *(Table 1)*.

Figure 1.

Population change in the Hungarian settlement network, 2013–2023, expressed as a percentage



Source: Author's own compilation using HCSO data

Between 2013 and 2023 a substantial population decline occurred across rural Hungary. This demographic loss now affects not only peripheral rural areas, but also the majority of the larger rural metropolitan regions. A particularly marked population

decrease can be observed in the case of several major urban centres such as Miskolc, Pécs, Szeged, Debrecen, Nyíregyháza and Kecskemét. Between 2013 and 2023, a substantial population decline occurred across rural Hungary. This demographic loss now affects not only peripheral rural areas but also the majority of the larger rural metropolitan regions. A particularly marked decrease can be observed in the case of several major urban centres such as Miskolc, Pécs, Szeged, Debrecen, Nyíregyháza, and Kecskemét. Only two metropolitan regions – the Budapest metropolitan area, and the Győr metropolitan area – experienced population growth during this period *(Figure 1)*.

The second phenomenon marks a shift compared to earlier trends. Previously, population loss primarily affected the central cities of metropolitan areas, mainly due to residential suburbanisation, as people moved to surrounding settlements. However, recent data indicate that population decline now characterises not only the urban cores but also the suburban zones. In other words, the population of entire metropolitan areas is decreasing, and residential suburbanization can no longer able offset this process. Between 2013 and 2023, the most significant population decreases occurred in the Miskolc metropolitan area (-8%), and the Pécs metropolitan area (-3.2%). Among the rural metropolitan areas, only the Győr region experienced population growth. The main factors behind the overall population decline are ageing and increasing outmigration *(Table 1)*.

Table 1.

Population change in the nine largest metropolitan areas of Hungary including the core city, suburban zone, and total metropolitan area, 2013–2023 (percentage values)

	Core city	*Suburban zone*	*Total metropolitan area*
Budapest	97.3	112.5	102.1
Győr	101.2	113.9	106.7
Székesfehérvár	96.6	103.0	99.2
Kecskemét	97.3	108.4	99.1
Szeged	97.0	104.3	98.5
Nyíregyháza	97.5	99.8	98.0
Debrecen	98.4	104.7	99.9
Pécs	95.0	104.3	96.8
Miskolc	89.1	97.0	92.0

Source: HCSO data

The third phenomenon is the increasing population concentration in the Budapest metropolitan area. In 2008 this region accounted for 25% of the country's total population, while by 2023 it had already reached 28%. At the same time, opposing demographic trends can be observed within the metropolitan area itself. The population of Budapest, the capital city, shows signs of stagnation and slow decline, whereas the agglomeration zone continues to grow dynamically. Two major factors explain this suburban population growth. The first is residential suburbanization – the continuous outmigration from the densely populated inner neighbourhoods of Budapest to the greener and more spacious suburban settlements. In 2013, the population of the Budapest agglomeration zone was 808,428, and during a ten years' period it had risen to 909,105 by 2023. This represents an increase of more than 100,000 people within a single decade. Such rapid and substantial population growth poses significant challenges for peri-urban settlements, particularly in terms of infrastructural capacity and service provision. The second factor is the substantial internal migration from other, less developed regions of Hungary towards the capital region *(Table 2).*

Table 2.

The share of the country's population represented by the Budapest metropolitan area

Population	*2008*	*2011*	*2013*	*2023*
Suburban zones	817,210	854,895	808,428	909,105
Capital city of Budapest	1,733,685	1,729,040	1,749,734	1,686,222
Budapest metropolitan area	2,550,895	2,583,935	2,627,457	2,595,327
Share of the country's total population (%)	*25*	*26*	*27*	*28*

Source: HCSO data

In addition to the processes already mentioned, the sharp escalation in real estate prices in Budapest has further intensified outmigration from the city. According to the Hungarian Central Statistical Office, the average price of a second-hand apartment in Budapest was HUF 17.4 million in 2014, rising to HUF 56 million by 2024 – an almost fivefold increase.

Although housing prices in the Budapest agglomeration have also shown steady growth, they remain significantly lower on average. In 2024, the average price per

square metre of an apartment in Budapest was 1.3 million, while in the suburban areas it stood at 712,000 per square metre.

The COVID-19 pandemic further reinforced this suburbanisation trend between 2020 and 2021. During this period driven by fears of infection, lockdowns, and curfews, a considerable proportion of residents relocated from the densely populated capital to less crowded suburban areas – some on a temporary basis, while others established more permanent residence outside the city.

To conclude, the trends observed over previous decades have essentially remained unchanged: the same two Hungarian metropolitan areas, Budapest and Győr – have continued to increase their populations, while the other major rural urban areas have been either decreasing or stagnating. However, compared with earlier trends, a new phenomenon can now be identified in the case of the largest rural urban areas: according to the current data, not only have the populations of the central cities decreased, but the surrounding suburban zones have also started to lose residents.

The population decline has been particularly pronounced in two major rural urban areas: Pécs and Miskolc, where the decrease has accelerated drastically over the past decade. Miskolc has lost around 20,000 inhabitants, while Pécs has lost approximately 10,000, both of which have had clearly negative effects on their economic and social development.

Over the past decades, the population concentration within the Budapest metropolitan area has intensified. In 2008, this urban region accounted for approximately 25% of Hungary's total population, a proportion that had risen to around 28% by 2023. In contrast, the combined population share of the eight largest rural metropolitan areas has remained essentially unchanged, stabilising at about 16% throughout the same period.

Ageing

In addition to the population decline observed in Hungary's largest metropolitan areas, population ageing has also become a major challenge. This is not only a metropolitan but also a national phenomenon. Hungary has one of the lowest fertility rates in the European Union, coupled with persistently high mortality rates.

The country's fertility rate has been declining for many years, reaching 1.4 in 2020, which is far below the replacement level of 2.5 required for generational renewal. Over the past decade, Hungarian society has undergone continuous ageing. The ageing index clearly illustrates this process: between 2013 and 2023, the number of elderly people per 100 young people has quadrupled. As Table 3 shows, ageing affects all major

Hungarian metropolitan areas, although to varying degrees. The ageing index of Budapest is the highest – exceeding both the national average and that of other large urban areas.

The population of the Budapest agglomeration is also ageing, though at a slower pace than the capital itself, primarily due to residential suburbanization which tends to attract younger families with children. Among the rural metropolitan areas, the ageing process is most pronounced in Szeged and Pécs, where indicators exceed both national and regional averages.

The ageing of the population in Hungarian metropolitan areas presents serious challenges for the labour market, housing, social care systems, social and cultural life, as well as for the medium- and long-term urban planning and governance of cities. The phenomenon of shrinking cities – marked by both declining and aging population – is not unique to Hungary but reflects a broader European and global trend.

Table 3.

Ratio of elderly to young population, expressed as the number of elderly persons per 100 young persons

	2013	*2016*	*2019*	*2023*
Budapest	149.2	149.9	161.6	175.6
Budapest metropolitan area	124.6	127.4	135.6	143.2
Győr metropolitan area	110.63	115.81	120.79	124.72
Székesfehérvár metropolitan area	114.13	123.7	134.63	142.22
Pécs metropolitan area	129.82	138.97	149.51	168.11
Kecskemét metropolitan area	99.14	105.63	113.96	125.91
Szeged metropolitan area	127.22	138.4	149.18	163.44
Debrecen metropolitan area	103.9	111.89	119.87	129.99
Miskolc metropolitan area	116.95	124.31	131.49	139.7
Nyíregyháza metropolitan area	98.2	108	119.1	132.1
Hungary	*119.3*	*125.9*	*134.3*	*141.4*

Source: TEIR data

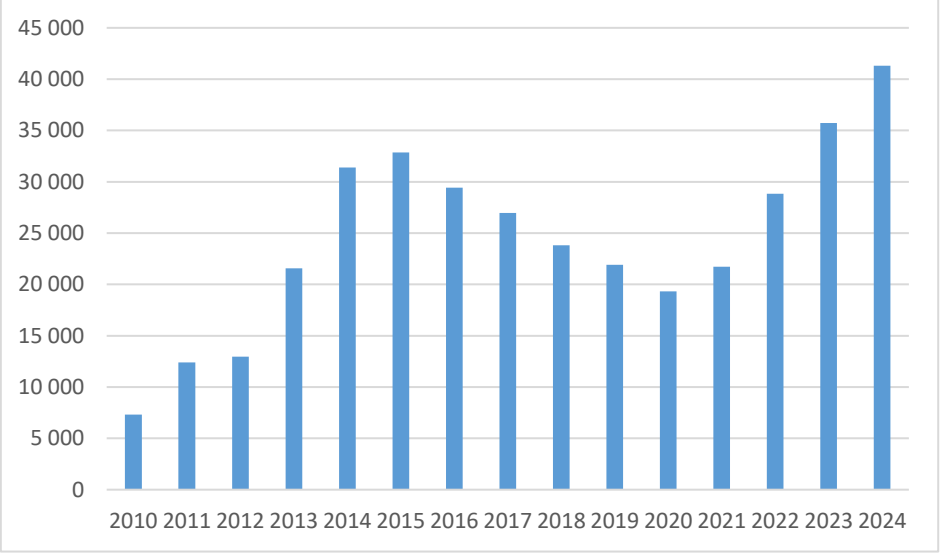
Migration

Hungary's population decline for decades is driven by two major interrelated processes. On the one hand, the persistently low fertility rate, and continuous population ageing have resulted in a natural decrease, limiting the potential for demographic reproduction

(as discussed earlier). On the other hand the country has experienced substantial population loss as a consequence of outward migration. Between 2010 and 2024, a total of 367,509 individuals left Hungary to live abroad – a figure roughly equivalent to the combined population of Debrecen and Nyíregyháza, the two largest rural urban centres in the country. The intensity of emigration and labour migration has increased steadily since 2010, with only two short periods of deceleration: first, during the United Kingdom's withdrawal from the European Union (2019-2020), and second, throughout the COVID-19 pandemic, when border closures and widespread job losses – particularly in the tourism sector – prompted the temporary return of many Hungarian workers. However, from 2022 onwards, a renewed and substantial rise in emigration has been observed. The principal driver of this significant emigration wave is economic motivation. As citizens of a European Union member state, Hungarians have the freedom to work in other EU countries, and often seek employment opportunities offering higher wages and improved living standards. The considerable income disparities between Hungary and Western Europe continue to act as a strong pull factor, reinforcing this long-term trend of emigration.

Figure 2.

Annual emigration from Hungary, 2010–2024



Source: HCSO data https://www.ksh.hu/stadat_files/nep/hu/nep0030.html

Domestic migration in Hungary is concentrated in specific regions, primarily the Budapest metropolitan area, and the western and Transdanubian urbanized regions. Migration patterns differ across urban areas. In Budapest, population growth in the metropolitan area, is largely driven by suburbanization, resulting both from out-migration of city residents and migration from more distant regions.

In contrast, Győr demonstrates migration trends of national significance, attracting residents beyond its immediate region. Key factors contributing to its appeal include the city's economic strength, the stable operation of the Audi factory, ongoing urban and infrastructural developments, the presence of Széchenyi István University, and proximity to the Austrian and Slovak borders.

The city's border location has also facilitated cross-border labour mobility. Following Hungary's EU accession in 2004 and the opening of the Austrian labour market in 2011, western border, settlements – particularly Győr –, emerged as important national migration destinations. By 2014, over 11,000 Hungarian workers were employed in the Austrian province of Burgenland, and by 2016, 16,000 Hungarian workers had entered the Austrian labour market, mainly in Burgenland, Upper Austria and Vienna. These workers are mainly employed in tourism, construction and various service sectors (Bertalan 2020:106).

In the case of the Székesfehérvár – one of Hungary's most economically successful – metropolitan areas, migration patterns appear to be largely balanced: the number of people moving into and out of the city has remained roughly equal. Despite this balance, Székesfehérvár itself still experienced a modest population decline between 2011 and 2022, losing the equivalent of a small village – a total of 1,916 residents over a decade.

This decline can be explained by the proximity and pull effect of Budapest, which continues to attract both businesses and residents, as well as by the gradual loss of Székesfehérvár's former attractiveness and the near-saturation of its labour market (Baranyai 2021:239).

Apart from these two Transdanubian metropolitan areas, varying degrees of outmigration have been a defining feature of the remaining metropolitan regions and represent a major cause of their population decline.

Over the past decade, Miskolc and its surrounding region have suffered the most severe population losses due to emigration. Between 2011 and 2022, a total of 8,677 residents left the Miskolc metropolitan area – the highest figure among Hungary's eight major regional urban centres. The reasons for this outmigration are rooted in long-standing economic and social challenges, which the city has only partially managed to overcome.

Historically, the Miskolc metropolitan area has consistently absorbed the labour force from surrounding settlements but has been unable to retain it. The city has been characterised by rapid population turnover, marked by the outmigration of more highly educated residents and the influx of lower-qualified workers. The rigid economic structure of Miskolc further exacerbated this tendency, as the city proved insufficiently adaptive to contemporary economic transformations.

This trend began to change with the arrival of major German multinational companies. The establishment of Robert Bosch Power Tool Ltd. in 2001, followed by Robert Bosch Energy and Body Systems Ltd. in 2003 marked a significant turning point in Miskolc's industrial development. Together these subsidiaries employ more than one hundred development engineers and a total workforce exceeding 5,000 employees. In recent years, Miskolc's economy has shown signs of gradual strengthening, yet addressing and mitigating its persistent social challenges remains essential. Enhancing the city's population retention capacity is a crucial precondition for achieving sustainable development (Józsa 2021).

Another metropolitan area that has experienced significant migration losses over the past decade is Pécs. Despite being one of the oldest university cities in the Hungary, with considerable research and development capacity, and industries built on centuries-old traditions (such as leather and ceramics), the city has faced mounting demographic and economic challenges. Pécs was designated the European Capital of Culture in 2010; however, the major cultural and urban development projects implemented on that occasion – including the Kodály Concert Hall and the Zsolnay Cultural Quarter – still have not managed to fully achieve their intended revitalising effects. The construction of the M6 motorway, rather than stimulating economic growth, diverted local resources and failed to generate the expected regional benefits. Moreover, the city has struggled to effectively assert its interests in securing development funds and attracting investors (Póla, Pálné Kovács, Gibárti 2023:164). Between the last two censuses, the population of Pécs declined by 9,927 people, representing a 5.6% decrease, of which 6,590 resulted from outward migration. Emigration primarily affects the more educated population, who tend to move either to Budapest, or abroad (Rácz, Kovács, Horeczki 2021:211).

The metropolitan areas of Nyíregyháza, Szeged, Debrecen and Kecskemét show either a stagnant population trend or only a minor degree of emigration. Although Szeged became the third most populous city in Hungary in 2018 – surpassing Miskolc – it has since been unable to sustain this favourable trajectory. Since the early 2000s, the city has experienced a substantial outflow of residents, primarily directed to Budapest and the western border regions, driven by stronger labour market opportunities and higher wages (Vida, Lengyel 2021).

Table 4.

Changes in the migration coefficient per 1,000 inhabitants, 2011–2021

	2011	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*2021*	*2022*
Budapest metropolitan area	5.5	5.4	5.9	6.8	4.3	3.2	3.6	4.0	2.6	-1.9	0.6	1.4
Győr metropolitan area	4.8	5	6.4	7.2	5.9	5.8	8.0	14.6	13.1	7.8	8.5	4.8
Székesfehérvár metropolitan area	0	0.7	1.4	0	0.4	-0.9	0.4	-1.9	-0.1	0.5	0.7	3.5
Kecskemét metropolitan area	3.5	5.0	1.9	1.6	1.1	0.2	0.3	-2.4	-1.2	0.7	-0.7	-1.1
Pécs metropolitan area	-2.7	-8	-1.2	0.9	-0.2	-0.5	-0.5	-1	-2.7	-0.7	-3.8	-3.7
Debrecen metropolitan area	-3.5	-4.7	-1.4	-1.3	-1.7	-2.0	-1.2	-2.9	-2.6	-1.0	-3.5	-4.2
Nyíregyháza metropolitan area	-2.2	-1.6	-1.8	-2.6	-2.6	-0.4	-3.4	-1.7	-0.4	-0.3	-2.0	-1.0
Szeged metropolitan area	1.8	0.2	2.6	2.8	1.6	-1.0	-0.9	-0.7	-2.4	-0.5	-6.3	-5.9
Miskolc metropolitan area	-3.8	-6.4	-3.7	-3.1	-2.2	-0.2	-3.6	-2.6	-5.2	-5.3	-8.3	-5.6

Source: HCSO data

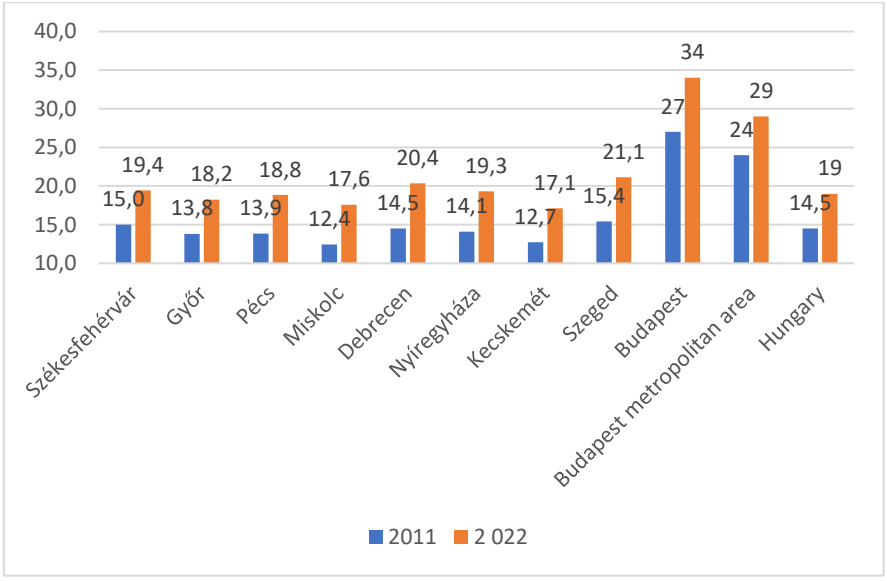
Education

The developmental differences between the capital and the major provincial cities are also reflected in the educational attainment of their populations. Trends in the population's educational status can be observed through data from the two most recent censuses. A favourable tendency is that the proportion of graduates increased between 2011 and 2022, both nationally and across the nine metropolitan areas. At the same time, the share of degree holders in the capital was nearly twice the national values in both 2011 and 2022, and the Budapest agglomeration zone also significantly exceeded

the corresponding national and rural metropolitan averages. In other words, the strong concentration of graduates in the capital and its wider region has persisted. The gap in the proportion of graduates between the major rural metropolitan areas and the Budapest metropolitan region has not only remained but has even slightly widened.

Figure 3.

Proportion of graduates in Hungary and in the nine largest metropolitan areas, 2011 and 2022, expressed as a percentage

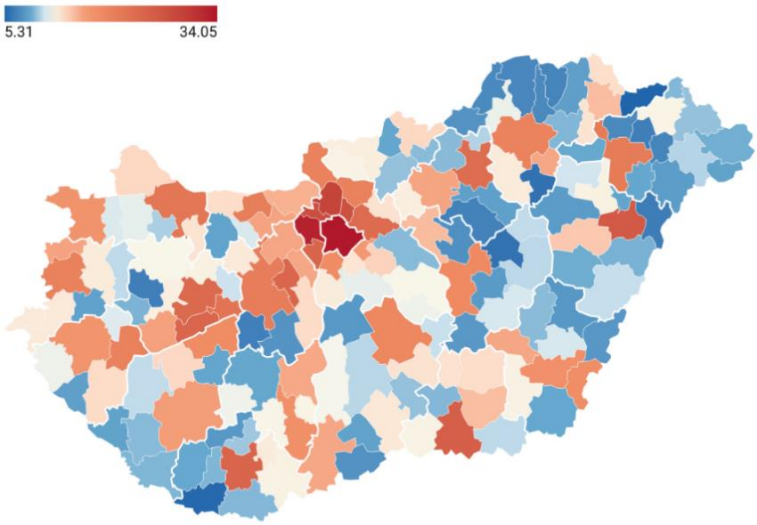


Source: HCSO Census 2011, 2021

The spatial distribution of graduates within in Hungary reveals a strong concentration in Central and Western Transdanubia, particularly in Budapest and its agglomeration, where the proportion of degree holders far exceeds the national average (Szirmai, 2019). Higher shares are also found along Lake Balaton and around Lake Velence. In contrast, in Eastern Hungary, Southern Transdanubia, and the Southern Great Plain, graduates are mainly concentrated in larger and medium-sized cities, while peripheral regions continue to lag behind.

Figure 4.

Proportion of graduates in the total population by district, in 2022, expressed as a percentage



Source: Author's own compilation using HCSO data

Income

An empirical study conducted in 2005 and 2014 on a representative sample of 5,000 across nine major Hungarian metropolitan areas[3] examined changes in income conditions and inter-regional disparities. The findings revealed that the share of high-income residents increased within the Budapest metropolitan area, while the proportion of very low income groups declined (Szirmai 2015).

As early as 2005, the proportion of low-income residents was significantly higher in rural metropolitan areas than in Budapest, while the share of high-income groups was markedly lower. These inequalities persisted through 2014. Moreover, unfavourable

[3] The 2005 research (Urban Areas, Spatial Social Inequalities and Conflicts – Regional Social Factors of European Competitiveness) was conducted under the National Research and Development Programme (NKFP). A related 2014 project, Social Conflicts – Social Well-being and Security – Competitiveness and Social Development (TÁMOP-4.2.2. A-11/1/KONV-2012-0069) further developed this research line.

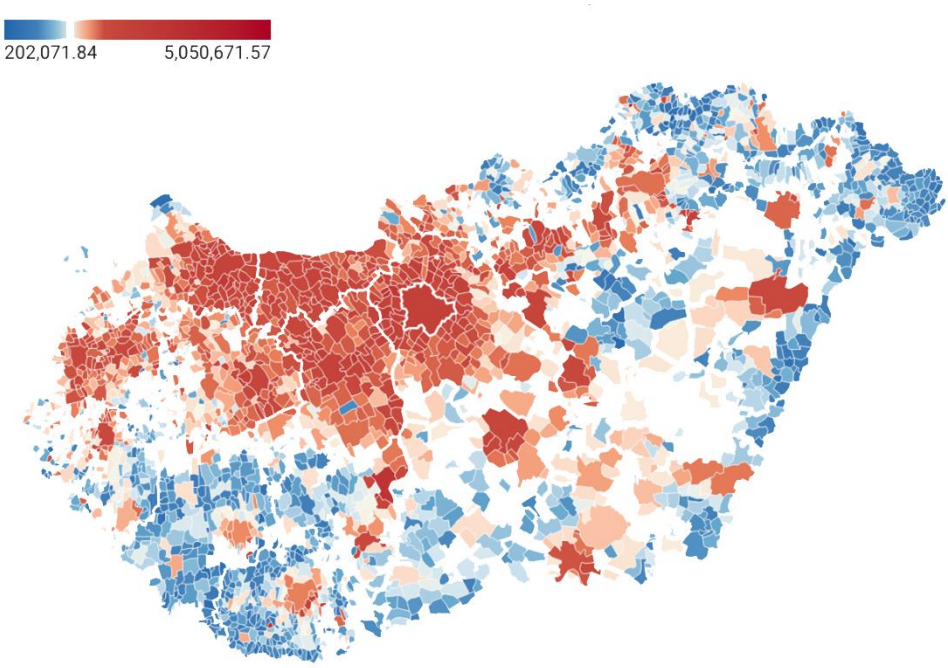
tendencies emerged in rural metropolitan areas: The proportion of low income households increased compared to 2005, while the share of those in better financial positions remained nearly unchanged. Consequently, the material living standard gap between the rural metropolitan areas and the capital region further widened. The global economic crisis of 2008 and 2010 had a profound impact on Hungary's economy and society (Schuchmann & Váradi 2014). Recent data on personal income per taxpayer further indicate a deepening of income polarization. As illustrated in Figure 5, pronounced disparities have emerged between the north-western, central, eastern, and southern regions of the country. Higher-income areas are concentrated in the zones marked in red and orange, whereas lower-income regions are predominantly found in the blue-shaded areas.

There are significant income disparities between the capital, the cities with county status, and the smaller towns and villages. The concentration of higher income groups clearly delineated geographically, revealing a distinct spatial divide within the country. In broad terms, Hungary appears divided into two parts. Budapest, together with parts of Central and Western Transdanubia, stands in sharp contrast to the rest of the country.

Incomes are somewhat higher in the major rural metropolitan areas (Kecskemét, Szeged, Debrecen, Pécs, Miskolc), as well as in settlements located along major transport corridors or those benefiting from their position around Lake Balaton. However, conditions have improved little in the country's low-income regions. For decades, the villages and small towns of Eastern and North-eastern Hungary, as well as those situated along the Croatian-Hungarian border, have been characterised by persistently low incomes and living standards.

Figure 5.

Personal income tax per capita, (HUF), 2023



Source: Author's own compilation using TEIR data

Economy

Similar to income levels, there are pronounced disparities in economic development between the Budapest metropolitan area and the eight rural metropolitan areas. Recent research on Hungary's major cities indicates that while some rural urban areas have shown signs of catching up, most display patterns of stagnation or even decline.

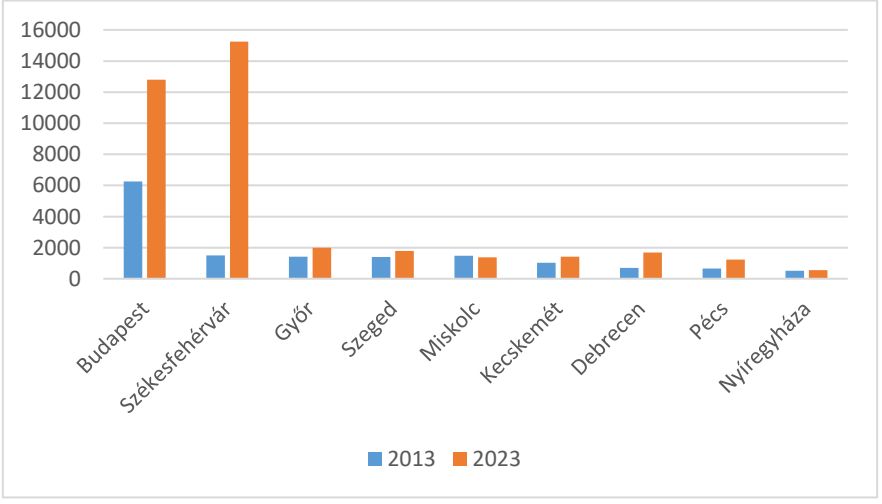
János Rechnitzer identified four distinct economic development paths among Hungarian rural urban areas (Rechnitzer, Berkes 2021), which are the following:

1. Cities building on a new (industrial) base, such as Győr and Székesfehérvár, both characterised by substantial foreign capital investments;
2. Traditional, but renewing cities and their economies including Miskolc and Debrecen;
3. Transitional cities, where economic restructuring remains incomplete and;
4. Path-finding cities, whose traditional economic structure require transformation to become competitive – typical examples being Szeged and Pécs (Rechnitzer, Berkes 2021).

The economic performance of rural cities is shaped by multiple factors, including inherited structures, local social characteristics, and geographical location. Beyond Budapest, the most dynamically developing rural cities are Győr, situated near Hungary's western border, and Székesfehérvár. The latter generates two-thirds of Fejér County's GDP, and in terms of registered corporate capital, Székesfehérvár ranks first among Hungary's rural cities.

Figure 6.

Registered capital of enterprises per 1,000 inhabitants 2013–2023

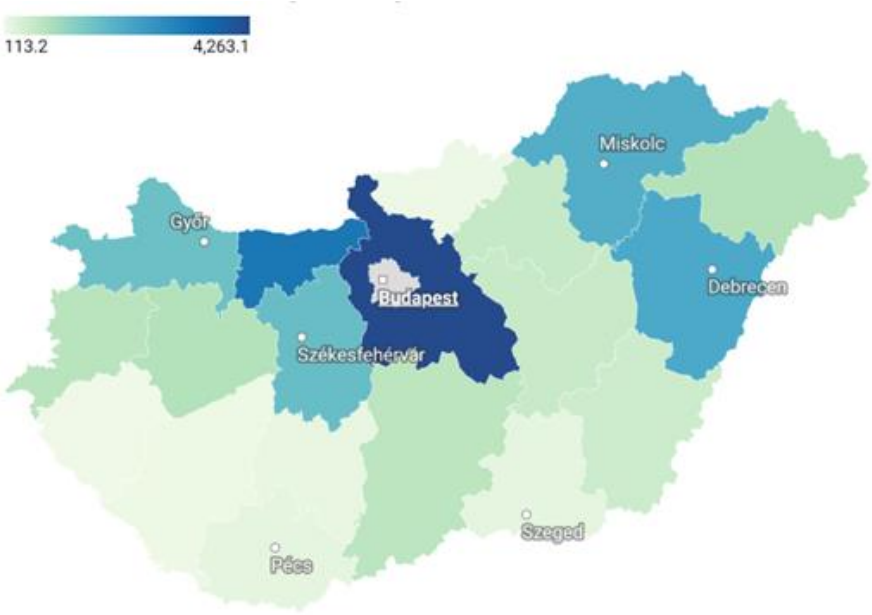


Source: TEIR data

Foreign capital investments play a crucial role in determining the competitiveness of Hungary's regional urban areas. However, substantial regional disparities persist in terms of their ability to attract investment. In 2023 the majority of foreign capital inflows were concentrated in the central region of the country – specifically Budapest and Pest County – along with Central- and Western-Transdanubia. Among the rural counties, Hajdú-Bihar and Borsod-Abaúj-Zemplén attracted the most significant investments. In recent years, Debrecen and its region have become major destinations for large-scale international investments, including two of the most notable examples: BMW Manufacturing Hungary Ltd. and the Chinese battery factory. Similarly, the largest industrial park in Miskolc is dominated by Bosch, the German multinational company *(Figure 7)*.

Figure 7.

Spatial distribution of Foreign Direct Investments (FDI) by county, (billion HUF), 2023



Source: HCSO data

After 2010, the Hungarian government sought to diversify the sources of foreign direct investment (FDI). One of the key objectives of the "Eastern Opening" foreign trade strategy, launched in 2012, was to increase the share of foreign capital originating from countries that been absent or only marginally were present in the Hungarian market. This policy primarily targeted Asian economies that had have shown remarkable growth in recent years (Bernek 2018). The three most significant Asian investors in Hungary today are China, Japan and South Korea, which together account for the majority of new capital investments made in the country in recent years (Szigethy, Ambrus 2024).

Table 5 presents the most recent major foreign direct investments in Hungary, most of which were made by Asian companies. In line with the government's economic development strategy, these investments primarily concern battery manufacturing and automotive industries, both of which promote electro mobility. It should be noted, however, that these projects have been implemented with substantial government support and classified as priority state investments.

Particular attention has been drawn to the Chinese battery factories, which have been the subject of significant public criticism. The main concerns include the absence of environmental impact assessments, prior to construction and the potential environmental hazards posed by battery production, such as risks to local ecosystems, water resources, and human health. Another challenge is the insufficient capacity of the Hungarian labour market to supply these factories with a workforce possessing the necessary specialized skills on large scale (Győrffy 2023).

In recent years, only a limited group of provincial cities has benefited from these investments, while the majority have not. The development prospects of Hungarian cities appear increasingly constrained by the ongoing process of centralization, the diminishing decision-making powers of local governments and the tightening of financial regulations (Rechnitzer 2022).

Table 5.

The largest investments announced in Hungary since 2018

Investing company	*Year of announcement*	*Country*	*Industry*	*Location*	*Amount invested (billion HUF)*	*Number of employees*
CATL	2022	China	Battery	Debrecen	2,900	9,000
BYD	2023	China	Automotive industry	Szeged	2,000	10,000
BMW	2018/22	Germany	Automotive industry	Debrecen	800	1,500
Sunwoda	2023	China	Battery	Nyíregyháza	580	1,000
Ewe Power	2023	China	Battery	Debrecen	400	1,000
Mercedes	2022	Germany	Automotive industry	Kecskemét	400	3,000
W Scorp Corp	2022	South Korea	Battery	Nyíregyháza	300	1,200
Halms	2025	China	Automotive industry	Miskolc	80	1,000
Robert Bosch	2023	Germany	machine manufacturing	Miskolc	70	2,000

Source: https://telex.hu/g7/2025/09/29/vulcan-shield-global-bekes-nagyberuhazas-hipa-letszam-befektetes

Conclusion

The aim of the study was to examine the inequalities in the demographic, social, and economic processes of the Budapest metropolitan area and the eight rural metropolitan areas. The analysis covered trends observed over the past decade. Regarding demographic patterns, the Budapest metropolitan area and the rural metropolitan areas, share several common characteristics. All of them are experiencing population ageing, although to different extent.

The ageing of the Budapest metropolitan region is comparable to that of other large metropolitan areas. The process has been moderated by the immigration of younger, working-age populations, particularly to the suburban zones. In contrast, population ageing has accelerated in rural metropolitan areas (e.g. Pécs, Miskolc) where large-scale emigration has occurred.

Six major trends have emerged in the dynamics of the resident population:

1. **Accelerated population decline in rural metropolitan areas.**
   Over the past decade, the population decrease in rural metropolitan areas has intensified. The populations of Miskolc and Szeged, which previously exceeded 200,000 inhabitants, have now fallen below this threshold, indicating a weakening ability to retain residents.
2. **Severe decline in cities facing long-term economic difficulties.**
   Population decline has been particularly drastic in cities struggling with persistent economic challenges, such as Miskolc, and the South-Transdanubian regional centre, Pécs. Over the past decade, only one rural metropolitan area – Győr, located on Hungary's western border – has recorded population growth. Migration trends largely mirror these demographic changes.
3. **Improving educational attainment and growing spatial disparities.**
   Between the last two censuses, the educational level of the Hungarian population improved, with the proportion of university graduates increasing nationwide. The concentration of graduates in metropolitan areas is significant – particularly in Budapest and its surrounding agglomeration, where the share of graduates is twice the national average. Conversely, small rural settlements and peripheral regions are characterized by low proportions of graduates.
4. **Income polarization.**
   There is considerable income polarization between the capital region and rural metropolitan areas, as well as among the rural metropolitan areas themselves. Only the Győr and Székesfehérvár urban regions have reached income levels comparable to the capital. The income gap between the central, and western Transdanubian regions and the peripheral rural areas remains significant.
5. **Economic dominance of Budapest and selective rural development.**
   Budapest and its surrounding region continue to demonstrate the strongest economic performance and the greatest ability to attract capital and investment. Among the rural urban areas, Győr and Székesfehérvár have maintained their position as major economic centres. Owing to government designated priority investments, the economic status of several rural cities has improved in recent years. Many Asian (particularly Chinese and South Korean) companies have established their operations in the metropolitan areas of eastern and northern Hungary, primarily in battery production. However, the economic benefits of these projects for the host regions are disputed, as these companies often employ foreign workers with specific technical expertise, rather than Hungarian professionals, and do not generally create high-skilled employment locally. Despite these large industrial

investments population decline in the major rural metropolitan areas (Debrecen, Miskolc, Szeged) has not been halted, in fact the outmigration of young and educated residents has intensified.

6. **Deepening regional inequalities.**
   Not only have disparities between the capital and the eight rural metropolitan areas widened, but significant differences have also emerged among the rural metropolitan areas themselves. One key reason for this is the uneven territorial distribution of incoming capital. The lack of foreign investment has contributed to the disintegration of certain urban areas and intensified outward migration. Furthermore, the government's ongoing centralization policy may also further reinforce territorial inequalities.

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COVID-19 pandemic in Budapest and the V4 capitals[1]

Annamária Uzzoli[2] – Gábor Pirisi[3]

Abstract

Cities and urban regions played a decisive role in the novel coronavirus pandemic. On the one hand, they often became infection hotspots due to their high population density or high intensity of social interactions. On the other hand, cities, as centres of healthcare, provided the highest level of medical services throughout the pandemic. This study focuses on Central and Eastern European (CEE) capital cities, including Budapest. The paper is structured into three major parts. Following the introduction, the methodological chapter provides relevant information on the statistical indicators applied. The literature review summarizes the most important research antecedents on the topic. The results section presents an international comparison based on V4 capitals (Warsaw, Prague, Bratislava, and Budapest). The paper concludes with several recommendations derived from the primary findings intended to inform local decision-makers.

The article primarily analyses the available epidemiological indicators on COVID-19 morbidity, mortality and vaccination. The international statistical comparison encompasses the territorial units of the V4 capitals. On the other hand, the paper also includes a literature review to present the most important results of prior research.

[1] The paper is based on a part of the book chapter titled Annamária Uzzoli – Gábor Pirisi: Budapest in the COVID-19 Pandemic, which was published in the book titled Szirmai, Viktória (ed.): Budapest metropolis. A Central European metropolitan area (L'Harmattan, Budapest, 2024, 288–313.) (in Hungarian). The present article was created by supplementing and further developing the content of this book chapter.

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Among the key findings, it can be mentioned that Budapest apparently exhibited a partly contradictory, paradoxical position among the V4 capitals. Based on confirmed coronavirus cases, it occupied a mid-range position among the CEE capitals during the main pandemic years (between 2020 and 2022), but mortality rate attributable to the infection was disproportionately high, relative to the population size. At the same time, Budapest's epidemic situation was more favourable when compared to other regions within the national spatial structure.

Keywords: COVID-19, epidemic indicators, V4, spatial structure, Budapest

Absztrakt

A városok és a városi térségek meghatározó szerepet játszottak az új típusú koronavírus-járványban. Egyrészt gyakran váltak fertőzési gócpontokká a sűrűn lakott terek és társadalmi interakciók magas száma miatt. Másrészt a városok egyúttal, mint egészségügyi központok, legmagasabb szintű egészségügyi szolgáltatásokat nyújtották a járvány idején. A tanulmány középpontjában a kelet-közép-európai fővárosok, köztük Budapest van. A tanulmány három fő szerkezeti részből áll. A bevezetés után a módszertani fejezet releváns információkat szolgáltat az alkalmazott statisztikai mutatókról. Az irodalmi áttekintés fejezete összefoglalja a vizsgálati téma legfontosabb kutatási előzményeit. Az eredmények fejezete egy nemzetközi összehasonlítást mutat be a V4 fővárosok (Varsó, Prága, Pozsony, Budapest) alapján. A tanulmány végén az elsődleges következtetések segítségével néhány javaslatot fogalmazunk meg, amelyek a helyi döntéshozók számára lehetnek fontosak.

A cikk alapvetően a COVID-19-járvány a morbiditással (megbetegedéssel), a mortalitással (halálozással) és vakcinációval (átoltottság) kapcsolatos járványügyi mutatókat dolgozza fel egy statisztikai elemzés keretében. A nemzetközi statisztikai összehasonlítás a V4 fővárosokat foglalja magában. Ugyanakkor a tanulmány szakirodalmi feldolgozást is tartalmaz a legfontosabb kutatási előzmények bemutatására. A főbb eredmények között említhető, hogy Budapest részben ellentmondásos, paradox helyzete volt tapasztalható a V4-es fővárosok között a világjárvány idején. A regisztrált koronavírus-esetek alapján a fő járványévekben (2020 és 2022 között) a kelet-közép-európai fővárosok középmezőnyében helyezkedett el, de a fertőzés miatti halálozások aránya népességarányosan kiemelkedő volt. Ugyanakkor Budapest járványügyi helyzete kedvezőbb volt a hazai térszerkezetben.

Kulcsszavak: COVID-19, járványügyi mutatók, V4, térszerkezet, Budapest

Introduction

Almost six years after the outbreak of the coronavirus pandemic, many previously unknown or insufficiently explored interrelations are still emerging, continuously expanding our knowledge and understanding of the epidemic. These include insights derived from international comparisons, as they can also contribute to future prevention and protection against similar epidemic situations at the national level.

Major historical epidemics have left many legacies for Budapest, and this was also the case with the most recent pandemic. The epidemic and the responses and reactions it triggered will undoubtedly persist over the long term, and may open a new chapter in the future of the Hungarian capital. The COVID-19 pandemic has affected cities worldwide in a multitude of ways and the outcomes have been analysed in the literature by many people and in many different ways during recent years (e.g. Pirisi 2022, Pirisi et al. 2022), including the analysis focusing on Budapest. Nevertheless, the evaluation of Budapest's international position within the broader context of the epidemic – for some reasons – has received less attention.

The present study seeks to address this gap by undertaking a comparative analysis of the capitals of Central and Eastern Europe (CEE), with particular emphasis on the Visegrad Four (V4) countries (Poland, Czech Republic, Slovakia, Hungary), using key epidemiological indicators. It should however be emphasized, that this paper does not aim to discuss other – social, economic, environmental, political, health etc. – consequences of the epidemic.

Cities and urban regions played a decisive role in shaping the dynamics of novel coronavirus pandemic (Florida 2020; Tešić et al. 2020). High number and rate of local population or density rate (Stier et al. 2021) coupled with social interactions (Angel et al. 2020) in urbanized regions significantly influenced the emergence and progression of epidemic waves (Szirmai et al. 2022, 2023). Furthermore, the strong functional linkages between cities and their agglomerations – such as daily commuting – were critical drivers in the spatial diffusion of novel coronavirus (Gu et al. 2020).

From an international perspective, Hungary exhibited a contradictory epidemic profile, particularly when compared with other Central and Eastern European (CEE) countries in terms of the number of confirmed COVID-19 cases and mortality. While Hungary ranked in the mid-range for infections per capita during the main epidemic years (2020–2022), it recorded some of the highest coronavirus-related mortality rates (Pál et al. 2021). Among the V4 (Poland, Czech Republic, Slovakia) and other larger neighbouring countries (Serbia, Romania), Hungary reported the highest mortality rate (2.3%), considerably exceeding the European average (0.8%) (Uzzoli 2022). Against this backdrop, a central question arises: how can Budapest's position be defined within the spatial structure of the V4 capitals?

Data and methods – Possibilities and limitations

From research perspective, one of the most significant challenges of the COVID-19 pandemic was the establishment of adequate databases that enable regional-level analyses as well. While this issue may appear tangential to the main topic, but in order to understand the later results and to mitigate any perceptions of incompleteness that may arise in the reader, it is important to highlight the uncertainties of the data used and the limitations of publicly available epidemic data sources. These constraints apply equally to international datasets.

With respect to COVID-19-related epidemic data, it is important to emphasize that European countries applied heterogeneous procedures for testing, case registration, and mortality reporting. These methodological discrepancies may have influenced the comparability and interpretation of statistical outcomes.

Official or governmental epidemic data platforms – although varying across countries –, typically provided online geoinformatics applications, that facilitated the monitoring of the spatial evolution of key epidemiological indicators across multiple territorial scales. In most cases, the finest available resolution corresponded to the LAU 1 level, which in Hungary is equivalent to districts.

In contrast, Hungary's official, governmental epidemic data service primarily operated at the national scale, posing in this way particular challenges for the acquisition of district level (LAU 1) data suitable for international comparison. Nevertheless, this spatial level was identified as the most appropriate for comparative analysis of the V4 capitals.

The official epidemic data service in Hungary included only a limited set of epidemic indicators disaggregated by the capital city and other territorial units of the country (e.g. number of active cases, cumulative deaths and recoveries). These datasets were later supplemented through public interest data requests. This resulted in additional regionally analysable databases which were compiled by civil society organizations and public portals. Moreover, these databases are still publicly accessible today (e.g. https://atlo.team/koronamonitor/, https://bit.ly/COVID-adatok), unlike the official website koronavirus.gov.hu shut down on January 1, 2023. This official governmental portal was last updated on December 28, 2022, and owing to the absence of further data revisions was eventually archived on Facebook (https://www.facebook.com/koronavirus.gov.hu).

In the settlement databases supplementing the official data release, Budapest generally appeared as a single aggregated unit, which was adequate for international comparison. Incidentally, district-level analyses of Budapest were beyond the scope of this study. All supplementary data ultimately originated from the National Centre for Public

Health and Pharmacy, although these figures were not officially disclosed by the government. Another significant challenge in managing these territorial datasets was their temporal inconsistency, which necessitated substantial efforts in harmonization and cleaning before an internationally comparable database could be established. Ultimately, a comprehensive dataset was compiled, covering all confirmed infections in Budapest between March 4, 2020 and December 31, 2021, and on all COVID-19-related mortalities between March 4, 2020 and January 31, 2022.

For international comparison the analysis was focused on the capitals of the V4 countries – Warsaw (Poland), Prague (Czech Republic), Bratislava (Slovakia), and Budapest (Hungary) – with Berlin included as a benchmark city. The rationale for selecting the V4 capitals lies in their comparable population size, agglomeration and urban characteristics, and broadly similar development trajectories, while Berlin was chosen as a reference city because its population size is at least double that of the V4 capitals and its socio-economic profile differs significantly from theirs.

International data reporting was not standardized, and similar difficulties were encountered in building the database for the comparative analysis to the Hungarian one. The level of detail, resolution, and temporal coverage of the available epidemic data varied significantly between the examined cities. However, in all these examined capitals – just like in the case of Budapest – data were obtained for the administrative boundaries of the capital alone, excluding their respective metropolitan areas. The primary data sources for statistical analysis were daily official statistical portals in each country, which reported daily figures on confirmed infections and mortality, in the majority of cases.

Specifically, these sources included:

- *Czech Republic:* Ministerstvo Zdravotnictví České Republiky (MZCR, 2023)
- *Poland:* Ministerstwo Zdrowia Rzeczypospolitej Polskiej (MZRP, 2023)
- *Germany:* Robert Koch Institute (RKI, 2023)
- *Slovakia:* Magistrate of the Capital City of the Slovak Republic Bratislava (MCCSRB, 2023)
- *Hungary:* koronavirus.gov.hu (2022)

In addition, scientific publications containing relevant and usable data on this topic (e.g. Komenda et al. 2020) were consulted. The analysis was facilitated by the fact that capital cities generally constitute separate administrative units in their national territorial structures.

Another difficulty arose from the lack of temporal alignment across international datasets, as reporting periods did not start or end simultaneously. For instance, epidemiological data for Warsaw were only available from January 1, 2021, while reporting

for Bratislava ceased in April 2022. Consequently, the international database covered the period between mid-March 2020 and the end of December 2022. In this context, infection and, to a lesser extent, mortality data were available for a longer period at the capital level.

However, COVID-19 mortality data were only available for Berlin, Budapest and Prague, which restricted the comparative analysis of this epidemic indicator for these three cities only. Although data on the age distribution of cases, hospitalizations, ventilator use, or intensive care unit treatments on a daily basis were publicly available in several of the examined countries, these indicators could not be compared due to the absence of equivalent data for Budapest. Unfortunately, vaccination statistics were also unavailable at the city level, limiting comparability only to national-level data sourced from the website of the UN World Health Organization, so they became comparable at least at the level of the examined countries.

In summary, similar to Hungary, the other CEE countries examined faced numerous challenges and limitations in epidemiological data collection and analysis, which should be considered when interpreting and evaluating the results. Consequently, testing practices and activity varied widely across countries, so substantial discrepancies are likely to exist between the numbers of registered (officially confirmed) and actual infections both in Hungary and internationally. Moreover, as the COVID-19 pandemic evolved, the emergence of new variants causing increasingly milder symptoms brought new epidemic waves, as quite a few patients remained undetected by the healthcare system (since a significant number of individuals did not undergo testing or refrained from seeking medical attention even after obtaining positive results from home tests).

In addition to statistical analysis, literature review was also one of the applied research methods in our paper. The evaluation of the major research findings on this topic helped to contextualize Budapest's epidemiological position within the broader CEE framework.

Literature review

The primary objective of this literature review is to assess the role of Central and Eastern European (CEE) capitals in COVID-19 pandemic based on the most relevant antecedent studies. First of all, it is important to note that the number of available publications specifically focusing on the epidemic situation of CEE capitals during the pandemic is relatively limited. The majority of existing studies primarily address the economic impacts of the pandemic on these capitals (e.g. Boros et al. 2020; Czech et al. 2020; Kovács et al. 2020; Tosics 2020; Módosné et al. 2025; Pál 2025).

It is generally true, that epidemic outbreaks are more likely to occur in urban areas, where high population density, constant and intensive personal interactions can generate infection hotspots (Chang et al. 2020). Beyond these structural characteristics, a city's geographical location and its role within the global urban network are also important factors in determining whether a local outbreak evolves into a worldwide pandemic (Brockmann 2020; Szirmai 2021, 2022).

Direct air connections between Wuhan and major cities in North America and Western Europe essentially determined the initial transmission pathways of the novel coronavirus in the globalized world and thus facilitating the rapid escalation of the pandemic (Gonne, Hubert 2020). In comparison to major Western European cities, the capitals of CEE occupied secondary or even tertiary position in the global urban network, which delayed the virus's arrival in this region. Nevertheless, the capitals of this region, as regional transport hubs, became national epicentres of the infection and facilitated the diffusion of the virus within their respective countries (Igari 2023).

It was a general phenomenon in CEE countries that during the first wave, the majority of registered infections concentrated in capitals and large cities, with a slight positive correlation and co-movement between population density and the number of registered COVID-19 cases, indicating that the two variables exhibited similar spatial dynamics. However, from the second wave onwards, this urban–rural disparity diminished significantly, leading to a more spatially balanced distribution of cases (Kovalcsik et al. 2021).

Although during the epidemic waves, the scope and intensity of containment measures varied among CEE countries, but the strictest interventions were typically implemented in the capitals (Uzzoli 2022). For example, in Berlin, a large-scale demonstration was organized against the pandemic-related restrictions in autumn 2020. In Prague, lockdown measures were typically applied in two-week cycles, accompanied by a rotation system in schools and even by a temporary suspension of public Wi-Fi services. On 1 April 2020, 38 hospitals and hospital departments across Poland – including twelve in the Masovian Voivodeship which encompasses Warsaw as well – were temporarily closed due to confirmed or suspected SARS-CoV-2 contamination. Slovakia was among the first to implement comprehensive, nationwide restrictions during both the first and second waves covering the entire country, including the capital city. Budapest adopted a partially proactive approach, introducing several public health measures during the first wave, which were only later adopted at the national level (Uzzoli, Pirisi 2024).

In fact, the outbreak of the COVID-19 pandemic in Hungary is closely associated with Budapest, due to its prominent role in the international transport network, as a major air transport hub. While the city constituted the country's primary infection hotspot during the first wave of the epidemic, it did not maintain this status, in proportion to its

population in the subsequent waves (Uzzoli et al. 2021; Pál, Uzzoli 2024). At the national level, Budapest's epidemiological position among the Hungarian cities proved relatively favourable when assessed by key epidemiological indicators (Uzzoli 2025; Uzzoli, Pirisi 2024). Nevertheless, the city's epidemiological vulnerability was inherently elevated due to several structural and demographic factors, including its global connectivity, extensive urban fabric and relatively old age composition, even though this higher vulnerability was not fully reflected in the measured epidemic data.

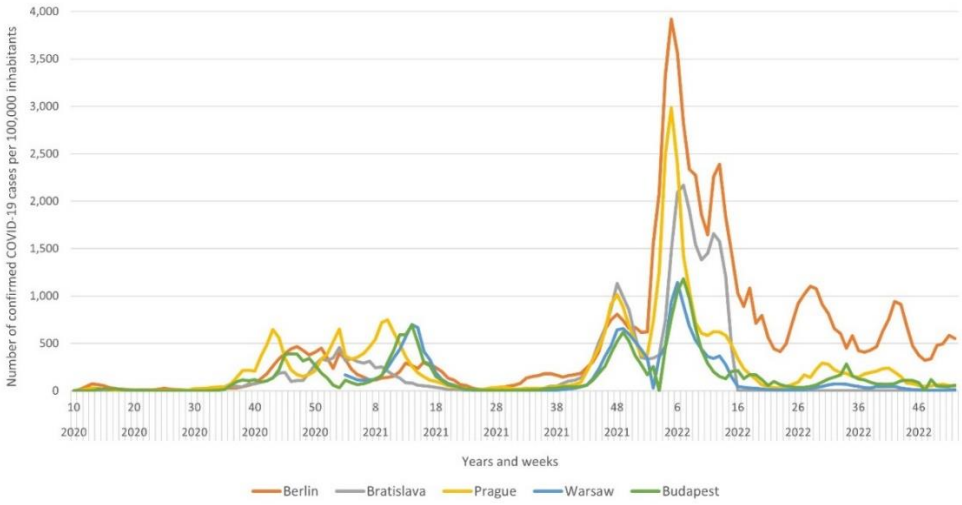
Results – Budapest's position among V4 capitals in relation to the COVID-19 pandemic

An analysis of the weekly number of newly confirmed infection cases reveals that the examined cities studied were largely synchronized with epidemic waves and infection peaks occurring in a broadly similar pattern, typically with a maximum delay of only a few weeks *(Figure 1)*. However, certain differences can also be observed: for example, the number of 'wave peaks' and 'wave troughs' that developed between autumn 2020 and spring 2021 varied among the examined capitals. While Budapest and Berlin each experienced two epidemic peaks, Bratislava recorded only one, whereas Prague had three. Moreover, in Prague, the troughs between successive epidemic peaks were less pronounced, whereas in Berlin, the epidemic wave associated with two distinct novel coronavirus variants manifested more as extended epidemic plateaus, rather than sharp peaks. By contrast, the progression of epidemic waves between autumn 2021 and spring 2022 exhibited a high degree of similarity across the examined cities. The peak with the highest number of confirmed infections occurred in early 2022, after which case numbers in the V4 capitals declined steadily and stabilized at relative low levels by the end of spring 2022. Berlin, however continued to exhibit additional, though progressively weaker, peaks even during the spring of 2022. Figure 1 also clearly illustrates a prolonged trough lasting several months between the end of the third wave and the onset of the fourth wave in the summer of 2021.

Further divergences can be observed between the cities in the magnitude of confirmed infection cases. At the height of the early 2022 peak, the number of new infections per 100,000 inhabitants per week reached nearly 4,000 in Berlin, and approximately 3,000 in Prague. By comparison, this figure in Budapest only briefly exceeded 1,000. In other words, at the peak of the epidemic, weekly infection rates corresponded to roughly 1% of the population in Budapest and Warsaw, approximately 2% in Bratislava, 3% in Prague and 4% in Berlin based on confirmed cases. Beyond these differences in magnitude, the overall temporal pattern of the epidemic curve in Budapest showed extremely strong similarities to that observed in Warsaw.

Figure 1.

Daily number of new confirmed COVID-19 cases per 100,000 inhabitants per week, March 1, 2020 – December 31, 2022



Data source: MZCR, 2023; MZRP, 2023; RKI, 2023; MCCSRB, 2023; koronavirus.gov.hu 2022; Komenda et al., 2020.
Note: Data for Warsaw were available only from January 2021.

The cumulative number of confirmed infections also reflects similar variations among the examined cities *(Figure 2)*. By the end of the official daily data report period (1 May, 2022), the cumulative infection rate in Budapest did not exceed 20% of its population (transmission rate), whereas in Berlin this value approached 80%. It is important to emphasize that due to reinfections, these figures do not imply that four out of five inhabitants in Berlin were infected, or that only one in five residents of Budapest contracted COVID-19.

Further disparities – primarily between Berlin and the other capitals – –can be attributed to the evolving nature of the pandemic. Two key factors underpin these differences:

1) Vaccination coverage: by late 2021 vaccinations and revaccinations (booster uptake) had become widespread, with at least 60% of the population vaccinated in the countries observed;
2) Emergence of the Omicron variant: From early 2022, the Omicron strain spread globally, characterized by a lower risk of severe illness (milder symptoms).

These two reasons led to a significant decrease in the number of (registered) new infections and a plateauing of cumulative cases in the capitals studied from spring 2022 onwards. The sole exception is Berlin, where cumulative case numbers continued to rise. This divergence in Berlin is likely attributable to social factors rather than an actual worsening of the epidemic situation.

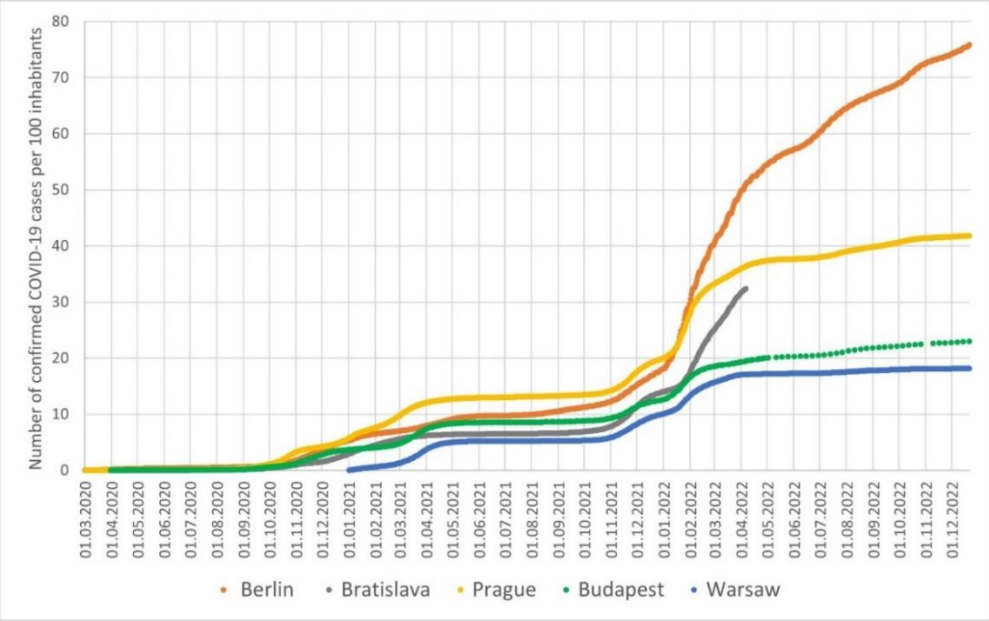
Finally, by the second half of 2022 the pandemic had slowly subsided across the region and most countries discontinued official reporting in early 2023. Consequently, our statistical analysis focuses only on epidemic data up to the end of 2022. Although a minor wave occurred in autumn 2022, it involved comparatively fewer new cases, largely due to hidden morbidity – patients experiencing mild symptoms who did not seek medical care, remained undiagnosed, or relied on home rapid tests without reporting positive results.

Overall, clear differences emerged between two 'city pairs' – Budapest and Bratislava versus Prague and Berlin, based on the examined epidemic indicators. These variations likely reflect genuine differences in epidemiological dynamics rather than artifacts of data collection.

Nevertheless, it is essential to reiterate a critical caveat highlighted earlier in this paper: patient screening, case registration, and mortality reporting protocols during the epidemic varied substantially among countries. These inconsistencies undoubtedly also influenced the apparent trajectory of the pandemic in the examined capitals. In the assessment of the epidemic data, it must also be taken into account that the official statistics captured only confirmed cases, while the actual total number of cases was almost certainly several times higher.

Figure 2.

Total number of confirmed COVID-19 cases per 100 inhabitants per month, March 1, 2020 – December 31, 2022



Data source: MZCR, 2023; MZRP, 2023; RKI, 2023; MCCSRB, 2023… koronavirus.gov.hu 2022; Komenda et al. 2020.

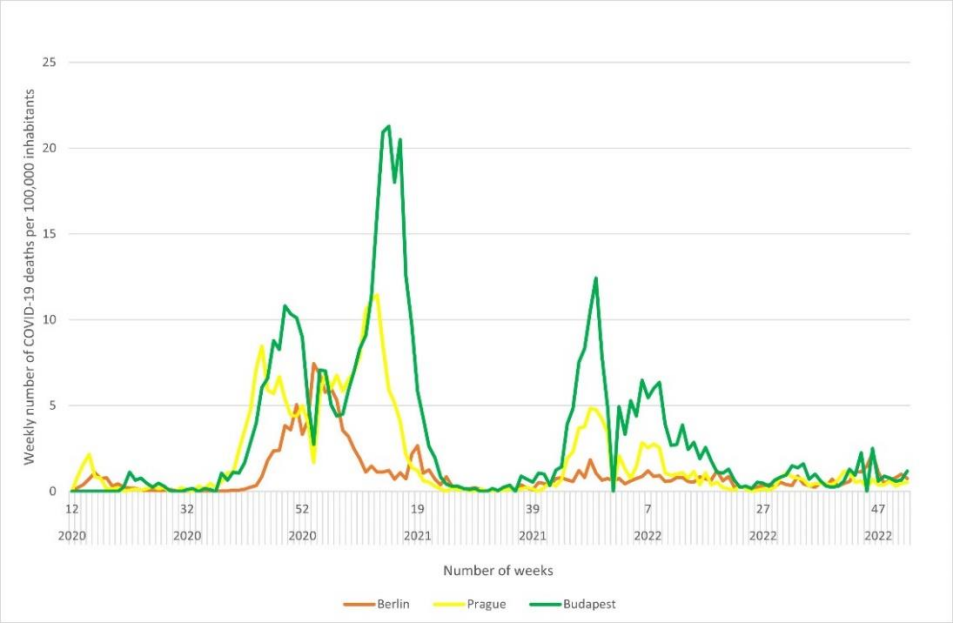
Note: Data for Warsaw were available only from January 2021 and cumulative values were calculated by summing the daily case numbers. Consequently, differences in absolute values should be interpreted with caution.
The dotted line for Budapest indicates that, after 1 May, 2022, domestic epidemic data were released on a weekly basis. Therefore, for the Hungarian capital, monthly statistics are derived from the aggregated weekly data, rather than the sum of daily values as in the other examined capitals.

When evaluating Budapest's COVID-19 situation among the examined capitals based solely on the number of confirmed infections, it appears that the Hungarian capital was less affected by the epidemic than the others or occupied a mid-range position compared to other Central European capitals. However, this seemingly favourable assessment changes significantly when mortality data are taken into account. Although due to the unavailability of reliable epidemic data, Bratislava and Warsaw were excluded from the mortality comparison, the analysis clearly indicates that Budapest exhibited the highest mortality rate per 100,000 inhabitants among the examined capitals between

early 2020 and the end of 2022 *(Figure 3)*. The difference can safely be called dramatic: approximately 7,800 deaths were registered in Budapest, compared with about 3,500 in Prague and 5,200 in Berlin.

Figure 3.

Weekly COVID-19 deaths per 100,000 inhabitants, March 1, 2020 – December 31, 2022



Data source: MZCR, 2023; RKI, 2023; koronavirus.gov.hu 2022.

Note: Publicly available and reliable data on COVID-19 deaths were not accessible for Bratislava and Warsaw.

Berlin's population is roughly twice that of Budapest. However, during certain weeks between 2020 and 2022, relative epidemic indicators showed that mortality rates in Budapest were three to four times higher than in the German capital. Considering the relatively low number of confirmed infections in Hungary *(see Figures 1 and 2)*, this implies that an infected resident of Budapest was approximately 12 times more likely to die from COVID-19 than an infected resident of Berlin, based on officially reported data.

This interpretation, however requires caution. Mortality statistics are subject to considerable uncertainty, as European countries employed different protocols for attributing deaths to COVID-19. Consequently, the number of reported COVID-19 deaths may not

always fully correspond to the actual number of pandemic-related fatalities in these countries.

Thus, the regional differences in the population-based number of COVID-19 deaths could also be explained by the different medical protocols for determining deaths caused by the infection in the V4 countries. The various administrative exercises can actually be conceptualized along a continuum: At one extreme, deaths were counted if the individual was infected at the time of death; at the other, only cases where COVID-19 was the primary cause (e.g., respiratory failure directly induced by infection) were included in the statistics. Between these two extremes (as the ends of the scale), numerous intermediate approaches and local protocols existed not only across Europe but also globally. Obviously, when assessing epidemic data, it is crucial to account for the variation in national protocols for classifying COVID-19-related deaths. Evidence suggests that in Hungary, deaths were more frequently attributed to COVID-19, in comparison to several other countries. Thus, in Hungary, the official statistics directly included all deaths linked to confirmed COVID-19 infection, which may partly explain the higher mortality figures. Nevertheless, differences in reporting protocols alone cannot account for Budapest's substantially higher COVID-19 compared to other capitals.

Overall, if we previously noted that part of the difference in infection between Budapest and the other cities was actually attributable to lower transmission, a similar observation applies to the COVID-19 mortality data: there is a real, structural reason behind these figures. The disparity cannot be explained solely and exclusively by differences in statistical methodologies (e.g. variations in medical protocols).

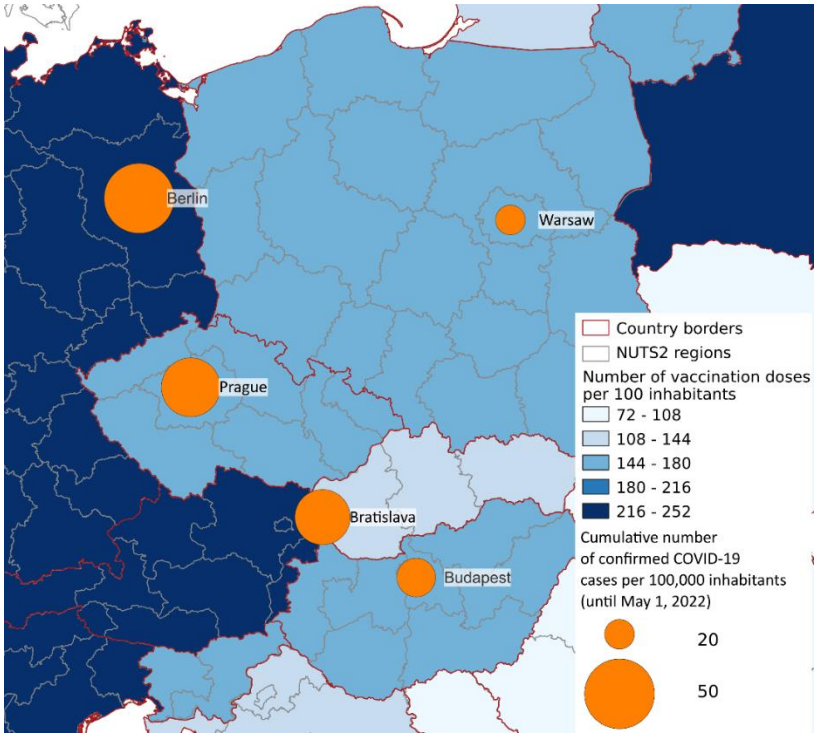
When comparing the main socio-economic indicators of Budapest and Berlin, it becomes evident that both cities have aging populations. According to the 2022 census, 21.2% of Budapest's population was aged 65 years or older, compared to 18.9% in Berlin (Statistik Berlin-Brandenburg 2023). Not only does aging itself play a role, but also factors, such as lower life expectancy and the poorer overall health among the elderly population, which can largely explain the mortality-gap, assuming equal healthcare quality, although the assumption of equal healthcare quality in the two cities may not reflect reality.

Differences among the examined capitals were observed not only in COVID-19 infections and mortalities, but also in vaccination rates and vaccination willingness. Within Central Europe, German-speaking countries led the way in vaccination coverage, while the V4 countries also performed well overall, with the exception of Slovakia. In general, the examined countries occupied a favourable position regarding vaccination willingness and vaccine availability, although they slightly lagged behind more developed

countries (e.g. Germany, Austria) *(Figure 4)*. Based on the cumulative number of confirmed COVID-19 cases per 100,000 inhabitants, Budapest ranked similarly to Warsaw, both at the lower end of spectrum.

Figure 4.

Total COVID-19 deaths per 100 inhabitants in the V4 capitals and Berlin (as of May 1, 2022), and country-level vaccination coverage (doses per 100 inhabitants) in 2023



Data source: WHO Coronavirus (COVID-19) Dashboard (https://COVID19.who.int/table, https://covid19.who.int/) 2023.

It is important to note that the capitals of Central Eastern and Europe (CEE), including Berlin, no matter how similar they are to each other, possess distinct characteristics that may partly explain epidemiological differences. For example, Berlin is not only the largest, but also the most densely built-up city: with a population density exceeding 4,000 people/km^2 despite its extensive areas of green space and aquatic areas. The population density of Bratislava, Prague and Warsaw ranges between 1,300 and

2,600 people/km^2 (citypopulation.de), but despite its lower infection rate, Budapest is the second most densely populated among the studied cities with approximately 3,200 people/km^2.

Differences also exist in the level of globalization among the capitals analysed, which in turn affects their direct exposure to infections, but the evaluation of this factor remains somewhat controversial. For example, the KEARNY Report (KEARNY 2022) ranked only Berlin among the top 30 cities (placing it 9th). In contrast, according to the Globalization and World Cities Research Network (GaWC 2023), Warsaw is the most globalized city in the regions examined (Alpha category: 26th place), and Prague also surpasses Berlin in this classification. Both Berlin and Budapest occupy a similar situation and are classified as beta cities. It should be noted, however, that, unlike the V4 capitals, Berlin does not function as Germany's primary international gateway; its airport ranks 25th in Europe in terms of passenger traffic (Warsaw: 32nd, Prague: 45th, Budapest: 49th). Nevertheless, among the capitals analysed, Berlin was typically the first to experience new waves of COVID-19 infections, reflecting the city's advanced integration into global urban networks, despite its stronger political-cultural than economic role within Germany.

Summary

The COVID-19 pandemic has fundamentally transformed everyday life and reshaped the relationship between people and cities. It has highlighted the critical role of urban healthcare systems for a nation's population. The pandemic and the resulting crisis demonstrated, that in optimizing the operation and capacity of healthcare services, preparation for similar epidemic situations is essential, and national, as well as local decision-making must continuously adapt to evolving conditions to effectively address emergencies.

The findings supported the hypothesis that Budapest occupies a contradictory, paradoxical position within the spatial structure of the Central and Eastern European (CEE) capitals (V4). Although the number of COVID-19 infections per capita was not among the highest values among the V4 capitals, the Hungarian capital was in a highly unfavourable position in terms of coronavirus-related deaths during the three main years of the epidemic (2020–2022).

Based on the results of the analysis, several important lessons can be drawn regarding the healthcare system in Budapest in relation to the epidemic situation. These insights, and partly recommendations, can support the Hungarian capital's healthcare system in preparing and mitigating the impact on future potential epidemics.

Greater emphasis must be placed on collection, monitoring and evaluation of accurate and detailed epidemic data at all territorial levels, as well as on ensuring their timely public reporting. Without such data, neither healthcare stakeholders, nor decision-makers, nor scientific researchers, and even nor residents are aware of the current epidemic situation, its effects and the level of overall vulnerability. Informing the population and developing effective crisis communication channels for this purpose is therefore essential. Budapest and its agglomeration, as the largest urban region and population hub in Hungary, can play a leading role in achieving this.

Future efforts must also strengthen cooperation, not only among relevant Hungarian healthcare services but also between Hungarian cities, EU member states and neighbouring capitals. Preparing healthcare services and optimizing their capacities can be supported through the establishment of intersectoral and interregional partnership networks, potentially extending beyond national borders. Partial international coordination of epidemic mitigation measures as well as the exchange of experiences among Central European capitals regarding epidemic response can effectively enhance future anti-epidemic preparedness and prevention. In all of this, Budapest is well positioned to assume an active role in building and operating this international – Central and Eastern European – network.

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The presence and interpretation of climate change in Hungarian small-town urban development documents and local public thinking

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Abstract

In Hungary, it took 25 years for extreme weather events to become commonly perceived by the public, as consequences of global climate change. Although the scientific explanation of these phenomena continues to generate professional debates, it does not impede practical efforts to plan for and mitigate the damages caused by increasingly frequent droughts, flash floods, heatwaves, windstorms, invasive species, pests, and even human diseases. The overarching objective, as defined by the Second National Climate Change Strategy (NÉS-2), is "to avoid the unmanageable and manage the avoidable" (NÉS-2).

The strategic programmes prepared by small towns comprise three interrelated main components addressing damage mitigation, adaptation, and the shaping of environmental awaraness (attitude and involvement). Of Hungary's 348 cities, 88 have a population between 10,000 and 25,000. From these, 34 small towns were selected for analysis, based on the availability of climate change-related documents published on municipal websites. A smaller subset of these programmes was designed using the results of online surveys assessing the local residents' climate awareness, adaptability, and willingness to act. In addition, a field survey conducted in Tiszaföldvár aimed to explore the local residents' attitudes toward climate change.

Keywords: small towns, Hungary, climatic change strategies, European Landscape Convention, local climate adaption, landscape identity

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Absztrakt

Magyarországon 25 év kellett ahhoz, hogy ma már a szélsőséges időjárási eseményeket a társadalmi közvélemény természetes módon a globális éghajlatváltozásnak tulajdonítsa. Az okok tudományos magyarázata ugyan még ma is szakmai vitákat generál, de a mind sűrűbben jelentkező aszály, villámárvíz, hőhullám, szélvihar, özönnövények, különféle kártevők, sőt emberi betegségek miatt jelentkező károk elhárításának gyakorlati tervezését ez már nem akadályozza. A cél a „kezelhetetlen károk elkerülése és az elkerülhető kezelése" (NÉS-2).

A kisvárosok által elkészített stratégiai programok egymásra épülő 3 fő fejezete a károk lehetséges csökkentésével (mitigation), az alkalmazkodással (adaptation) és a szemléletalakítással (attitude, involvement) foglalkozik. Magyarország 348 városa közül 88-nak a lakosságszáma esik 10 és 25 ezer közé. A 88 kisváros közül 34-et választottunk ki, amelyeknek megvizsgáltuk az önkormányzat honlapján megtalálható, klímaváltozással kapcsolatos elképzeléseit. A klímavédelmi programok egy kisebb része úgy készült el, hogy előtte online felmérés volt a helyi lakosok klímatudatosságáról, alkalmazkodó képességéről és hajlandóságáról. Személyesen lebonyolított felmérésünk során *Tiszaföldvár* lakóinak attitűdjét igyekeztünk megismerni.

Kulcsszavak: kisvárosok, Magyarország, éghajlatváltozási stratégiák, Európai Táj Egyezmény, helyi klímaalkalmazkodás, tájidentitás

Introduction

Although professional debates continue regarding the ultimate causes of global climate change, it is an established fact that extreme weather events are becoming increasingly frequent worldwide (IPCC 2023; Bartholy et al. 2022). The gradual shift in average annual temperature and precipitation often go unnoticed in our everyday life. However, unusually long heatwaves and torrential storms tend to remain vivid in collective memory and strongly influence societal perceptions (Szirmai 2009; Mezősi et al. 2017; Poortinga et al. 2018).

Urban residents experience weather phenomena differently due to the densely built environment. Several climatic features typical of large cities do not occur in rural areas. Common examples include the urban heat island effect that forms above paved city surfaces, stormwater flooding streets, underpasses, and subway tunnels, due to inadequate drainage systems and increased wind speeds resulting from the channel effect created between tall buildings (Lázár et al. 2024).

Although more than 70% of Hungary's population lives in urban areas, in 204 out of the 348 cities, fewer than 10,000 people reside, meaning they are unlikely to experience the aforementioned urban weather phenomena. Urban heat islands generally develop in cities with at least 150,000–200,000 inhabitants and densely built-up city centres with limited green space (Szegedi et al. 2013). The most vulnerable are historical large cities that retain their medieval compact urban structures, lack sufficient parks, and are often enclosed by city walls – such as Bologna, Zaragoza, or Dubrovnik. Conversely, green areas, rivers, and lakes mitigate the formation of heat islands, even in cities with populations exceeding one million.

In Hungary the climates of Budapest, Győr, and Szeged are moderated by the Danube and the Tisza. Even in Debrecen, studies have shown that the centre of the urban heat dome is not located around the more ventilated area of the Great Church, but near the Csokonai Theatre (Szegedi et al. 2013; Unger et al. 2010; Dezső et al. 2022).

In response to the intensified negative bioclimatic impacts of global climate change, several professional frameworks have emerged in Hungary over the past 20–25 years. Sectoral adaption strategies – such as those addressing water management, forestry, and nature conservation – have all based on the first and second National Climate Change Strategies (2008, 2013). Later, more comprehensive and integrated frameworks were introduced, such as the National Development and Territorial Development Concept, the National Sustainable Development Framework Strategy and the National Landscape Strategy.

At the same time, public interest in climate-related issues has grown significantly, and was accompanied by the rise of civil initiatives and various awareness-raising activities. Professional insights have gradually become part of social consciousness, though this process of societal learning takes time before such topics appear in everyday practices – such as selective waste collection or water conservation.

It is evident that in small towns the climatic consequences of dense urban development are still barely perceptible. However, because these settlements are closely connected to their surrounding natural environments, residents may be more directly aware of climatic extremes.

We suggest that one useful indicator of the slow transformation of public thinking is the extent to which small-town municipalities have addressed climate change – specifically whether they have prepared locally tailored strategies to prevent or mitigate its anticipated negative impacts. According to international literature, numerous studies argue that small towns are at a disadvantage in mitigating the harmful effects of climate change. This is partly due to their limited financial and institutional capacity, and partly to the more traditional mindset of their residents (Fila et al. 2023; Nazari et al. 2025; Olczak, Hanzl 2025).

Hungary's National Climate Change Strategies

After the turn of the century, increasingly detailed professional reports emerged in Hungary on the signs of climate change and on ways to reduce its adverse impacts. Between 2003 and 2006, the so-called VAHAVA group worked extensively on the topic (VAHAVA 2010), and in 2008, the Parliament adopted the country's first National Climate Change Strategy.

As the European Union complemented its continental climate policy with the Decarbonization Roadmap in the early 2010s, Hungary developed its second national programme by 2013 (NÉS-2 2013). The revision was necessary because experts recognized that vulnerability to climate change differs significantly across regions due to variations in land use and social conditions. Consequently, adaptive capacity is also uneven. Therefore, realistic objectives must be aligned with local adaptation potential. The ability to respond effectively depends largely on social factors – such as residents' financial situation, demographic characteristics, and overall social position. Together these factors determine an individual's so-called "coping ability".

The authors of the second Climate Change Strategy (NÉS-2) carried out their vulnerability assessment in three main steps:

1. *Assessing the spatial pattern of climate vulnerability arising from geographical exposure.*

   According to the climate models projections for 2050, Hungary lies on the boundary between the highly endangered Southern European region and the moderately endangered Central European zone. Within the country, regions, where climate vulnerability is expected to remain stable or only slightly worsen, include the south-western and mountainous areas (Vas, Zala, North Somogy, and the counties of Veszprém, Nógrád, Heves, and Borsod-Abaúj-Zemplén). Conversely, conditions are expected to deteriorate more severely in Baranya, Jász-Nagykun-Szolnok, Hajdú-Bihar, Békés, and Csongrád-Csanád counties (Bihari Z. et al. 2018).

2. *Evaluating the climate sensitivity of different land use types.*

   Forests, arable land, meadows and other land uses respond differently to climatic shifts. Urban areas – such as city centres, residential districts, industrial zones, and suburbs – also exhibit distinct sensitivities. The combination of these two components (exposure and sensitivity) determines the overall climate vulnerability of a given area. Forests, arable land, meadows, and other land uses respond differently to climatic shifts.

3. Assessing adaptive capacity.

Adaptability refers to the tools available to mitigate climate-related hazards – for example, irrigation in agricultural zones or the application of the "sponge city" concept for water retention. According to Malatinszky et al. (2018), the current agricultural and forestry structure shows the lowest adaptive capacity in the Marcal Basin, the Southern Transdanubian Hills, and the Danube Plain. Social indicators of adaptability, include residents' income levels, car ownership, educational attainment, and – given the health implications of climate change – the accessibility of primary healthcare and emergency services.

Based on these factors – driven primarily by non-climatic conditions – cities such as Székesfehérvár, Veszprém, Győr, Debrecen, and Tiszaújváros display relatively strong adaptive capacity, whereas scattered farmstead (tanya) areas represent the opposite extreme. When assessing individual coping options, considerations was given to whether people could afford air-conditioning, travel during periods of extreme heat, or relocate to more comfortable microclimatic environments.

According to data from 2013, 36% of the country is classified as highly vulnerable from a bioclimatic perspective, while only 26% of the population resides in these areas.

The Strategy highlights the importance of maintaining ventilation corridors that allow air circulation into city centres, as well as reducing transport-related paved surfaces, since asphalt and concrete streets contribute most to urban overheating. The most effective measure, of course, is the expansion of interconnected urban green networks wherever possible, alongside strengthening the so-called Smart City programmes – particularly in the field of sustainable transportation.

Among built structures, historic monuments generally exhibit higher climate sensitivity, providing shading, rainwater drainage, and wind-resistant reinforcement for them tends to be more costly. In contrast, modern buildings such as bank headquarters or shopping centres featuring large glass façades and flat roofs are inherently disadvantageous from a climatic perspective. Consequently, in an increasing number of large cities, energy demand for cooling, now exceeds that for winter heating.

The overarching conclusion drawn from the professional literature is that climate-conscious urban planning should place greater emphasis on the development of compact cities rather than on unlimited urban sprawl. The concept of the compact city appeared in this context for the first time.

The next phase of adaptation planning between 2015 and 2019 involved the formulation of county-level climate strategies. This step was deemed necessary because each geographical and administrative territorial unit – region, county, district, and city – possesses distinct environmental and socio-economic characteristics.

These climate strategies typically focus on three interrelated pillars:

- mitigation – reducing greenhouse gas (GHG) emissions
- adaptation – enhancing resilience to climate impacts and
- awareness-raising – promoting climate-conscious behaviour among residents.

This triple focus is consistently reflected throughout the documents: it informs the situational analyses, shapes the long-term visions, and provides the structural foundation for objectives and policy measures (Kovács et al. 2024).

In the case of Hajdú-Bihar County, for instance, the strategy highlights several key local characteristics: agricultural land use and the food economy (e.g., KITE), the health industry notably, pharmaceutical production), and innovative knowledge bases associated with higher education and research institutions (Hajdú-Bihar 2018).

The Hungarian National Landscape Strategy (2017-2026)

The first major milestone in European landscape protection occurred in the autumn of 2000, when the European Landscape Convention was opened for signature to member states at a meeting of the Council of Europe's Rural Development Committee in Florence (Council of Europe 2000). This convention also serves as a key reference point for Hungary's National Landscape Strategy adopted by the government on March 20, 2017 (Government Decree 1128/2017. [III. 20.]).

The Strategy focuses on the following five thematic areas:

- demographic restructuring and migration,
- the sustainability of economic development,
- energy security,
- climate change, and
- declining biological and landscape diversity.

One of the main priorities is addressing the landscape effects of climate change, including the specific challenges faced by urban environments.

According to the Strategy, the current condition of Hungary's landscapes is strongly influenced by several interrelated trends:

- Growing regional disparities in population distribution and density. Rural landscapes are increasingly depopulated, while the capital and the outskirts of several major provincial cities face intense agglomeration pressure. Each year, 4,000–7,000 hectares of arable land are converted for urban use on the peripheries of these rapidly expanding cities.
- Erosion of landscape identity due to intensive urbanization. The Strategy highlights that "the sense of responsibility of a person detached from the landscape weakens, and often they do not recognize their own personal responsibility. They do not feel their own and the community's responsibility for the disappearing landscape heritage."

Unfavourable trends have led to the blurring of historically distinct settlement types and structures. Traditional forms such as the tanya farms of the Great Plain, the market towns along the foothill zones, the small villages of Transdanubia, and the characteristic small towns are gradually losing their unique features. As a result, a kind of homogenization is taking place at both the landscape and settlement-structure levels. "In the future, there should be room for settlements to define their own character, combining traditions and new aesthetical functions. To achieve this, the 2016 LXXIV Act on the protection of the settlement character has introduced new tools for ensuring landscape protection – Municipal Regulations on Settlement Character and Landscape Design Manuals."

According to the Landscape Strategy, "the municipalities' adaptation to climate change has already gone beyond the recognition phase." However, the proposed directions for adaptation remain rather general; "the structure of municipalities must be reviewed, and during planning, wise and economical land use, providing new functions for abandoned areas, and integrating climate-friendly municipal models must be applied together. The climate adaptation interventions must be expanded to include urban planning, green space design, brownfield, and redevelopment of derelict areas."

In addition to expanding public green areas, an intriguing proposal of the Landscape Strategy is that non-municipal but privately owned (!) green spaces within settlements should also fall under professional supervision. Currently, regulation is limited primarily to the moderately effective control of highly allergenic common ragweed (Ambrosia artemisiifolia) on private property. In recent years, some municipalities have also issued local decrees prohibiting the planting of certain invasive ornamental plant species, such as Japanese knotweed or cherry laurel. Interestingly, these climate-tolerant plants are often preferred, precisely because they tolerate changing climatic conditions – yet this preference directly contradicts ecological and climate protection objectives.

The strategic document understandably places particular emphasis on urban development and the "transitional zone" where the nature-friendly, semi-natural rural landscape meets the transitional belt of the urban periphery. According to the Strategy, the urban fringes and "gateways" of Hungarian settlements are typically disordered both functionally and aesthetically, and as a result, towns and cities fail to blend harmoniously into the surrounding landscape.

A crucial factor shaping urban structure is transportation infrastructure. Increased mobility is identified as the primary driver of urban sprawl, which in turn stimulates further infrastructure development – creating a self-reinforcing cycle.

To improve the urban climate, the local retention of rainwater and the implementation of the "sponge city" concept are recommended. Through the creation of permeable surfaces and the development of green infrastructure, the first 20 mm of precipitation should be absorbed on-site, replenishing groundwater and soil moisture rather than being lost through surface runoff.

Evaluation of climate strategy programmes found on small town websites

As of 2025, Hungary has 348 settlements with town status, 88 of which have populations between 10,000 and 25,000. This settlement size represents the lower tier of urbanization, situated between the "barely cities" (below 10,000 inhabitants) and the medium-sized towns exceeding 20,000–25,000 residents (Kovács et al. 2022). From these 88 towns, 34 were randomly selected for analysis, ensuring representativeness in terms of economic type (agricultural, industrial, tourism-oriented), hierarchical position (capital agglomeration, areas with urban deficiency, micro-regional centres), and geographical location *(Table 1, Figure 1)*.

The reviewed documents reveal, that settlements have not addressed climate change challenges at the same pace. In some small towns, the topic appeared in environmental protection programmes 15–20 years ago, yet broader attention to climate issues primarily emerged following two national grant frameworks and policy obligations. Beginning in 2018, the KEHOP grant enabled municipalities to finance the development of a Climate Protection Strategies, while from 2020, under the European Covenant of Mayors, the preparation of Sustainable Energy and Climate Action Plans (SECAP) also commenced in Hungary.

Out of the 34 towns examined, 19 – more than half – possess professional documents, including situation analyses and recommended actions. Three towns (Dombóvár, Hajdúszoboszló, and Szarvas) have climate strategies of earlier or alternative structure, often prepared nearly a decade ago, and thus less comparable. The most comprehensive

materials were found among 11 strategies developed using the Methodological Guide prepared by the National Adaptation Center of the Geological and Mining Institute of Hungary, commissioned by the Association of Climate-Friendly Settlements (Taksz 2018). The Guide is structured around five main chapters: GHG inventory and mitigation, adaptation, mindset shaping, financing, and vision (Pongrácz et al. 2024).

In SECAP documents, the energy-related dimension of climate change understandably plays a more dominant role. The Methodological Guide itself functions as a highly detailed manual, providing numerous examples for describing and evaluating various climatic impacts. Consequently, local strategy developers were effectively offered a "menu" of adaptable options, enabling them to tailor measures to their town's specific characteristics.

However, the 19 strategies reviewed cannot be considered fully uniform. In several cases (e.g. Gárdony, Kapuvár, Komárom, Kőszeg, Mátészalka, and Sátoraljaújhely), municipalities supplemented their analyses with online surveys measuring residents' climate awareness, climate anxiety, and willingness to cooperate on climate-related issues. According to the Guide, the integration and alignment of these strategies with other local planning documents are essential. Yet, in practice, many Municipal Image Manuals, make little or no reference to climate change, despite the clear relevance of building shading, glass surfaces ratios, and green space network design for urban climate resilience.

A particularly interesting example appears in the strategy of Balatonfüred, which applies a Climate Index for Tourism (CIT) designed to assess various locations based on thermal comfort, precipitation levels, sunshine duration, and wind intensity (Dubois et al. 2016).

Of the 34 small towns surveyed, 10 experienced population growth, while 24 saw a decline between 2022 and 2024. The towns showing net in-migration almost exclusively belong to the broader metropolitan agglomeration of Budapest (e.g., Biatorbágy, Budakeszi, Monor, Ráckeve) or are tourism-oriented settlements (Gárdony, Balatonfüred). In contrast, smaller towns, located farther from county seats have experienced severe migration losses, with population decreases of around 1,000 people over two years – for example, Sárvár, Mátészalka, Szarvas, Dombóvár, Tapolca and Körmend.

The demographic situation significantly determines the capacity and flexibility of local governments to act. The establishment of dedicated climate protection working groups or the appointment of municipal climate officers appears mainly in the programmes of better-positioned municipalities such as Balatonfüred, Biatorbágy, Hajdúnánás, and Kapuvár. However, a closer look at the agendas of municipal council meetings reveals no evidence of such measures being implemented, despite the strategies outlining plans extending to 2030, with a "view to 2050."

While there is still ample time for progress, it is more concerning that in the two to three years since the completion of these strategies, the topic of climate protection has not appeared on council meeting agendas at all. This is particularly striking given that strategies explicitly prescribe a review of commitments every two to three years. Although it may still be premature to issue strong criticism, of the challenges of recent years – the Covid-19 pandemic, reduced municipal revenues, inflation and economic stagnation – suggest that there is currently little political or financial momentum to implement the measures outlined in these often campaign-like climate strategies.

It appears that among the climate protection objectives, only those connected to new central EU funding sources are being realized – such as energy efficiency retrofits of public buildings, or the replacement of municipal vehicle fleets with zero-emission alternatives.

It is notable that nearly all small towns with a currently up-to-date Climate Protection Strategy are located in North and West Transdanubia – including Kőszeg, Sárvár, Kapuvár, Komárom, Tata, Biatorbágy, Gárdony and Balatonfüred. The remaining two-thirds of the country is represented by only three towns: Balassagyarmat, Hajdúnánás, and Békés.

Among the 34 towns examined, 12 possess other professional planning documents – such as Integrated Urban Development Strategies or Sustainable Settlement Development Strategies – that contain only marginal or passing references to climate change. In three cases (Bátonyterenye, Kiskunmajsa, and Tapolca), the topic appears solely within Environmental or Urban Development Programmes, and even there, only in brief mention.

Table 1 summarizes the key issues addressed in each town's available documents. It becomes evident that natural, ecological, and economic contexts largely determine both the perceived threats and the focus of adaptation measures. For instance, droughts dominate in agricultural landscapes, flash floods in hilly areas, forest desiccation in mountainous regions, and urban heat islands in resort towns affected by dense traffic and building congestion.

Several municipalities propose locally grounded solutions based on their specific environmental assets. Balassagyarmat, for example, envisions channelling the fresher air of the nearby Ipoly River into the town, while Hatvan seeks to introduce the cooler air of the Zagyva River's floodplain forests into the city centre. Where such natural advantages are absent, towns often focus on establishing interconnected urban green networks and planting climate-tolerant vegetation. A recurring concern across nearly all strategies is the spread of invasive, often allergenic plant and animal species associated with changing climatic conditions.

In cities with a strong agricultural background, such as Balassagyarmat, local strategies emphasize that the bankruptcy of medium-sized agricultural enterprises due to recurring droughts may lead to undesirable social polarization and the expansion of impoverished social groups. In contrast, Mátészalka's assessment presents a more optimistic view, suggesting that local agricultural systems possess a relatively high adaptive capacity to climate change.

In small towns rich in historical monuments, the vulnerability of heritage buildings to extreme weather events – notably windstorms – has become a significant concern. This is highlighted in Kalocsa, Balatonfüred, and in the case of Sajószentpéter where the deteriorated building stock in segregated areas further compounds climate-related risks.

In mass tourism destinations, such as Sárvár, Hajdúszoboszló, and Gárdony, achieving reduction in water and energy consumption poses a particular challenge, as visitors tend to suspend environmentally conscious behaviour while on holiday. In Balatonfüred, however, "Green Hotel" regulations have been introduced as an attempt to curb the water and the excessive resource use commonly associated with tourism seasons.

In several small towns – such as Kőszeg and Paks – the aging of the local population is perceived as a greater-than-average climate vulnerability given that elderly residents are more exposed to heatwaves and extreme weather events. In contrast, Gárdony's strategy argues that strong social welfare systems and relatively high income levels mitigate these risks to a notable extent.

Overall, the responses to climate risks in small towns tend to be highly site-specific. For instance, Biatorbágy has adopted a "sustainability slowdown" policy emphasizing the limitation of new constructions to prevent excessive land consumption and urban heat accumulation. Elsewhere – such as Marcali, Tiszaújváros, Szarvas, Balatonfüred and Hajdúnánás – strategies prioritize decarbonization through the promotion of locally produced agricultural goods and efforts to reduce freight-related greenhouse gas (GHG) emissions.

A particularly self-reflective document is Tata's Climate Strategy, acknowledges that intensive industrialization has placed the town among the "climate-intensifying" localities, where high GHG emissions make the settlement more a source than a victim of climate change.

With few exceptions, transportation emerges the second largest greenhouse gas emitter after residential energy consumption. Consequently, the development of a traffic-free city centre and bicycle infrastructure are among the most frequently proposed interventions of many strategies (e.g., Komárom, Balassagyarmat). Some towns, such as Sajószentpéter, have already realized major improvements, including the construction of bypass roads that reduce through-traffic.

Komló presents a special case, as its complex topography sprawling urban structure, deindustrialization, and significant changing land use patterns have created both challenges and opportunities for comprehensive urban transformation (Csorba, Túri 2024). The town's Integrated Urban Development Strategy aims to address these through Smart City initiatives, linking technological innovation with sustainability.

Finally, several urban programmes emphasize that the designation of new industrial park locations represents a critical, long-term planning decision – one that will shape urban morphology and environmental performance for decades to come.

Table 1.

Climate–change related data from 34 Hungarian small towns

City	*Population number in 2024*	*Change 2022/24*	*Quality of climate change document +*	*Prominent topics*
Balassagyarmat	13,917	-579	+++	traffic through the city centre, water shortage, drought, drying forests
Balatonfüred	12,925	+193	+++	traffic congestion, stormwater drainage, vulnerable heritage buildings
Bátonyterenye	11,118	-371	– – –	-
Békés	17,526	-647	+++	drought, flood/inland water, heatwave, plants causing allergies
Biatorbágy	15,338	+889	+++	suburbanization, transportation, storm damage, flash flood, shading
Budakeszi	15,862	+988	– – –	energy efficiency of buildings, water shortage, invasive plants
Dombóvár	17,041	-883	++	transportation, increasing green areas, shading
Gárdony	13,750	+1,165	+++	through traffic, drought, storm damage, water shortage of Lake Velence
Hajdúnánás	16,087	-424	+++	drought, inland food, storm damages
Hajdúszoboszló	23,918	-220	++	mass tourism, energy demand, transportation, heatwaves, drought, storms
Hatvan	19,943	-69	–	energy efficiency of the buildings, industrial structure, afforestation
Kalocsa	14,433	-652	+	obsolete building stock, drought, lack of green spaces
Kapuvár	10,024	-160	+++	transportation, drought, heatwave, inland water, storm
Kiskunmajsa	11,127	+167	– – –	-
Komárom	20,391	+791	+++	heatwave, large industrial sites, flash flood, drought

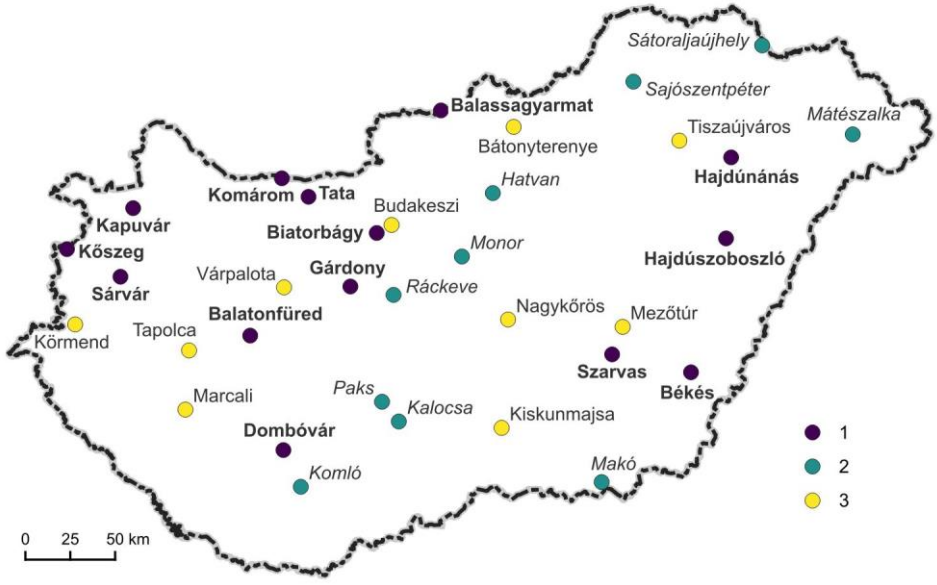
Komló	21,695	-770	–	flash flood, forest drought, outdated building energy efficiency, unfavourable urban structure
Körmend	10,177	-809	– –	-
Kőszeg	11,757	-209	+++	aging "sleeping city", thunderstorms, drainage, drying forests
Makó	21,753	-608	–	heatwaves, drought,
Marcali	10,502	-573	– – –	rainwater drainage, use of local agricultural products
Mátészalka	15,157	-995	+	heatwaves, thunderstorms, drought, drying forests
Mezőtúr	15,469	-466	– –	heatwaves, green area regeneration
Monor	19,743	+1,325	–	energy efficiency, thunderstorms, wind, drought
Nagykőrös	23,016	-522	– –	-
Paks	17,917	-572	–	extreme rainfall events, heatwaves, ageing population
Ráckeve	11,080	+280	+	flood/inland water, agricultural pests
Sajószentpéter	11,251	+118	+	flash flood, building energy, dry forests
Sárvár	14,200	-1,101	+++	heatwaves, drought, flash floods, health tourism sustainability
Sátoraljaújhely	12,973	-829	+	extreme rainfall events, drought, dry forests, heatwaves
Szarvas	14,464	-936	++	flooding, heatwave, use of local agricultural products, water retention
Tapolca	14,006	-855	– – –	-
Tata	23,549	+84	+++	industrial energy demand, drought, forest quality
Tiszaújváros	14,700	-212	– –	use of local agricultural products, transportation
Várpalota	19,395	-123	– –	-

Explanation: +++: Climate Protection Strategy prepared after 2019; ++: Climate Protection Strategy prepared before 2019, or less detailed; +: Sustainable Energy and Climate Action Plan (SECAP); –: Addressed within the Integrated/Sustainable Urban Development Strategy; – –: Possibly mentioned in an Integrated/Sustainable Urban Development Strategy before 2020; – – –: other cases, e.g. indirectly related references in Environmental or Urban Development Programmes.

Source: The authors' own compilation.

Figure 1.

Location of the 34 small towns included in the study and the quality of their municipal documents related to climate change



Explanation:
1: Small towns with municipal documents rated as excellent or good (+++ and ++) in Table 1.
2: Small towns with municipal documents rated as medium (+ and –) in Table 1.
3: Small towns with municipal documents rated as inadequate (– and – – –) in Table 1, or not possessing any such document

Source: The authors' own compilation.

The attitude of local residents towards climate change

The successful mitigation of the adverse impacts of climate change is strongly influenced by the mindset of local populations and the activity of municipal governance (Hallegatte 2009; Hoppe et al. 2016; Bautsch, Koziol 2020; Hügel, Davies 2020; Kiss et al. 2022). Contemporary approaches are already being applied to assess climate risks and enhance public awareness including machine learning, the dissemination of good practices, and learning-based knowledge development (Boehnke et al. 2019; Haggag et al. 2024; Orderud, Naustdalslid 2020).

Our review of municipal documents revealed several noteworthy observations regarding public attitudes and the quality of knowledge related to climate change. In Balassagyarmat, for instance, a strong willingness to adapt to climate-related challenges was reported, whereas in Kőszeg, local authorities noted widespread public indifference. Some small-town strategies (Sátoraljaújhely, Mátészalka) contextualize these encouraging or discouraging situations by referring to the so-called deprivation index which reflects the capacity for lifestyle adaptation. It indicates the extent to which individuals can maintain or improve their quality of life based on material well-being, health status, mental condition, and social position whether advantageous or disadvantageous (Koós 2015).

In Sátoraljaújhely, the deprivation index was estimated at 0.42 in 2011, projected to decrease to 0.31 by 2050. By contrast, the corresponding value for Tata was 0.67 in 2021, suggesting that residents there have approximately one-third greater potential to preserve their standard of living compared to those in Sátoraljaújhely. The low deprivation index n some towns also correlates in several respects with the feasibility of climate protection measures, such as the prevalence of winter heating with waste materials (as observed in Szarvas).

Socioeconomic conditions appear to influence individual perceptions of climate change. A national survey reported that respondents in poor or very poor financial situations were more likely to perceive significant changes in weather patterns since childhood, with 70% and 77%, respectively, acknowledging such changes (Baranyai, Varjú 2015).

In several small towns, attitudes towards climate change were assessed through online surveys. In Gárdony, for example, respondents indicated a low sense of local responsibility, with many perceiving that addressing major issues such as climate change is primarily the government's responsibility and that local initiatives would yield limited impact only. Consistent with this, the national survey found that 67.5% of respondents considered the government entirely responsible for managing climate change effects (Baranyai, Varjú 2015).

Conversely, in Kapuvár, the authors of the Climate Strategy reported satisfaction with public engagement, noting that residents demonstrated adequate climate awareness. In Komárom interest in climate change appeared relatively uniform across age groups, although respondents over 60 exhibited slightly lower levels of knowledge and engagement than younger participants. In Mátészalka, 80% of surveyed residents reported perceiving clear signs of climate change, particularly the increased frequency of heavy rainfall and windstorms. Notably, respondents expressed a willingness to assume personal financial burdens to mitigate climate threats. According to the same national survey, a decisive majority of respondents (70.8%) indicated that they would definitely

or likely be willing to make financial sacrifices to slow down climate change, for instance by paying higher prices for certain products or services (Baranyai, Varjú 2015).

More than half (54%) of respondents in Sátoraljaújhely reported perceiving the harmful effects of climate change, and 84% indicated that they strive to act in an environmentally conscious manner. For instance, many use only rainwater for garden irrigation, and prefer to purchase products at the local market. However, only 26% reported a willingness to engage in volunteer work. Residents expect the local government to undertake initiatives such as tree planting, installing lower energy-intensive street lighting (LED), and creating permeable street pavements.

The opinion of Tiszaföldvár residents on the locally visible consequences of climate change

Between 2016 and 2023, Tiszazug was included as one of the sample areas as one of the sample areas in a national landscape character research project (Konkoly-Gyuró et al. 2021; Csorba et al. 2024). Tiszaföldvár serves as the centre of the micro-region, with a population that fell below 10,000 between 2022 and 2024, therefore was not included in the previously described small-town overview. Nevertheless, data collected through online surveys, personal interviews, and workshops conducted in 2020–21 provide relevant insights into the opinions of small-town residents regarding climate change. The research primarily focused on landscape character. Accordingly, the questions were framed to explore which landscape features or locations participants had observed changes in over recent years, what unfavourable environmental changes they had experienced, the landscape environments with which they felt emotionally connected, and how they interpreted their own landscape identity.

Responses from 104 local residents were recorded, constituting a representative survey. While younger participants primarily completed the online questionnaire, older respondents were interviewed in person, ensuring balanced coverage across age groups (Csorba 2021).

In terms of social dynamism and economic potential, Tiszaföldvár is a small town lagging behind not only the national but also the county (Jász-Nagykun-Szolnok) average, and its decline is ongoing (Ditzendyné Frank, Szilágyi 2017). The population continues to decrease, accompanied by significant outmigration of young people. At the same time unskilled Roma families relocating from Szolnok and nearby villages have formed a sizeable segregated district in the southern part of the town, in the area of the former garden plots. Educational attainment data also show a downward trend,

a parallel society has become evident, and the number of residents exhibiting deviant or risk-related behaviour, including drug use is high.

The county ranks 17th among counties with GDP per capita representing 62–68% of the national average (2015), and Tiszaföldvár's economic performance does not improve this ratio. Within the Kunszentmárton micro-region, Tiszaföldvár ranked 125th out of 174 micro-regions in the country's competitiveness index. Employment is concentrated in agriculture and in small and medium-sized enterprises engaged in agricultural processing at a higher rate both exceeding the national average.

"In Tiszaföldvár, services are at a lower level than the county average; looking at the internal composition of services, trade is exceptionally high, while other sectors (financial, tourism, administrative, etc.) are at a lower level than the county average" (Ditzendyné Frank, Szilágyi 2017).

The natural assets of Tiszaföldvár associated with the nearby Tisza River and the oxbow lakes that formed in the 19th century. Respondents identified the living river, and the area surrounding the still near-natural oxbow lakes the most valuable landscape elements. They perceive climate change primarily through a decline in water levels and the expansion of reed beds *(Table 2)*. Almost all respondents expressed appreciation for the unspoiled scenery of oxbow lakes bordered by narrow reed belts and open water surfaces *(Photo 1)*. They are popular destinations for many visitors who frequently come individually, to listen to the rustling of reeds, the songs of birds, and to experience the tranquillity of nature. These landscapes represent core components of local landscape identity.

The perceived loss of such natural features would evoke emotional discomfort, which most respondents associate with water scarcity and climate change. Older respondents tend to assess the magnitude of climate change more realistically, whereas only a few younger participants articulated extreme views, such as that "the Tisza may dry up".

Table 2.
Favourite locations

Location type	*Percentage (%)*
the Tisza River's riverside	65
Oxbow lakes	30
Tisza River floodplain forests or oxbow lakes	40
Vineries and orchards	25
Grasslands	25
Swamps and wetlands	15
Parks and gardens within settlements	25
Other	10

Source: The authors' own compilation.

Photo 1.

Water surface, reed beds, floodplain forests, and the atmosphere of tranquillity—key natural features valued in the Tiszazug micro-region (oxbow lake near Cibakháza).

Source: The authors' photo.

Tiszaföldvár was an important centre of fruit and vegetable cultivation until the late 1960s. Between 1975 and 2010, greenhouses facilities were established for vegetable production, most of which have since been abandoned. Some attribute the decline of horticulture, as well as the cessation of meadow, and pasture use to the effects of climate change, however the main causes identified are outmigration, population aging, and a dramatic decline in economic activity (Csorba 2021). The oxbow lakes in the area are popular fishing sites, yet many locals complain about their neglect and the deterioration of natural environment. Some professional respondents – such as nature conservation rangers from the national park – associate the eutrophication of these lakes with climate change, as irregular water replenishment hinders regeneration processes. The lower floodplain of the Tisza River, once characterized by moist meadows, now dries out as early as early summer. In gardens on the outskirts of the town, invasive plant species have proliferated, such as giant goldenrod (Solidago gigantea). One of the town's best-known enterprises is a distillery, whose owner describes it as a peculiar paradox that, due to the scarcity of locally grown plums and peaches, raw materials must now be sourced from other regions. A few years ago, the company began establishing its own orchard; however, the traditional local fruit varieties have not developed as quickly as expected – possibly as a partial consequence of changing climatic conditions.

Summary

Global climate change poses a major environmental threat in Hungary as well. Extreme weather events such as heatwaves, droughts, flash floods, and windstorms already present serious challenges for agriculture, forestry, nature conservation, water and energy management, transportation, construction, and tourism, among others. To mitigate the expected damages, scientifically grounded sectoral and regional strategies have been developed over the past decade.

Among the 34 small towns examined, 19 have climate strategies created between 2018 and 2023, the others address the consequences of climate change to varying degrees within their urban planning programmes. The most comprehensive and up-to-date programmes have been prepared by economically developed small towns in the Northern Transdanubia region and in the broader agglomeration of the capital. Nevertheless, even in these favourable cases – economically active towns with stable or growing populations – there is little tangible evidence of the implementation of the objectives outlined in their strategies.

Although several national grant schemes support progress in climate protection, we found no indication of a coherent, systematically monitored implementation framework. In 6–7 of the most climate-conscious small towns, the local population was involved in the planning process, or at least an online survey was conducted to assess the local residents' knowledge and expectations on the issue. Local inhabitants generally perceive that climate change increasingly affects their own living conditions, and they are recognize their own responsibilities in adaptation. In areas where the most valued local sites – such as rivers, still waters, and wetlands – are highly climate-sensitive, residents also tend to feel that climate change threatens their personal and community identity. Nonetheless, the majority of the tasks are still expected to be addressed primarily through national environmental policy and municipal action.

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Reflections of urban shrinkage in the territorial structure of secondary education

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Abstract

A significant part of the Hungarian urban network is experiencing shrinkage – some settlements have been in continuous decline for more than a century – a trend consistent with developments across much of Central and Eastern Europe. Shrinkage, a complex phenomenon that challenges the millennia-old paradigm of urban growth, reshapes opportunities for local development. Population loss simultaneously reduces both the quantity and the quality of local human resources, undermines the sustainability of infrastructure and institutions and weakens community cohesion. Education, and particularly secondary education, given its high practical and symbolic significance, offers a particularly clear perspective from which to study this process.

While the overall decline of Hungary's urban population is well documented, it is less evident that the population of the cohort relevant to secondary education is declining at a much faster rate. Between 2011 and 2022 the rapid fall in student numbers was driven not only by demographic changes but also by certain educational policy shifts. In some small towns – especially those with fewer than 10,000 residents – this has jeopardized the viability of secondary institutions, leading to numerous school closures. Such losses threaten local employment and erode the intellectual fabric of these communities, posing a fundamental challenge to their long-term sustainability.

Keywords: shrinkage, urban network, secondary education, small towns

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Absztrakt

A hazai városhálózat jelentős része, igazodva a szinte teljes Kelet- és Közép-Európát meghatározó folyamatokhoz, zsugorodik – bizonyos elemei akár száz éve folyamatosan. A zsugorodás komplex jelenség, amely a települések évezredes növekedési paradigmájával szemben újraszabja a fejlődési lehetőségeket. A népesség fogyása egyszerre csökkenti a helyben rendelkezésre álló emberi erőforrások mennyiségét és részben minőségét, teszi nehezen fenntarthatóvá a műszaki és humán infrastruktúra rendszereit és intézményeit, valamint erodálja a helyi közösségeket. Ezen halmazok egyik gyújtópontjában találjuk az oktatás problémáját, amelyből a városoknak reál- és szimbolikus síkon is nagyon fontos középfokát emeltük a kutatás fókuszában.

A hazai városhálózat zsugorodása közismert tény, de kevésbé nyilvánvaló, hogy a középiskolai oktatás szempontjából releváns korosztály létszáma ennél sokkal nagyobb ütemben csökken. A tanulók létszámának gyors apadását azonban nem csak ez, hanem néhány oktatáspolitikai változás is elősegíthette a vizsgált, 2011–2022 között időszakban. Mindazonáltal bármi is az oka, a városok egy részében, elsősorban a 10 ezer főnél nem népesebb kisvárosokban a zsugorodás számottevően veszélyezteti az intézmények fenntarthatóságát, mint azt számos megszűnt képzési hely is mutatja. Ez pedig, többek között a megszűnő munkahelyek és a szűkülő értelmiség révén alapvető kihívást jelent az érintett településeknek.

Kulcsszavak: zsugorodás, városhálózat, középfokú oktatás, kisvárosok

Introduction and objectives

When defining the concept of a city, analogies and metaphors drawn from living organisms readily emerge. It is almost intuitive to view cities as organisms that are born, grow, and over time decline, and eventually perish. Traditionally, however, urban decline and destruction of cities, were attributed to external forces or non-organic factors: epidemics, wars, and major social and economic collapses were seen as the primary causes, particularly during an era when the paradigm of growth – the expectation of continuous population and economic expansion – dominated society and scientific thought.

The growth paradigm has since been called into question. Natural population increase has slowed and, in many societies shifted into natural decrease, especially where falling fertility rates had not been offset by net in-migration. Meanwhile, the paradigm of sustainability challenges the conceptual and even moral foundations of growth itself.

Within a post-industrial context, growth can no longer be assumed as the default condition; decline and shrinkage are not mere dysfunctions but integral aspects of organic development, indeed characteristic features of post-industrial cities.

Hungary has become a key case for the study of demographic decline, urban shrinkage and depopulation[4]. Its population has been decreasing continuously since 1981, shaping all spatial and developmental processes. Shrinkage, of course, is as natural a phenomenon as growth: but it warrants investigation because it poses challenges to urban development, competitiveness, and the very management of cities that differ fundamentally in type and scale from those associated with expansion.

Population decline affects cities in complex ways (Martinez-Fernandez et al. 2012; Rieniets 2009). Two widely discussed consequences illustrate this: first, shrinking populations can erode economic potential and urban competitiveness; second, maintaining infrastructure designed for larger populations becomes progressively more difficult and costly.

Education lies at the intersection of these challenges. Urban shrinkage directly undermines established school systems as the pool of school-age children diminishes. This weakens financial sustainability, reduces the diversity of educational provision, and – like many other problems linked to shrinkage – can trigger a negative spiral in families' school choice decisions. The maintenance, operation, and, where necessary, reorganisation or closure of schools is therefore, a fundamentally local public matter, regardless of the prevailing system of educational governance. Beyond its practical implications, the issue carries strong symbolic weight, particularly in small towns where a single secondary school often represents a core urban function (Pirisi, Makkai 2014). For these reasons, this study focuses on secondary education within the broader context of shrinking cities. It asks to what extent elements of the Hungarian urban network were able to preserve their secondary-education roles between 2011 and 2022, and what factors explain the regional disparities that have emerged in this regard.

[4] There are a few other "shrinkage hot (or even cold) spots" – within Eastern Europe, the eastern German states, Ukraine, and parts of the Balkans are frequent research areas; outside Europe, Japan and large portions of the interior regions of the United States are often examined.

Theoretical foundations

The theoretical basis for the study of urban shrinkage as a phenomenon was established above all by the theory of the urbanisation cycle (Van den Berg et al. 1982). This theory incorporated the decline and contraction of cities as a natural part of urbanisation, occurring – or expected to occur – during the phases of relative and absolute deconcentration. Although the theory was subsequently refined and interpreted in various ways (Enyedi 2012), it made fundamental the idea that urbanisation does not necessarily entail uninterrupted growth.

Another possible approach is offered by the concept of uneven development (Smith 1984), in which urban growth and shrinkage represent two sides of the same coin. Whereas the cycle theory regards shrinkage as an intrinsic consequence of urbanisation, the uneven development approach sees it as an inherent feature of capitalism and of capitalist production of space. This is particularly evident where the contraction of a core city is accompanied by suburban expansion at the urban periphery – an interpretation that has also been present in Hungarian research on suburbanisation (Timár 2007; Timár, Váradi 2001).

It is important to recognise that urban shrinkage takes many forms, each with distinct consequences. Since the turn of the millennium, major research projects have examined the problem of (especially European) urban shrinkage in comparative perspective (Haase et al. 2014, 2016; Pallagst et al. 2014; Turok, Mykhnenko 2007; Wolff, Wiechmann 2018). Even so, there is no single, universally accepted definition of the "shrinking city" beyond the simple criterion of population decline.

Equally, the context and causes of shrinkage matter greatly. It is worth mentioning their diversity even without aiming for completeness, as urban contraction may be slow and gradual, but it can also be sudden and catastrophic: for instance, natural or human-induced disasters (Oswalt, Rieniets 2006), or even deliberate urban destruction (Coward 2008) complicate any understanding of the urbanisation trajectories of, for instance twentieth-century Poland, Bosnia and Herzegovina in the 1990s (Gekić et al. 2022), or post-2014 Ukraine after 2014.

More commonly, the drivers of shrinkage are less dramatic. In post-industrial societies, the most frequent cause is suburbanisation, which can produce significant population losses within administrative boundaries. This has affected Budapest in particular, in line with other post-socialist metropolises (Kovács, Tosics 2014). In reality this is a spatial redistribution of population deconcentration, rather than a decline in the competitiveness or attractiveness of the wider urban region, though it does raise concerns about falling tax revenues.

Another typical pattern links shrinkage to industrial structural change – or its absence – and to prolonged economic crisis. Detroit is an emblematic, though far from unique, example (Boros 2017; Bontje 2005; Cortese et al. 2013). Comparable trajectories can be observed in former industrial cities in Eastern Germany such as Leipzig, or in Czechia's Ostrava, and in declining and transforming port cities such as Liverpool, Genoa or Bilbao (Bernt et al. 2014). In such cases shrinkage can be traced to a loss of competitiveness and structural economic weaknesses, and research often focuses on the possibilities and methods of revitalisation (Ortiz-Moya 2015; Rhodes, Russo 2013), or alternatively, on managing decline (Bernt et al. 2014).

Hungary's urban network contains several examples where shrinkage can likewise be linked to industrial restructuring and, specifically, to the political-economic transition of 1989–1990 (Alföldi, Balázs 2018; Germuska 2024; Horváth, Csüllög 2012; Molnár 2015; Pirisi, Sókuti 2013), which was accompanied by a complex economic and social crisis. The collapse of the planned-economy model, and especially of formerly favoured heavy industrial sectors, produced high unemployment, emerging poverty and significant out-migration across many industrial regions.

Compared with international trends, however, research that connects shrinkage to revitalisation or structural-change strategies has been limited (Merza et al. 2024; Molnár, Egedy 2020). This may be because shrinkage is so widespread in the Hungarian urban network that even successful restructuring would not necessarily create the conditions for renewed population growth.

In the Hungarian context, therefore shrinkage is best understood not merely as population loss, but as population loss exceeding the national average (Trócsányi et al. 2018). It becomes a clear symptom of local crisis when natural decrease is accompanied by significant out-migration. While the near-universal contraction of small towns is not unique to Hungary (Pirisi, Trócsányi 2014), the centuries-long demographic decline of the market towns of the Great Plain has attracted particular scholarly attention (Jelinek, Virág 2020; Kovács 2010, 2017; Molnár 2016; Virág 2020).

Within Hungarian research of shrinkage – including a substantial body of village studies not discussed here – the issue of education rarely appears explicitly (Kovács 2012; Zolnay 2020), although empirical surveys have provided some evidence of links between demographic decline and the education system (Makkai et al. 2017). Naturally, the contraction of demographic base is only one, and perhaps not the most decisive component in the transformation of education system (Dézsi et al. 2014; Kozma 2002; Kozma, Forray 1999). Nonetheless, international experience makes the connection difficult to ignore (Nelle 2016; Yanagisawa 2018). Finally, shrinkage will persist for a long time. While rural communities are often marginalised and isolated by the process

(Alpek, Máté 2018), the demographic decline reported between the two most recent censuses (Horeczki et al. 2023) in small and medium-sized towns may also threaten the long-term viability of urban functions.

The present research is grounded on urban geography: it examines the educational role of towns rather than the operation of individual institutions. By linking shrinkage to secondary education, we aim to show that the education sector is directly exposed to urban demographic processes, and that powerful feedback mechanisms are at work. In the end, the contraction of the educational function jeopardises one of the fundamental roles of towns – especially small towns – reducing their capacity to maintain their central role in the settlement hierarchy.

Methodological issues

The study draws on data from the 2011 and 2022 censuses, a choice that proved practical from several reasons. Not only does it allow for comparisons between changes in education and those explored in settlement-geography studies based on the same reference points, but the period in question also broadly coincides with a political era in Hungary that brought major changes to the frameworks of social and regional development. This latter aspect must be taken carefully into account when interpreting the results. The most significant policy shifts during the period under review include:

(1) a strong centralisation of the entire educational system;
(2) a complete transformation of school maintenance system[5] and
(3) the adoption of Act CXC. of 2011, which lowered the upper age limit for compulsory schooling from 18 to 16 years.

The last measure, in particular, increased the rate of early school leaving in an already highly segregated system (Hermann 2019; Hermann, Kisfalusi 2023). The first of these changes had indirect implications for the present study, while the third had a direct impact, and a portion of the decline in student numbers between 2011 and 2022 can be attributed to it. Whatever, the social, economic, or educational policy objectives of this measure – and however suitable it may have been proved to be a tool to address

[5] In practice, this meant that whereas municipalities had previously played the dominant role in school maintenance – alongside a more limited presence of churches and non-profit organisations – after 2012 municipal responsibility was abolished. It was replaced by the state and other bodies within the central subsystem of public finance, while churches assumed a substantially larger role, and the involvement of civil organisations virtually disappeared.

certain educational problems (Pap 2015) – the fall in student numbers remains an undisputed fact, as does its effect on institutional funding.

A further methodological challenge arose when comparing student numbers because of the reorganisation of the education system. In the TEIR database, regional statistics provided by the Hungarian Central Statistical Office (HCSO) present student figures per settlement in different breakdowns for the two census years, which prevents direct comparisons by school type. To ensure consistency, we therefore aggregated the total number of full-time students above primary but below tertiary education levels, including all forms of vocational training. This figure was then compared this with the number of residents aged 15–18. This approach, however entails certain limitations. Some secondary school students fall outside the 15–18 age range; for example, those who began school at the age of seven may not graduate with a matura until the age of 20, (especially if enrolled in a five-year secondary programme). Moreover, although the most common educational pathway in Hungary remains the four-year secondary school following eight-years of primary education, there are also six- and eight-year grammar schools, that admit students at the age of 10–12. Their numbers are not negligible: they account for roughly 13–14% of annual secondary-school applicants, with about 10% ultimately admitted (according to Education Office reports on secondary-school admissions). An additional difficulty lies in the mismatch between population and enrolment data. Age-group figures are recorded by place of residence, whereas student numbers are registered at the location of the school Age-group figures are recorded by place of residence, whereas student numbers are registered at the location of the school. In some settlements, therefore, the number of enrolled students can be two or two and a half times higher than the local population of the corresponding age group. Nevertheless, these discrepancies are relatively stable over time: the share of six- and eight-year schools in the system remains roughly constant, and annual cohort sizes do not fluctuate significantly. For these reasons, the method was considered appropriate for tracking changes between 2011 and 2022.

The scope of the analysis covered all current Hungarian towns (348 in total). These settlements practically encompass the entire secondary-education system: in 2022, for instance, 99.4% of full-time grammar-school students were enrolled in a town, and only eight non-urban settlements offered grammar school education. Among these, some are rapidly urbanising villages with strong suburban characteristics (e.g. Solymár, Kápolnásnyék); others are disadvantaged rural communities in peripheral regions, that provide schooling for marginalised social groups, including Roma children (e.g. Alsószentmárton, Biri, Magyarhertelend); a few host special (private) education programmes, where the rural setting is integral to their philosophy (e.g. Nemesvámos, Mezőörs);

and one – the "Hungarian Football Capital" of Felcsút – offers grammar-school education as part of the Ferenc Puskás Football Academy.

For the spatial analysis, towns and cities were classified to illustrate both regional and hierarchical differences. The primary framework was the urban hierarchy published in the Hungarian National Atlas (Z. Kovács et al. 2021), which was subdivided into further categories in some cases. Following Hungarian geographical tradition, towns were distinguished in Eastern and Western Hungary using River Danube as a dividing line, reflecting differences in settlement networks[6] and in the socio-economic dynamics of these broader regions. Agglomeration towns of the Budapest metropolitan region and those surrounding "the provincial cities" were differentiated given the varying scale and character of suburbanization. Data analysis employed descriptive statistical techniques and visualisation through QGIS geospatial software (version 3.34).

Results

Changes in the (secondary) school-age population

Between the 2011 and 2022 censuses, Hungary's population declined by about 330,000 people – accounting roughly for 3.3% of the total. Somewhat unexpectedly, the population of the towns included in our study (measured as the permanent population) fell by 4% to 6.77 million over the same period.

Although public discourse often frames this phenomenon as a specific Hungarian problem – frequently accompanied by dramatic headlines and narratives of national decline – urban shrinkage is in fact a general characteristic of Central and Eastern Europe. Drawing on data compiled from various sources[7], it becomes apparent that while about 73% of Hungarian towns, nearly 90% of Serbian and Bulgarian towns, and about 80% of Polish towns lost population between 2011 and 2022, even 50-60% of Czech,

[6] The two main macro-regions of Hungary – the Great Hungarian Plain with Northern Hungary (the "East") and the Transdanubian Region (the "West") – have historically followed different development trajectories, which are reflected in the character of their settlement network. The West is marked by a dense pattern of small (often tiny) villages interspersed with a few small towns functioning as local centres, whereas urbanisation on the Great Plain has been shaped by relatively large agrarian towns, a near absence of a village system, and consequently with a more limited hierarchy of central places.

[7] Population data were drawn from the census publications of the respective national statistical offices, and, where data quality permitted, from the summary tables provided by *citypopulation.de*.

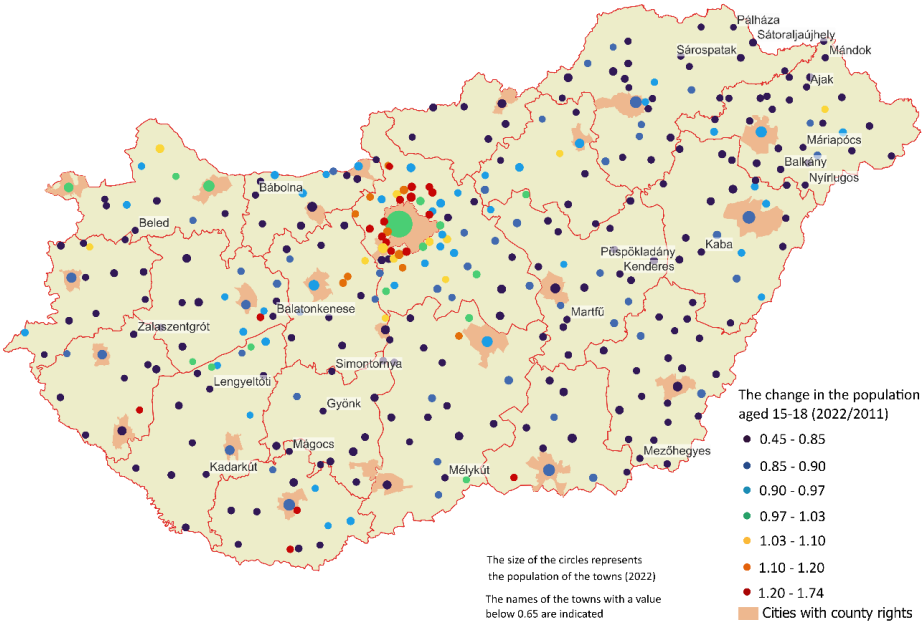
Slovak, and Slovenian towns experienced shrinkage. Owing to differences in administrative systems and statistical methods, these figures are not perfectly comparable, yet they clearly demonstrate that shrinkage is a typical – indeed European – feature of the settlement network, rather than a uniquely Hungarian one.

Population dynamics are, of course, influenced by more than declining birth rates: rising life expectancy and migration balances also play an important role. The change in the secondary school-age population (15–18 years) shows that the ageing of the population only partly offsets the loss caused by fewer births. The decline in this age group is therefore is much steeper – over 10%. In 2011, there were 296,000 residents aged 15–18 in the towns studied; by 2022, this number had fallen to just 267,000.

While overall population change and the change in the 15–18 age group are strongly correlated, some noteworthy differences emerge. Whereas 82 towns recorded population growth, only 48 experienced an increase in their secondary school-age population. Of these, at least a 3% rise was seen in 40 towns, and a 10% rise in only 28. By contrast, 199 towns recorded a decline of at least 15%, and 23 lost one-third or more of this age group. The town with the greatest overall population loss was Tiszaújváros (−17%), a dynamic industrial centre – perhaps a surprising outcome if the small Balatonkenese boundary change is excluded. Yet the steepest fall in the secondary school-age population occurred in Pálháza, in the northeastern Zemplén region, where more than half (!) of 15–18-year-olds disappeared within a decade despite a very modest overall population loss of 5.2%. At the other extreme, Halásztelek (overall population +32%) and Biatorbágy (15–18 year olds +74%) both in the Budapest agglomeration, represent the highest growth, foreshadowing the broader spatial patterns discussed below *(Figure 1)*.

Figure 1.

Change in the population aged 15–18



Source: Authors' own compilation based on HCSO data

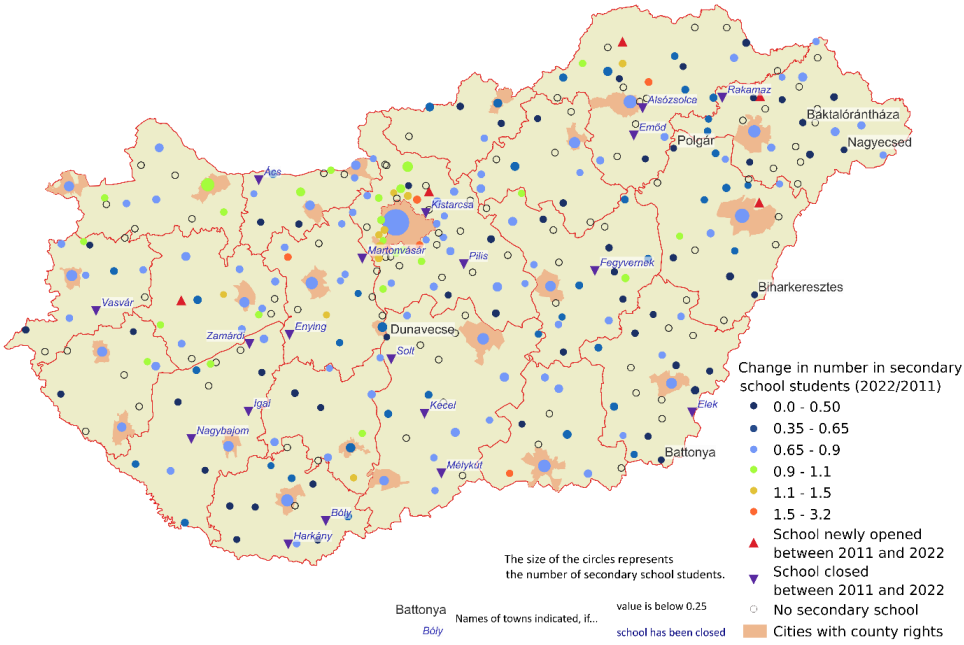
Stable or rising populations are found almost exclusively in agglomeration areas – besides the capital, examples include Mórahalom near Szeged and Kozármisleny near Pécs – and around Lake Balaton. The relative stability of the dynamic north-western cities of Sopron and Győr is also noteworthy, signalling large-scale regional transformations. There are eight towns where the number of 15–18-year-olds grew despite an overall population decline (Budapest, Mosonmagyaróvár, Sopron and several other very small towns). Conversely, 80 towns recorded overall population growth but a shrinking 15–18 cohort. As the map illustrates, shrinkage is heavily concentrated in the peripheral regions: South Transdanubia, north-eastern Hungary, and almost the entire Tiszántúl region (the easternmost region of Hungary).

Change in student numbers

The decline in secondary school student numbers during the study period significantly exceeds both the overall population loss and the fall in the relevant age group. By 2022 the total number of secondary-school students had fallen to 76.5% of the 2011 figure – a substantial difference. Part of this drop is likely statistical, reflecting redistribution among school types, but it also represents a genuine contraction: the shrinking age cohort and lower enrolment rates are acting simultaneously.

Figure 2.

Change in the number of secondary school students (2022/2011)



Source: Authors' own compilation based on HCSO data

When examining the map showing the changes in student numbers *(Figure 2)*, the first thing to emphasise is that there are a relatively large number of towns – 19 in total – where secondary education was present in 2011 but no longer existed by 2022. It is clear that geography alone does not explain their distribution (although peripherality is a dominant feature); rather the modest size of the settlement is decisive with only two

exceptions: these towns have fewer than 10,000 inhabitants. In contrast, new secondary schools were opened in only five towns (Devecser, Hajdúsámson, Nagyhalász, Szendrő, Veresegyház). It is noteworthy that this list includes Veresegyház – one of the country's fastest-growing agglomeration towns with exceptionally high average incomes – alongside four small towns characterised by distinctly low income levels.

Regional differences are also evident in *Figure 2*. The decline in student numbers is significantly smaller in the Budapest metropolitan area and in the northern part of Transdanubia. These differences reflect not only variations within the settlement hierarchy but also the broader East-West divide in the Hungarian urban network *(Table 1)*.

Table 1.

Number of students in full-time secondary education (2022, as a percentage of 2011)

Hierarchy	*BP*	*Rural centres*		*Agglomeration towns*		*Total*
		West	East	Buda-pest	Other	
Capital city	88					88
Regional centres		82	81			82
County centres		75	77			76
Medium towns with complete functions		69	64	97	43	70
Medium towns with incomplete functions		64	68	112		70
Small towns with complete functions		71	58	96	47	64
Small towns with incomplete functions		58	68	88	68	67
Village towns		72	55	100	76	67
Titular towns		60	54	97	106	75
Total	*88*	*73*	*70*	*98*	*67*	*76*

Source: Authors' own compilation based on data retrieved from the TEIR-System

Overall, a marked decrease in the number of full-time secondary students in Hungarian cities and towns can be observed: in 2022 the figure stood at just over 75% of the 2011 level. Within the urban network, however, the dynamics vary considerably. The capital (88%) and the regional centres (82%) are the most stable, while county centres as a group, are close to the national average. By contrast, medium-sized and small towns, together with village towns and titular towns, experienced a far more substantial

decline. Among rural centres, the differentiating pattern appears to be hierarchical: the lower the position in the urban hierarchy, the shaper the decline in student numbers. Regional contrasts emerge only in the lower categories of the hierarchy: in general, towns in the West display higher values, presumably due to stronger urban attraction zones and the more favourable position of the region in the national migration flows *(Table 1)*.

Nevertheless, towns in the Budapest agglomeration exhibit the highest values across all hierarchical categories, presumably due to their dynamic migration and population growth, which alters the general hierarchy-driven pattern. Several towns around the capital even recorded an increase in student numbers: among the more significant secondary education centres, Fót (191%), Halásztelek (179%), Érd (133%), Budaörs (131%), Dunakeszi (114%), Százhalombatta (113%), Törökbálint (113%), Budakeszi (109%), and Pilisvörösvár (102%) should be highlighted. Beyond the capital region only Bodajk (313%), Mórahalom (160%), and Szikszó (140%) registered substantial increases, despite their relatively modest earlier importance; all three are urban suburban towns of other regional centres. Since most agglomeration towns fall into the categories of village towns and titular towns, this distortion effect is most pronounced at the lowest levels of the hierarchy. As a result, small towns with complete urban functions but located lower in the urban hierarchy and shaped primarily by rural-centre dynamics rather than suburbanisation, occupy the weakest position in the national context. In this group, the number of students in full-time secondary education has fallen to less than two thirds of the 2011 level *(Table 1)*.

A comparison of Tables 2 and 3 illustrates the outcomes of these differentiated dynamics. The capital and the regional centres have increased their shares of full-time secondary school students, while county centres have largely maintained their previous proportions. Together, these 20 cities (out of Hungary's 348 towns) accounted for 58.6% of students in 2011 and 63.0% in 2022, confirming the trend toward concentration. With some exceptions, medium and small towns are the clear losers of this restructuring process: their collective share has declined from 34% to 28%. Despite the above-average growth of agglomeration towns – especially around Budapest – the share of village towns and titular towns in full-time secondary education has remained marginal and continues to decrease, apart from those within the agglomeration zone of Budapest. East–West differences meanwhile are clearly visible only at the lower levels of the hierarchy.

Table 2.

Distribution of students in full-time secondary education by urban hierarchy (2011, %)

Hierarchy	*BP*	*Rural centres*		*Agglomeration towns*		*Total*
		West	East	Buda-pest	Other	
Capital city	21.4					21.4
Regional centres		5.6	10.3			15.9
County centres		11.2	10.1			21.3
Medium towns with complete functions		4.8	3.6	1.6	0.6	10.6
Medium towns with incomplete functions		2.0	7.2	0.8		10.0
Small towns with complete functions		3.7	6.6	0.7	0.2	11.2
Small towns with in-complete functions		0.6	1.1	0.2	0.3	2.1
Village towns		0.6	2.4	0.7	0.4	4.1
Titular towns		0.7	1.2	1.1	0.4	3.3
Total	*21.4*	*29.3*	*42.5*	*4.9*	*1.9*	*100.0*

Source: Authors' own compilation based on data retrieved from the TEIR-System

Table 3.

Distribution of students in full-time secondary education by urban hierarchy (2022, %)

Hierarchy	*BP*	*Rural centres*		*Agglomeration towns*		*Total*
		West	East	Buda-pest	Other	
Capital city	24.8					24.8
Regional centres		6.0	10.9			17.0
County centres		11.0	10.2			21.2
Medium towns with complete functions		4.4	3.0	1.9	0.3	9.7
Medium towns with incomplete functions		1.7	6.4	1.1		9.2
Small towns with complete functions		3.5	5.0	0.8	0.1	9.5
Small towns with incomplete functions		0.4	1.0	0.2	0.3	1.8
Village towns		0.6	1.7	0.9	0.4	3.6
Titular towns		0.6	0.8	1.4	0.5	3.3
Total	*24.8*	*28.2*	*46.2*	*6.3*	*1.6*	*100.0*

Source: Authors' own compilation based on data retrieved from the TEIR-System

Last but not least, the number of students in full-time secondary education per 1,000 inhabitants indicates the strength of the secondary-educational role of the different urban settlement groups. While the capital and medium towns with incomplete functions remain close to each other and to the overall urban average, cities at higher hierarchical levels (regional and county centres, and medium towns with complete functions) show higher values, whereas towns at lower levels (small, village and titular towns) display lower averages. Except for Budapest, the influence of the hierarchy – and the distinction between the urban settlements with central functions and the agglomeration towns as a whole between settlements with central functions and the agglomeration towns as a whole – is evident *(Table 4)*.

Table 4.

Number of students in full-time secondary education per 1,000 inhabitants (2022)

Hierarchy	*BP*	*Rural centres*		*Agglomeration towns*		*Total*
		West	East	Buda-pest	Other	
Capital city	61					61
Regional centres		87	85			86
County centres		82	90			86
Medium towns with complete functions		71	67	107	42	73
Medium towns with incomplete functions		51	75	33		60
Small towns with complete functions		45	45	30	27	42
Small towns with incomplete functions		27	46	29	32	36
Village towns		22	27	34	24	28
Titular towns		15	7	14	11	11
Total	*61*	*64*	*61*	*30*	*19*	*56*

Source: Authors' own compilation based on data retrieved from the TEIR-System

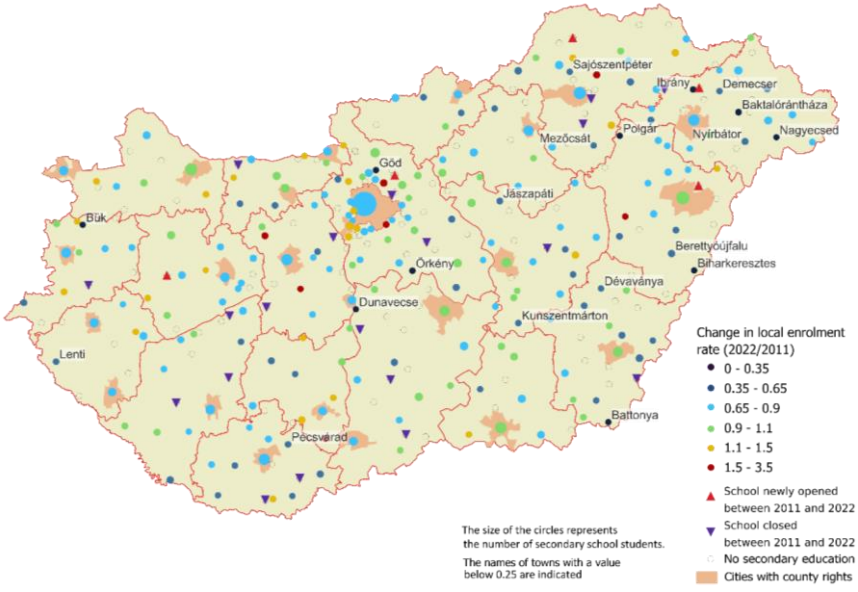
Several cities and towns display a distinctly strong secondary-education profile. Among county centres, Eger (141 students per 1,000 inhabitants) stands out, while Vác (145) – despite its location in the Budapest metropolitan area – leads the group of medium towns with complete functions. Kisvárda (147) is notable among the medium towns with incomplete functions. Smaller towns show even more pronounced figures: Fehér-gyarmat (124) among small towns with complete functions, Tokaj (252) among small towns with incomplete functions, Aszód (206) among village towns and Bodajk (143) in the group of titular towns. These exceptional values can be attributed to strong local educational traditions, or youth-oriented specialist institutions, and/or relatively large catchment areas.

Further correlations

Although the number of school-age residents and the number of enrolled students are closely related, this alone does not explain the observed shrinkage *(Figure 3)*.

Figure 3.

Change in enrolment rates (secondary students / 15–18 year old population) (2022/2011)



Source: Authors' own compilation based on HCSO data

Change in enrolment rates reveals additional underlying factors. On the map, a value of around 1.0 indicates that the student population changed in proportion to the 15–18 year old cohort. This pattern is most evident in the large and medium-sized cities of Eastern Hungary (e.g. Debrecen, Szolnok, Kecskemét, Szeged), several towns in Northern Transdanubia (e.g. Győr, Tata, Pápa, Kőszeg), and in the Budapest agglomeration. By contrast, large and medium-sized towns in Transdanubia show a relatively greater contraction of the education sector, which can often be linked to their hinterlands: even where the central settlement itself has not lost significant population, its surrounding areas frequently have.

The sharpest declines are found in small towns of only a few thousand inhabitants, where enrolment rates have in some cases fallen by half – examples include Jászapáti, Kunszentmárton, Battonya, Nagyecsed and Polgár. Although there are exceptions in this group (e.g. Bük, Pécsvárad, Göd) and some cases can be explained by specific local factors – for instance, Nagyhalász, which benefited from the opening of a new school near Ibrány – the overall pattern strongly suggests that the partial exclusion of low-income groups from secondary education is a key contributing factor.

This interpretation is supported by supplementary analyses. To account for catchment area effects districts (rather than towns) were grouped into quintiles according to personal income tax per taxpayer. Between 2011 and 2022, the change in enrolment rate changed in each quintile, we get values of averaged 87%, 84%, 81%, 75% and 71% across these quintiles, demonstrating a marked gap between the two highest-income and the two lowest-income categories. A further perspective shows that declines in the enrolment rates are much smaller in districts with large-cities than in those led by small towns as their administrative centres. Within the latter group, districts containing several towns ("rival" small-town districts) fare better than those dominated by a single small town.

Conclusions

A shrinking city—shrinking education?

The link between demographic decline and the contraction of education is unavoidably evident. As the population of cities and towns falls, so too does the number of young people eligible for schooling. Our analysis highlights that demographic processes affect education far more intensively than might be assumed: the decline in the secondary-school-age population is already nearly twice the rate of overall population loss.

This fact alone raises serious concerns about the sustainability of secondary educational institutions. Moreover, while the post-transition period of Hungarian educational policy was characterised by the expansion of secondary – and especially, grammar-school – education (M. Császár 2004), these processes seem to have stalled or partly reversed after 2010. The drop in student numbers stems not only from demographic factors but also from policy changes: the lowering of compulsory-schooling age, the – moderately successful – preference for vocational training over grammar schools, and the discouragement of longer programmes – such as eight- and six-year grammar schools, "zero-year" language preparatory classes – have all contributed to this process. Regional comparisons with settlement hierarchy and income data further suggest that a typical driver of the decline is the exclusion of disadvantaged 17–18-year-olds. Whether judged from a moral or social perspective, this represents a significant net loss here, making the sustainable operation of existing institutions increasingly difficult.

Shrinkage is also uneven, triggering strong spatial concentration. Budapest and the regional centres have increased their share of secondary education, and the Budapest agglomeration – where the most positive local changes are observed – has raised its combined proportion of national enrolment from 25% to 31%.

By contrast, small towns are the principal losers, regardless whether they are “Transdanubian type” towns with extensive catchment areas or “market town type” – typical of the Eastern part of the country. In settlements of 5,000-20,000 residents, student numbers have dropped by at least one-third and enrolment rates by roughly 23%. Excluding agglomeration settlements, the 2022 student count in small towns with complete and incomplete functions, is barely 60 % of the 2011 figure.

The erosion of secondary education at the lower levels of the urban hierarchy is stark. The 19 settlements that lost their secondary school altogether had an average population of 5,900 in 2022. Among towns with fewer than 5,000 residents, the proportion offering secondary education fell from 44% to 38%; in those with 5,000-10,000 residents, the figure dropped from 65% to 58%. The process shows no signs of stopping: in 2022, 16 towns had fewer than 100 secondary-school students, and in 12 of these, the decline since 2011 exceeded 50%. If we set a threshold of 200[8] students as the minimum for a sustainable secondary school, 49 towns, fall below this line, with 26 of experiencing particularly steep shrinkage. These institutions may be at risk of closure within only a few years.

[8] This is not an official threshold; it simply represents the size of two parallel classes of roughly 25 students each, which remains relatively small for a secondary school.

A shrinking education system—a shrinking city?

The cases of Bonyhád, Csurgó, Pápa, Sárospatak, Mezőtúr – towns with long-standing educational traditions (often Protestant in origin) – illustrate the scale of change. On average, these towns lost around 10% of their total population and 27% of their secondary-school-age cohort, alongside a 28% decline in student numbers. While this roughly mirrors demographic trends and might seem relatively favourable, it still represents the disappearance of 200-300 from each settlement – and in Pápa's case, more than 1,000. Collectively, these towns have lost more than 200 full-time teachers, around 26% of the 2011 staff.

This is really an important element of the problem. The shrinkage of education can also be understood as a decreasing ability of settlements to reproduce their human resources: fewer students mean fewer qualifications, a reduced labour market supply, and lower competitiveness. The departure of teachers – key members of the local intelligentsia and central to cultural life and civic engagement – brings a qualitative shift. The resulting scarcity of graduate-level jobs, puts out-migration into a self-reinforcing cycle.

Until recently, small towns primarily faced an indirect effect of higher education expansion: the pursuit of university degree drew many young people away who, a generation ago, would have ended their education with a small-town matura. They "find their way home" to small towns in a minority of cases only (Makkai et al. 2017). It is especially troubling when this educational mass migration begins already at secondary level. Measures such as the county and country pass systems, though not physically shortening distances, have made regional and national centres more financially accessible. Small-town schools struggle to compete with the variety and prestige of larger cities' offerings.

Even in historically strong school towns mentioned at the beginning of this chapter, the accumulated cultural capital and the very positive reputation have only slowed, but not halted, the decline. Other small towns with less explicit educational profile show much steeper losses: Szigetvár has lost 51% of its total students, Túrkeve 53%, and Sátoraljaújhely 54%, with a combined 55% drop in full-time secondary-school teachers. Qualitative change is also highly significant: the number of students graduating with a matura has fallen by two-thirds in Sátoraljaújhely and Túrkeve and by one-third in Szigetvár, clearly reflecting the shrinking share of academically oriented schools.

If the current trends persist – and no demographic turnaround is in sight – one of the strongest symbols of small-town urban life – the grammar school – may follow the fate of the sugar factory, the civic casino, the barracks, or even the railway station: surviving as a historically significant but functionally hollowed-out element of urbanisation.

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Spatial dimensions of the foreign resident population in small towns in Hungary

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Abstract

In line with the primary objectives of the journal, which seeks to present significant economic and socio-spatial issues in various types of urban areas, this study addresses a specific category of settlements: the small towns of Hungary. The analysis of rural areas and their small town centres is particularly crucial, as the overwhelming majority of Hungarian settlements has less than 30,000 inhabitants as indicated by the most recent census.

The societies of these small urban areas are strongly affected by general demographic and social trends including extremely negative demographic dynamics, ageing induced by outmigration (Pirisi, Máté 2014), the rise of ethnic segregation (Váradi, Virág 2014), low educational attainment, increasing prevalence of social pathologies such as alcoholism and mental illness, all of which contribute to an overall deterioration in quality of life (Fehér, Virág 2014). At the same time recent years have also witnessed a resurgence in the attractiveness of small towns as residential destinations, driven not only by internal migration but also by international (and return) migration flows, a trend mainly due to COVID-19 pandemic and by geopolitical security risks.

The present paper pursues two primary objectives 1) to assess the proportion and spatial distribution of the foreign-born residents in Hungary's small towns, and 2) to explore whether these changes generate tensions or resilience within the social fabric of these communities. While previous research has delineated clear spatial patterns in the distribution of foreign residents within the Hungarian settlement network (Lados, Brucker

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2023), the specific role of small towns in this context remains unexplored. Moreover, small-town societies typically exhibit rural characteristics, making it particularly relevant to investigate how newcomers – both international migrants and returnees – into these communities can integrate, and whether historical connections influence settlement choices, as these factors may be critical for long-term population retention.

The research is based on an analysis of statistical data on registered foreign citizens in Hungary and complemented by national census data for the period 2001–2022.

Keywords: small town, foreign resident, population, migration, Hungary

Absztrakt

A folyóirat fő célkitűzésének megfelelően, amely a különböző típusú városi területek jelentős gazdasági és térbeli-társadalmi kérdéseinek bemutatására irányul, jelen tanulmányunkban egy adott településkategóriára, Magyarország kisvárosaira összpontosítunk. A vidéki térségek és azok központjaként működő kisvárosok elemzése különösen kurrens téma, mivel a legutóbbi népszámlálás szerint Magyarország legtöbb településének lakossága 30 000 fő alá csökkent. Ezeknek a kisvárosi társadalmat különösen érintik az általánosnak tekinthető tendenciák: a rendkívül negatív demográfiai dinamika, a kivándorlás miatti elöregedés (Pirisi, Máté 2014), az etnikai szegregáció megjelenése (Váradi, Virág 2014), az alacsony iskolázottság, az alkoholizmus és a mentális betegségek növekvő aránya, valamint az életminőség romlása (Fehér, Virág 2014). Ezen túlmenően a kisvárosok népszerűsége újra fellendülőben, mint lakóhely, nemcsak a belföldi migráció, hanem a külföldi (és visszatérő) migráció szempontjából is, főként a COVID és a biztonságpolitikai kérdések miatt.

A tanulmány fő célja annak bemutatása, hogy a kisvárosokban élő külföldi lakosság aránya és térbeli eloszlása milyen képet mutat, és hogy ez miként jelenik meg a társadalmi szerkezetben. A kisvárosi társadalmak jellemzően vidéki jellegűek, ezért fontos megvizsgálni, hogy a be- vagy visszaköltözők hogyan tudnak integrálódni, milyen (esetleg történelmi) okok vezetnek a településre költözésre.

Kulcsszavak: kisváros, külföldi állampolgár, vándorlás, Magyarország

Small town characteristics in Central-Europe

Almost one-third of the total population of Central-Europe lives in small and medium-sized towns (Eurostat 2024). Despite their demographic significance, the role of these settlement categories in regional development processes is typically underestimated (Steinführer et al. 2016; Vaishar 2004), even though small towns constitute crucial elements of the settlement hierarchy, particularly in predominantly rural areas (Pirisi, Trócsányi 2011). This marginalisation is well reflected in spatial research and policies that primarily focus on the metropolitan centres and larger cities while smaller towns receive considerably less attention (Grossmann, Mallach 2021; Servillo et al. 2014; Servillo, Atkinson, Hamdouch 2017).

Central Europe exhibits a hybrid pattern of urbanization: a coexistence of convergence processes towards Western European models and distinctive regional development trajectories shaped by path dependency, some of which extend back to the pre-socialist era (Taubenböck et al. 2019). Within this macro-region, where rural and semi-urban spatial categories predominate, small towns represent the most accessible and distinctive tier of the urban network (Burdack, Knappe 2007; Konecka et al. 2015; Trócsányi et al. 2018; Vaishar, Zapletalová 2009). However, their relative economic weakness, and limited resource capacities constitute major constraints on regional convergence (Bartosiewicz et al. 2019; Cole, Svidroňová 2021; Molnár 2015).

Sociological studies on small towns conceptualise these settlements not solely as physical entities, but also as socio-cultural units, shaped by patterns of human interaction and service functions (Park 1925; Sombart 1924; Mumford 1961). In this regard, the importance of the human factor is paramount, particularly the capacity of small towns to retain population (Csatári 1986; Tóth 1982). Beyond accessing to basic functions, basic services – education, healthcare, public safety, leisure, shopping – in small towns, it is the local people who are the key factors of shaping a settlement into a town. Maintaining and enhancing inter-personal relationships is an additional strength of rural areas (Fábián 2013). However, all their positive assets, (underutilised resources, green areas, cultural heritage, labour potential, etc.) still present in them today, need also to be kept in mind. In this specific macro-region, where rural and intermediate spatial categories are dominating, small towns constitute the most accessible and distinctive tier of the urban network.

The relative importance of small towns in Central Europe is further underscored by two structural features: low spatial mobility and the comparative weakness of the metropolitan network vis-à-vis Western Europe. Small towns therefore perform multiple roles: as central places, as employment hubs, primarily for local residents and returning migrants, and as custodians of cultural heritage. Yet, their inherent vulnerabilities and constrained economic power also act against their closing up. Strengthening functional links between towns and villages is increasingly necessary, as both settlement types are now functional and integrated components of metropolitan agglomerations. A more coherent reorganisation of the development of the urban network is necessary in light of post-socialist transformations and shifting border dynamics. Reconceptualising urban networks could represent a strategic response to persistent territorial disparities, while revisiting past territorial policies is essential to foster innovation in economic restructuring, demographic renewal, and governance.

In terms of territorial growth, several new spatial drivers are likely to shape small-town trajectories: the expansion of tertiary sectors, the increasing number of high-prestige occupations (including those employing many foreign workers), the rise of knowledge-based industries, the spread of digitalisation, and the emerging trends in the labour market due to COVID-19 pandemic, such as teleworking, digital nomads and new types of work space (Danko et al. 2024; Lőrinc, Káposzta 2024b). These dynamic processes may enhance the attractiveness of small towns for return migrants and lifestyle movers, potentially generating multiplier effects on regional development trajectories – albeit with the risk of reinforcing existing socio-spatial inequalities.

The liveability and social sensitivity of rural areas were repeatedly emphasized during the pandemic and in the context of current security risks. Local communities demonstrated considerable adaptive capacity in earlier crises and in this situation, they provided essential support in areas, such as local food supply, healthcare assistance and the transition to digital education. All these assets contributed to population retention in small towns and even to the attraction of new residents. Nevertheless, transport constraints have adversely affected rural areas, and labour-intensive sectors dependent on seasonal and guest workers have been hit hard. From the social risk perspective, higher rates of ageing, insufficient healthcare services, greater distance from hospitals, unfavourable labour market trends (e.g. high share of low-prestige workers), more limited opportunities for teleworking and working from home (often due to inadequate digital infrastructure) remain persistent risk factors for peripheral areas (Lőrinc, Káposzta 2024a). Following the easing of restrictions, rural and small-town destinations experienced an increased number of visitors and movers in.

The transformation of labour market demands and the evolving economic policy environment following the regime change led to a marked population decline in Hungarian settlements (Beluszky, Sikos 2020). Regional planning policies have also exerted a significant influence on the life of small towns, with the concentration-convenience-comfort model (Enyedi 2012) serving as cornerstones of urban development. The so-called 3C principles were later complemented by the European Union's rural policy which emphasized that local economic development should be based on local values and set catching up disadvantaged areas its target (European Commission 2024). The functioning of local government, the quality and scope of public service provision, the infrastructural, legal regulatory and local fiscal environment available to economic actors, collectively exert a fundamental influence on, or in many cases even determine the development trajectories and growth potential of the society and the economy of an individual settlement or of broader territorial units.

In addition to their residential function, small towns in Hungary fulfil a significant integral employment function. The average employment rate stands at approximately 55% in small towns, although substantially varies depending on geographical location and population size. In terms of service provision and institutional infrastructure only one-third of small towns qualify as functionally urban; the remainder (157) settlements are classified as “ceremonial towns” in the Hungarian National Atlas. These towns typically have populations below 10,000 and they acquired urban status during the post-1990 waves of urbanisation. The vast majority of such small towns are either monofunctional or exhibit mixed characteristics (e.g. dormitory, spa, industrial, small town, etc.). Nevertheless, they play a key role within the urban network, providing a range of essential services that clearly distinguish them from their surrounding rural hinterlands. Such functions typically include primary and secondary educational institutions, nursery schools, and crèches, as well as public amenities such as libraries, civil registry offices, and additional administrative or institutional services (e.g., land registry, cadastral administration, and ecclesiastical functions). Furthermore, they host various commercial establishments, thereby reinforcing their role as service hubs within the broader spatial hierarchy.

Recent trends suggest that the population of small towns in Hungary is becoming increasingly inclusive. Both in absolute numbers and proportional terms the presence of foreigners settling permanently in small towns has become more pronounced. These dynamics will be discussed in detail in the following section.

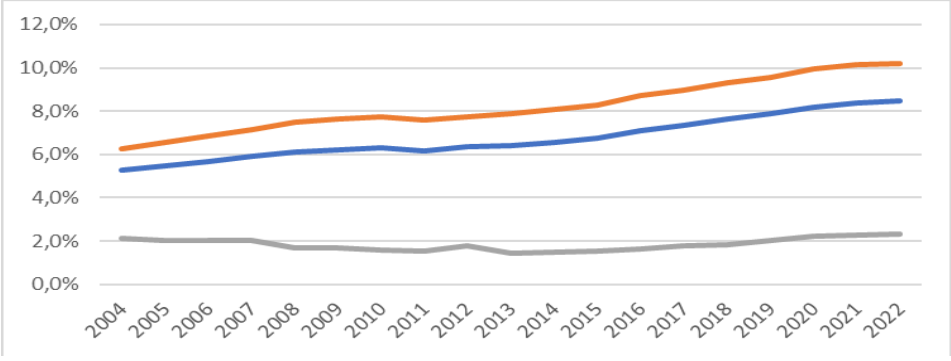
Foreign residents in Hungary and migration trends

The European Union's internal market is one of the most significant achievements of European integration. It guarantees the free movement of all economic elements within the EU, as enshrined in Article 26(2) of the Treaty on the Functioning of the European Union, 'the internal market shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the provisions of the Treaties'. This principle of free mobility encouraged millions of EU citizens to relocate across borders over the past two decades.

In 2022, 37.7 million immigrants were registered in the European Union, encompassing intra-EU migrants and third-country nationals. Together these groups represented 8.5% of the total EU population *(Figure 1)*. Following the enlargement of the EU in 2004, the share of foreign residents began to rise notably. Although the 2008–2009 global economic crisis broke this trend, the decline was only temporary. Then, during the COVID-19 pandemic, more than 600,000 people returned to their country of origin, so the decrease in the number and proportion of foreign citizens continued. Nevertheless, it can be argued that one of the EU principles, the freedom of movement between member states, has mobilised the citizens of the community: in 2021 3.9% of the total EU labour force, more than 10 million EU citizens of working age (20–64 years), were residing and working in a Member State other than their own (Hassan et al. 2023).

Figure 1.

Change in the share of foreign nationals in the EU (2004-2022)



Source: own compilation (blue line: EU 27, orange line: Old EU members excluding the United Kingdom, grey line: New member states with the exclusion of Cyprus and Malta).

Significant regional disparities exist in the spatial distribution of foreign residents across the European Union. The overwhelming majority of immigrants are concentrated in the old Member States, where they account for one-tenth of the total population exceeding 35 million inhabitants. By contrast, in the new Member States that joined after 2004, the share of foreigners remains marginal, slightly above 2% (2.3 million people). Among the old Member States Germany hosts the highest number of immigrants (nearly 11 million residents of foreign origin), while Spain, France, and Italy each accommodate approximately 5 million. Conversely, Lithuania, Croatia, Malta, Slovakia, and Bulgaria record the lowest absolute numbers among the post-2004 Member States.

A different pattern emerges, when considering the proportion of foreigners relative to the total population. Luxembourg exhibits the highest share, with nearly one in two residents being foreign nationals. This is a figure that – not surprisingly – reflects the country's central role within the EU and its institutional configuration. This proportion is exceeding 10% in some of the EU's smaller countries (Cyprus, Estonia, and Latvia) and in the main destinations such as Germany, Austria and Spain. At the opposite end of the spectrum, the new EU Member States remain predominantly labour-absorbing economies, with foreign residents typically constituting only approximately 1–2% of the total population (as observed e.g. in Romania, Poland, Bulgaria, Slovakia, Hungary).

The distinction between EU and non-EU nationals perhaps further underscores the heterogeneity of migration within the EU. Approximately 95% of the 14 million EU migrants live in the old Member States, whereas fewer than 600,000 settled in the post-2004 accession countries. Although EU citizens collectively outnumber third-country nationals (22 million in total in 2022), only 1.6 million of these non-EU migrants will reside in the newer Member States. This is partly due to immigration flows from neighbouring countries reflecting historical migration linkages, although the recent inflows of labour migrants from the Far East (East and Southeast Asia) have further increased their presence in the region.

Regarding Central and Eastern Europe, Germany stands out as the most attractive destination for labour migration. It hosts 72% of Croatian migrants, 51% of Hungarians, 50% of Poles, 49% of Czechs, and 42% of Serbs and Slovenes. Austria is another important destination for those leaving the region, with 36% of Slovenes, 25% of Serbs and Hungarians, and 17% of Slovaks and Croats registered in this Alpine country. In contrast, Ukrainian and Romanian labour-migrants exhibit a stronger preference for Italy, whereas Germany is comparatively less appealing to these groups.

Overall, migration destinations for residents of neighbouring countries and of the broader Eastern and Central European region are closely correlating with the general

EU patterns, where the majority of migrants relocate to the old Member States – particularly to Germany. It is the Czech Republic that represents the sole post-socialist Member State to emerge as a significant destination country, with Ukrainians forming the largest expatriate community there, numbering approximately 171,000 in 2022.

Foreigners in Hungary

An analysis of the origins of foreign working-age residents in Hungary provides a highly heterogeneous picture. In 2021, a total of 333,000 foreign nationals aged 15 to 50 years held residence permits in Hungary. In terms of their geographical origin, the picture is very diverse, comprising individuals from neighbouring states, other EU Member States, as well as a substantial contingent from Asian countries and, to a lesser extent, Africa. The overwhelming majority of foreigners originate from Hungary's immediate neighbourhood (two-thirds of all registrants, 225,000 were born in a neighbouring country), and among them, a significant proportion – approximately 170,000 – also hold Hungarian citizenship. However, pronounced differences emerge among the principal sending regions by country of birth and citizenship *(Table 1)*. Among those without Hungarian citizenship, the largest groups are Ukrainians, Romanians and the Chinese, and they are followed by a notably large number of Slovak, German and Vietnamese immigrants living in the country.

Table 1.

Country of origin of foreigners by citizenship and country of birth (2021)

By citizenship		*By country of birth**	
Ukraine	22,821	Romania	116,647
Romania	13,053	Ukraine	45,679
China	11,171	Serbia	24,382
Slovakia	9,607	The Soviet Union	17,857
Germany	7,340	Germany	15,119
Vietnam	5,004	China	10,890
Indonesia	2,850	Slovakia	9,303
Russia	2,781	Vietnam	5,459
Turkey	2,631	USA	4,739
Italy	2,621	Czechoslovakia*	4,080

* former states that have since dissolved (e.g. The Soviet Union or Czechoslovakia)

Source: Ministry of Interior, 2021

Several clearly visible patterns emerge when observing the spatial distribution of all residence permit holders in Hungary. The absolute attractiveness of Budapest and the Budapest agglomeration is unequivocal, accommodating nearly 154,000 inhabitants (which represents 46.3% of the total registered foreign residents) living in the capital and its wider surroundings (Koudela, Baranyi 2024). In contrast, the number of foreigners settled in other urban regions (see KSH 2014) remains comparatively low, with 12,395 in Szeged, 11,923 in Debrecen, 8,074 in Győr, and 7,393 in Pécs. At the opposite end of the spectrum, the least attractive urban agglomerations are Szekszárd (793), Nagykanizsa (469) and Salgótarján (405). Overall, these metropolitan areas serve as the primary destinations for immigrants, with 86% of those registered (286,392 inhabitants) are concentrated in these regions.

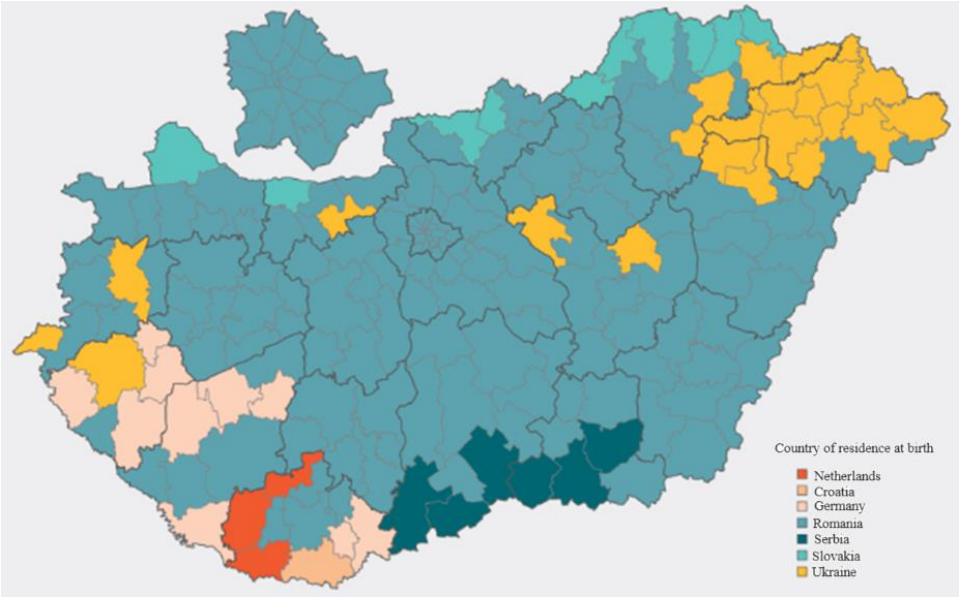
Gender composition also reveals characteristic differences: the majority of foreigners are male (54.3%): this pattern is consistent across urban areas (male: 53.6%; female: 46.4%). The most pronounced gender imbalance appears in Győr (57.7% and 42.3%), while Pécs stands out as the only major urban centre with a female majority (48.3% male and 51.7% female).

Age structure provides a further insight into spatial patterns. Dividing immigrants into two cohorts (15–24 years and 25–50 years) suggests distinct motivations for migration. The younger group, likely arriving primarily for higher education, demonstrates a strong concentration in cities: 61.2% of individuals in this category (42,000 out of 68,000; 61.2% reside in urban areas). This trend matches with the distribution of Hungary's four medical universities: Budapest (21,000), Debrecen (4,800), Pécs (3,700) and Szeged (3,400). In contrast, the 25–50-year-old cohort – presumably migrating for employment – shows an even greater reliance on Budapest (77,000), with Szeged (9,000), Debrecen (7,100) and Győr (6,400) also functioning as major regional centres.

Within this settlement network, small towns are in a specific situation: they are traditionally associated with the ideal of a liveable rural environment (Csurgó 2013). Although the precise definition of "small town" remains debated, this study adopts the classification proposed by Horeczki, Molnár, Pirisi (2023). Based on this definition, among the 286 small towns with populations fewer than 20,000, the total number of registered inhabitants exceeded 51,000, of whom only 14,415 held foreign citizenship. The highest concentrations of foreign residents were observed in Komárom (1,060), Sárvár (808) and Tiszaújváros (514).

Figure 2.

The distribution of the predominant country of birth among foreign population across the districts of Hungary, 2022



Source: Hungarian Statistical Office Census data - Visualization

Focusing exclusively on foreign-born residents without Hungarian citizenship, approximately 135,000 persons residing in Hungary held residence permits in 2021 *(Table 2)*. Several patterns emerge when examining settlement types. The capital retains a dominant position, hosting nearly half of foreign citizens (47.7%). Villages rank second (14.6%), slightly surpassing regional centres (14.4%), and they are followed by medium sized towns (12.5%) and small towns (10.7%) *(Table 2)*. It should be noted, however, that these figures are strongly influenced by spatial location, as a substantial proportion of villages are located within metropolitan agglomerations.

An analysis of gender composition reveals a consistent male majority across all settlement types, with the most pronounced disparity observed in small towns (64.3% male vs. 35.7% female). Among foreigners under 25 years of age, the smallest gender gap is observed in large towns (51.3% male vs. 48.7% female), while a female majority was recorded in only one instance.

Age distribution further highlights demographic trends: over two-thirds of foreigners fall within the working age group (71.6%). The influence of higher education institutions is evident, as the prevalence of those under 25 appears only in the largest cities (52.3%).

Table 2.

The distribution of foreign citizens in Hungary (2021)

	Under 25 years			*25–50 years*			*Above 50 years*		
	Male	*Female*	*Total*	*Male*	*Female*	*Total*	*Male*	*Female*	*Total*
Budapest	9,167	8,402	17,569	28,016	18,821	46,837	37,183	27,223	64,406
Big cities (100,000–200,000)	5,219	4,960	10,179	5,732	3,565	9,297	10951	8,525	19,476
Medium-sized towns (20,000–99,000)	2,384	1,604	3,988	7,938	4,987	12,925	10,322	6,591	16,913
Small towns (below 20,000)	1,830	1,150	2,980	7,437	3,998	11,435	9,267	5,148	14,415
Villages	2,231	1,409	3,640	9,885	6,239	16,124	12,116	7,648	19,764
Hungary (Total)	20,831	17,525	38,356	59,008	37,610	96,618	79,839	55,135	134,974

Source: own compilation from the data of 2022 Census of Hungary

Within the urban population, regional centres attract a significant share of foreign workers because of their job opportunities. However, it should also be noted that a significant number of foreigners are already choosing small towns as their permanent place of residence. When the lower categories of the medium-sized city are also taken into account, it becomes evident that the two edge categories of the small town category attract a proportionally higher share of foreign nationals. In absolute terms, small towns with populations between 10,000 and 20,000 – the functional, core small towns – host the largest number of foreign residents *(Table 3)*.

Table 3.

Population of small towns, share of foreign population, 2022

Population size category	*20,000–30,000**	*10,000–20,000*	*5,000–10,000*	*2,000–5,000*	*below 2,000*
Number of small towns	29	78	106	95	9
Population (number of inhabitants)	723,788	1,085,563	740,866	335,727	14,093
Foreign population (number of inhabitants)	10,610	12,953	6,671	4,119	367
Foreign population (%)	1.47	1.19	0.90	1.23	2.60
Average number of foreigners per small town	365.9	166.1	62.9	43.4	40.8
Min.	81	10	6	4	4
Max.	1,303	904	350	404	101

Source: own compilation from the data of 2022 Census of Hungary (*this category of towns occupies an intermediate position between small towns and medium-sized towns. The principal characteristics of this settlement category have been discussed in our previous analyses; therefore, they will also be incorporated into the present study.)

When examining small towns by functional classification, it becomes evident that foreign-born residents are predominantly concentrated in the urbanisation zone of regional centres or in small towns with specific functions *(Table 4.)*. A higher presence (mainly among retirees) can be observed in small towns associated with recreation, tourism and spa activities, whereas working-age foreigners tend to concentrate in small towns with strong industrial functions. As noted earlier, the availability of jobs represent the most decisive factor influencing settlement patterns, a trend clearly reflected in the absolutely high number of foreigners residing in small towns with industrial functions. In contrast, within small towns with mixed functions (owing to their high number) the foreign population remains dispersed, typically limited to a few households, with only sporadic instances of higher concentrations. These exceptions, often originating from historical factors (e.g. Ormánság or the eastern border region), do not constitute a significant share of foreign population living in small towns.

Table 4.

Classification of small-town residents by functional category

Category by function	*Small towns with tourism, spa towns*	*Small towns with industrial functions*	*Small towns with residential functions*	*Small towns with mixed functions*
Number of small towns	20	58	111	106
Population (number of inhabitants)	138,380	493,593	971,132	794,239
Foreign population (number of inhabitants)	3,208	6,554	9,199	7,318
Foreign population (%)	2.3	1.3	0.9	0.9
Average number of foreigners per small town	160.4	113.0	82.9	69.0
Min	5	5	4	4
Max	276	904	412	350

Source: own compilation from the data of 2022 Census of Hungary

Based on census data, it is remarkable that 60 of the small towns with population below 20,000 doubled their foreign population between 2001 and 2011. The most pronounced growth occurred in Zalakaros, where the number of foreign residents increased from 10 to 239 permanent inhabitants. However, by 2022 this figure slightly decreased to 215. The increase is considered exceptional compared to the other settlements, but the population growth in this town exceeded the national average, rising from 1,345 in 2001 to 2,407 permanent residents in Among these 60 small towns only half demonstrated overall population growth across the observed period, whereas six exhibited population decline at a rate more than three times the national average and eight recorded decreases below the national average. Across the full set of small towns one-third of them experienced an increase in both intercensal periods, while 16% showed a consistent decrease in the number of foreign population in both intercensal periods. Of the 46 small towns that registered loss in their foreign population between 2001 and 2022, the majority are settlements with an overall declining population. Only three towns – Hajdúhadház, Hajdúsámson and Bicske) displayed minimal yet positive population growth over the same period. In all the three cases, the residential function remains the most dominant, as classified by Beluszky, Sikos T. (2020).

When examining the share of foreigners relative to the total population, it is notable that half of the 10 small towns with the highest shares are located in tourist destinations, predominantly spa towns *(Table 5)*. In the Hungarian context, a proportion exceeding 5% is significant in absolute terms, given the highly fragmented nature and constant decline of the urban population.

Table 5.

Small towns attracting the highest proportion of foreigners

Small town	*Category by function*	*Population change 2001–2011 (%)*	*Population change 2011–2022 (%)*	*Foreign population change 2001–2011 (%)*	*Foreign population change 2011–2022 (%)*	*Share of foreign population*
Zalakaros	Spa town, tourist centre	30.6	37.1	2290.0	-10.0	8.9
Hévíz	Spa town, micro-regional centre	9.4	-3.2	532.5	59.7	8.9
Igal	Small town with mixed function	-4.9	11.5	788.9	26.3	7.1
Battonya	Small town with mixed function	-11.2	-15.7	267.3	-2.8	6.9
Sárvár	Small town with an industrial function	-4.8	-3.5	32.9	832.0	6.3
Harkány	Spa town, micro-regional centre	21.3	16.2	69.2	16.2	4.9
Gönc	Small town with mixed function	-8.6	-9.7	11.1	770.0	4.7
Lengyeltóti	Small town with mixed function	-11.9	-5.3	669.2	32.0	4.6
Bük	Spa town, tourist centre	7.0	10.1	636.4	0.0	4.5
Tiszaújváros	Small town with an industrial function	-4.1	-12.4	4.7	620.2	4.4

Source: own compilation from census data

Conclusion

Recent census data indicate a substantial increase in the number of foreign-born residents in Hungary. Particularly in the northern regions, where the proportion of immigrants had previously been low, a spectacular increase was seen. In the Ukrainian border regions this change is partly attributable to the arrival of war-related migrants in 2022. Across most districts, immigrants from Romania – predominantly from Transylvania – constitute the largest share of the foreign population. Individuals born in Slovakia, Ukraine and Serbia primarily settled down in towns and villages located near their countries of origin. Migration patterns are additionally shaped by the availability and quality of employment opportunities, the extent of suburban areas, access to services and the appeal of peaceful rural living for older residents. Similar conclusions regarding lifestyle migration were drawn by Váradi et al (2025).

The initial phase of this research, aimed to provide an overview of the countries of origin of foreign residents seeking to settle in Hungary, as well as their proportional distribution. The majority of this foreign population continues to reside in the capital and regional centres. However, over the last 20 years, small towns have experienced a revival, with migration patterns beginning to reverse (in response to such factors as security concerns, pandemics, digitalisation, etc.). Rural centres are once again emerging as important nodes of mobility, and are considered to be among the most stable municipalities in Hungary, both in terms of population and their position within the settlement network.

The next phase of this research will examine whether small towns can simultaneously function as a "container" and a "magnet" following Mumford's (1961) conceptualisation. Specifically, we will investigate whether these towns can retain their existing populations while attracting residents from surrounding areas. In this framework, the inhabitants, activities and cultures preserved within the town as a container and repeatedly drawn in as a magnet, may facilitate ongoing renewal, thereby contributing to the maintenance of the local cultural heritage. Additional questions of interest include the extent to which small-town communities are supportive and tolerant toward newcomers or returnees, and the types of innovations that individuals with international migration experience – such as returning migrants and immigrants – can introduce to the area. To address these issues, the next research phase will involve qualitative investigation, which will complement the quantitative findings presented in this study.

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