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# The Effect of Turbulencies Caused by Covid-19 Epidemic on the Trends of the Spatial Structure of the Hungarian Economy

## SUMMARY:

The trends and dynamics have shifted significantly in the spatial structure of the Hungarian economy since the transition during the 1990s. The return to the Western, capitalist economic model and orientation has facilitated development and economic activity in certain parts of the country more, than the others. The study measures economic performance by the average GDP per capita in the Hungarian counties and the capital, compared to the national average. The general trend shows an increasing polarization between the spatial units until the outbreak of the COVID-19 pandemic. The study also highlights and elaborates on the challenges of peripheral and semi-peripheral economies and points out the territorial differences in development. It is concluded that the divergence of weaker performing areas has been mostly intensifying since the 1990s, and one of the main beneficiaries of spatially differentiated development trajectories has been the capital, Budapest. The study establishes that during the 2020-2021 period, previously underperforming counties tended to outperform during the pandemic, while the previously best-performing counties often underperformed.

**Keywords:** Hungary, geoeconomics, core-periphery, spatial differences, COVID-19

**Jel-codes:** r12

## INTRODUCTION

The spatial economic performance and development as measured by the average GDP per capita in the territorial unit, compared with the national averages, reveals the variation in regional disparities over time. Thus, the relative economic performance of the counties (among other things) can be examined by their GDP per capita and the ratio of the same indicator to the national average. This goes some way towards helping us to establish the position of each area within the centre-periphery system. Generally speaking, since the 1990s, we have seen an increase in the spatial polarisation of the domestic economy, which is reflected in a trend increase in the difference between the ratio of GDP per capita to the national average for the best and worst performing counties and between the average of the capital and the average of the rural counties, until 2020, a year which is heavily affected by the effects of COVID-19. In a significant departure from the previous trend, counties that had typically performed better in the previous period underperformed, while counties that had underper-

formed in the past were typically less affected by the crisis in terms of average GDP per capita performance. In fact, several of the previously underperforming counties in the national ranking have achieved nominal GDP per capita growth, while several of the formerly performing counties have even experienced a decline. In the context of the pandemic, it was also possible to examine another dimension of regional inequalities, which was sharply reflected in regional differences in the penetration of home office and teleworking during the pandemic.

In 2021, a period of rapid recovery started, with almost all territorial units showing significant growth, with several former top-ranking counties performing exceptionally well. In the end of the year 2021 the regional disparities have not yet reached the pre-pandemic level of 2019. Thus, a more moderate level of territorial economic polarisation was still observed overall.

## METHODS

### *Research Methods*

The analysis is based on the analysis of statistical data, following a literature review of the historical, geographical and institutional context underlying the spatial differences. The analysis mainly compares GDP per capita data from the Hungarian Central Statistical Office (KSH, 2023) for Budapest and the counties with the national average from the mid-1990s to 2021. Based on the trends that emerge, the aim is to observe patterns and to identify and analyse the factors that are likely to influence the trajectory of the differences. We also examine the spatial correlations of published data from the KSH (2023) on home working during the epidemic. For all this, we will make use of the operations, tables and visualisation tools available in MS Excel.

## LITERATURE REVIEW

The core-periphery model based on Wallerstein's world systems theory (1983, 2010) examines the differences between economies in the world trade system. The model builds on the concept that the global economic system is hierarchically structured, divided into centre or core, semi-periphery and periphery economies. The core is made up of those advanced economies that have the greatest ability to influence the world economy and at the same time benefit the most from it by performing the highest value-added processes and keeping an edge in technology. Semi-peripheral or developing economies

occupy an intermediate position between the core and the periphery. They are typically better off and have earlier access to technologies transmitted from the centre than the periphery, but lag behind the core economies (Wallerstein, 2010). Periphery countries are typically on a lower technological and average skill level (Wallerstein, 1983) and often contribute raw materials and very low value-added goods to the international division of labour, leading to unequal exchange in world trade (Wallerstein, 2010). Wallerstein's model sees the world economy as a single, interdependent hierarchical system driven and held together by capitalist economic relations (Wallerstein, 1983).

Nemes-Nagy (1998) made significant observations on the domestic representation of the core-periphery relationship before the turn of the millennium. In his work, he illustrates the signs, characteristics and dynamics of the centre-periphery relationship and peripheralisation beyond the economic dimension, in the geographic-spatial dimension and in the dimension of social and power relations. In addition, with his co-author (Major & Nemes-Nagy, 1999), he presents and analyses the dynamics of spatial and social inequalities in income relations and their intensification in the preceding decade. Overall, he observes the polarisation of the domestic economy and society, the increase in differences between central and peripheral regions and groups of society (Nemes-Nagy, 1998). The continuation and further intensification of this polarisation process is described and analysed by (Obádovics & Bruder, 2011). Rechnitzer (2010), on the other hand, has researched the dimension of human capital. Analyzing the importance of educational and higher education centres in municipal and regional development, significant spatial inequalities were found in Hungary. Lux (2008, 2017) applies the core-periphery approach mainly to the analysis of spatial characteristics and patterns of domestic and regional industrial development. Alpek and Tésits (2017) focus on the spatial dimension of employment, which, in addition to analyses based on relative indicators to monitor unemployment trends, helps to assess aspects of the spatial structure of the available labour force and labour market potential.

The aim of the present study is to examine how the economic transition and the turbulence caused by COVID-19 affected the internal structure of the domestic spatial economy and the economic position of the different areas. The performance of the employees and productivity of everyone, in general, has been badly affected because of the Covid 19 pandemic (Alshabani et al., 2021; Hervie et al., 2022) and highlighted the importance for employees with high quality skills and improved knowledge (Alhendi et al., 2021; Hossain et al., 2022). The analysis shows the shifts in internal economic disparities and certain aspects of the ability of the spatial units to connect to the economies of the most developed European regions. The proximity and accessibility of Budapest as an internal centre and of the more developed German and Austrian regions have a strong influence on the differences in spatial development. This connection is especially beneficial for the North Transdanubian counties as they are located between the two. In addition, the emergence of local economic centres and regions of prominence can be observed, but these have not yet been able to compensate for the internal imbalances generated by the economic weight of the capital.

## RESULTS

### *The historical of the development of spatial structures in Hungary*

Historical background can play an important role in the development and change of economic and social institutions and in the development of the centres in the spatial structure. Although not immutable, established structures often show a high degree of resilience and can influence the course of economic development. The current socio-economic processes that have a significant impact on the competitiveness of the national economy can be better understood in the context of history (North 1990, 1991).

Following Tóth's (2002) work on the organization of geographical space, we distinguish between two directions of organization: on the one hand, top-down, created, typically administrative spatial organization with a focus on rational operation, and on the other hand, the bottom-up, spontaneous territorial organization (Tóth 2002; Pirisi & Trócsányi, 2015). A typical example of the former is the creation of the Hungarian system of counties, but also the diocesan system, which was also being developed at this time, partly following the footsteps of the former, can also be classified here. The administrative division of the geographical area of the Carpathian Basin from above into counties, which - with minor or major modifications - still form the basis of Hungarian administration, took place in the period of the foundation of the state, following the establishment of the political and power unity of the Carpathian Basin (Hóman & Szekfű, 1941). The counties, as administrative units, were created around a fortified governmental-economic-military centre, but their boundaries were set by the ruler, taking into account geographical considerations. Examples of the second type of spontaneous organisation are our early settlements and the names of small, clearly identifiable landscape units and landscape elements preserved in the founding charter of the Tihany Abbey (1055), written shortly after the reign of Stephen I of Hungary (Saint Stephen of Hungary), during the reign of Andrew I of Hungary. The social, economic and political role of Hungarian counties has changed several times over the past thousand years. At the same time, as Miklóssy (2012) points out, since the time of King Stephen I (Saint Stephen of Hungary), i.e. the birth of the system of territorial administration, the county has been the dominant element of the country's territorial administration. Since the time of the foundation of the state, the territory and boundaries of the individual counties have been modified and merged several times, but despite this, present-day counties, more than a millennium after their birth, can still be traced back to the foundations laid by King Stephen I. (Saint Stephen of Hungary).

Jeneiné et al. (2021) analysed the dynamics of spatial concentration of economic activity and the influence of the financial crisis starting in 2008 and the pandemic COVID-19 starting in 2020, as well as the economic impact of the crises along the spatial and sectoral dimensions. Lőcsei and Szalkai (2008) examined the mapping of the centre-periphery relation in domestic sub-regions.

After the transition of 1989-1990, the Hungarian economy underwent significant changes and faced serious challenges during the transformation from an east-oriented planned economy to a western-focused market economy (Kaposi, 2010). Lux (2013) also uses the core-periphery framework of Wallerstein (1983, 2010) to interpret regional and domestic spatial

and economic relations. He concludes that during the socialist system, the tertiary sector in our region has shown less development than in the global core economies, but the Central European eastern-block countries were over-industrialised relative to the region's potential. A claim that is confirmed by Kaposi (2010). As a consequence, after the transition, the region was at a disadvantage in services and the oversized industry declined, leading to a significant economic crisis and a rise in unemployment (Lux, 2013). Indeed, even before the regime change, the domestic economy, which was considered one of the most competitive members of the Eastern bloc, had hopes of catching up quickly with the centre countries, but instead the 1990s brought a severe transformation crisis, which resulted in the loss of 30% of or one and a half million jobs (György & Veress 2016) and the domestic corporate sector suffered more damage than Polish or Czech economies during the same period (György, 2019). Oddly enough, the resulting free and low-cost labour supply became a main deployment factor in the Central European region and numerous Western companies settled in these economies. However, since the 2010s, the region's economic model based on cheap and mass labour has shown signs of exhaustion. In order to facilitate a competitive tertiary sector, the supporting role of industry and industrialisation is an important factor, as the two sectors can work well together and greatly help each other's development (Lux, 2013).

Unemployment is one of the main drivers of the polarisation of domestic society and the growing spatial inequalities in income relations (Major & Nemes-Nagy 1999). The financial and economic crisis that started in 2008 also affected the domestic economy more severely than its regional peers (Hoffmann et al., 2013). As explained in a KSH study (KSH - Regional characteristics of enterprises, 2013), the crisis has shown significant variations in severity and the chances of enterprises to survive, based on the size, spatial location and sector of the enterprises examined.

As we shall see, the internal spatial structure of the Hungarian economy, which is spatially close to the European centre and is embedded in the hierarchy of the system, is also affected by the cross-border economic lines of force of the core-periphery relationship of the international division of labour. By analysing the development of the GDP per capita index of the counties over time, it becomes clearer along which lines the spatial structure of the Hungarian economy has been transformed, and which factors can explain in some respects how Hungary's (re)integration (Kaposi, 2010) into the economic system of contemporary Europe has shaped the economic potential and power relations of the Hungarian regions over the past three decades. By showing the changes in the spatial structure of the Hungarian economy and the pattern of the formation of Hungarian regions and zones with high economic performance, it can be examined how the dynamics of the European core-periphery system affects the internal structure of the Hungarian spatial economy.

In order to highlight the dynamics, spatial economic and social effects of these processes, the work models and theories of Immanuel Wallerstein (1983, 2010) and Nemes-Nagy (1998) can be utilized. Nemes-Nagy (1998) points out the dimensions of the core-periphery relationship and its complexity, in that it can be based on differences of location (geograph-

ical), development (economic) and power (social). In the first case, the centre is the privileged location, while the periphery is the disadvantaged location. In other words, in this sense, the situation is relative and can be significantly influenced by the geographical environment. The distance from the centre is decisive, but beyond the purely spatial distance, accessibility (route, duration) and the associated costs also play an important role (Dusek & Szalkai 2006; Lőcsei & Szalkai 2008). In this context, Hungary's spatial location is advantageous: it is outside, but very close to, the core European regions (US Department of State, 2000). Depending on the nature and dynamics of the economy, the importance of the factors of production and their transportability, these can be important for a region's economic development potential. The relationship between the monetary and time costs of transport and unemployment is also tangible (Alpek, 2017). In terms of the development (economic) centre-periphery relationship, the economically developed centre often provides the less developed periphery with lower value-added goods and inputs (Wallerstein, 2010). However, this 'gravity' of the centre-periphery system can act to preserve inequality (Wallerstein, 2010; Káposzta 2014). The complexity of the issue is shown by the fact that despite the odds, the modern economic history shows examples of successful economic catch-ups. South Korea, now one of the leading economies of Asia and an important player in the world economy, has developed from a peripheral country to a semi-periphery and then to a highly developed core economy in the time frame of half a century (Szegedi 1996). Japan's rapid development after its defeat in World War II is a well-known example of a fast-paced recovery (Sumiya 2000). Within a few decades, China has also grown from a peripheral country into the World's workshop and an inescapable player in the global economy (Huang, 2018). Hungarian economic policy also aims to catch up with the more developed European countries (Palotai - Virág 2016, MNB 2018).

The power (social) centre-periphery relationship is primarily reflected in the inequalities in the representation of interests. It can be observed both within and between countries and between social groups and territorial units within a country (Nemes-Nagy, 1998). György (2019) also points out the phenomenon that in times of crisis, countries in the centre (and their companies) withdraw resources from the periphery or semi-periphery in order to stabilise their position in the centre. In the Hungarian context, the capital flows observed during the 2008 financial crisis showed a similar pattern. This is because in 2008, compared to the average of the 2000s, the share of reinvestment in the Hungarian economy within the domestic income of foreign investors has been noticeably decreasing (KSH, 2010). Furthermore, it can be observed that the worst-off are often the ones who are hit hardest by the crisis. Typically people with low skills and lower social status who lose their jobs first during crisis. This has been observed also in Hungary during the transition crisis in the 1990s (Nemes-Nagy, 1998). For example, in the 1990s, when almost a third of jobs were lost (György & Veress 2016), it was observed that the eastern part of the country, which can be considered semi-peripheral or peripheral as the less developed part of the country, and commuters from rural areas experienced the highest rates of redundancies, while centres were slower to erode (Nemes-Nagy, 1998).

## THE CORE-PERIPHERY SYSTEM IN THE SPATIAL STRUCTURE OF THE HUNGARIAN ECONOMY

The core-periphery system typically expresses spatial inequality (Lőcsei & Szalkai 2008), but it can also be observed in socio-economic differences (Major & Nemes-Nagy 1999). It is usually applied to groups of countries or larger regions, but at the micro level, within national economies, the model can also reveal interesting patterns that may contribute to unraveling the underlying causes of spatial differences. In this sense, it is not only in the world economy and in Europe, but also in Hungary, that it is possible to distinguish between territorial units with a central and peripheral character. The country's integration into the European economic space is shown by the fact that, with the exception of Budapest, the most developed regions of the country are mainly located towards the European centre to the west-north-west, i.e. along the western border (Lőcsei & Szalkai 2008), which is probably related to the proximity of the German economic centre. Thus, in the context of the above, the local centre in Hungary - which, according to the logic of the centre-periphery system, can also be considered the semi-periphery of the developed western centre - has developed in the direction of the European centre to the north-west of us, and moving south and east we are heading towards the semi-periphery or periphery. Already in the 1990s, Major and Nemes-Nagy (1999) described the role of the dichotomy between the West and the East, or between the capital and the rest of the country, in the development of spatial income inequalities. Here it is worth comparing the situation of the areas along the western and eastern borders: the explanatory power of the centre-periphery model is supported by the fact that the most developed areas of the country, after Budapest, are located near the western border in the proximity of the more developed Western European regions. While the poorest and most underdeveloped spatial units are typically located along the eastern and north-eastern borders of the country (Lőcsei & Szalkai 2008). Depending on the nature of the border, the proximity of borders may reinforce the peripheralisation tendencies of a region (Hajdú, 2001).

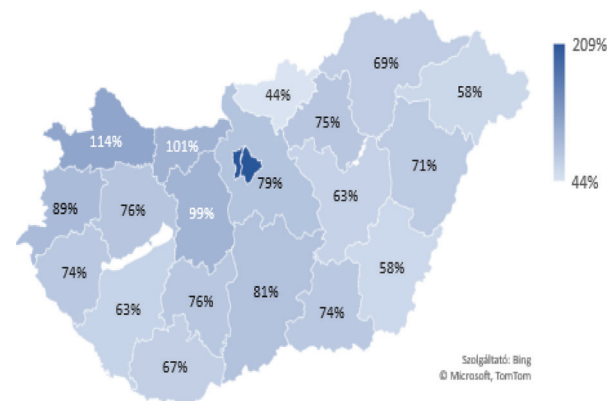
Another important factor is the urban-rural dichotomy (Obádovics & Bruder, 2011), which, in addition to income inequalities, is increasingly reflected in the quality of infrastructure and economic opportunities, as well as in the development of human resources. These differences represent the gap between on one hand the low-income areas, often with high unemployment and typically hindered by logistical disadvantages. And on the other hand the more developed, higher-income local centres, whose characteristic spatial patterns of advantages can even be seen in the availability of the financial infrastructure needed for the modern economy to function (Kovács, 2017). The core-periphery effect in the financial intermediation system, as measured by the density of the banking network, is confirmed by the mathematical model of El-Meouch et al. (2022). The study (El-Meouch et al., 2022) shows that, in addition to relatively close proximity to the location of a branch, such as population, average income or the number of businesses, the number of branches already present in a given space increases the probability of opening a new one. Likewise, the type of settlement, as the capital city, large cities and county centres are more attractive to financial institutions than smaller settlements (El-Meouch et al., 2022). These factors also tend to influence the core-periphery pattern.

Analyzing Hungarian GDP per capita data of the year 2019, the last full year before the turbulence caused by COVID-19 ef-

fected the domestic economy. Examining its spatial differences as an indicator of development, it can be concluded that since the transition, on one hand the country has been showing signs of increasing economic polarisation, on the other hand, the predominance of Budapest as a local center is obvious (Figure 1).

Nógrád county shows some deviation from the regular, model-like economic spatial structure, which is based on the distance from the centre. The county has the lowest GDP per capita in the country, despite being located in the north, at a medium distance from the Western border, and close to Budapest, the local centre.

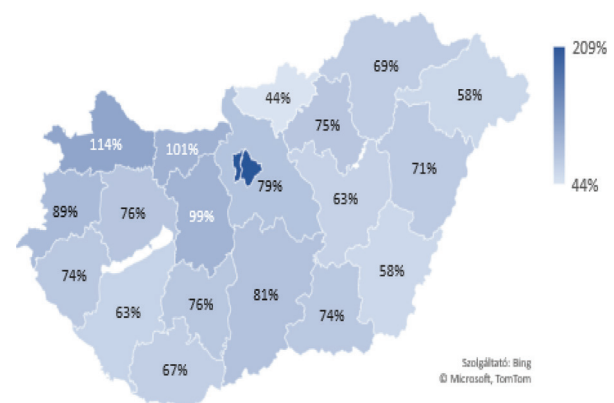
Comparing the 2019 data for the county with those for 1995, we find that in the 1990s the economic performance of the domestic spatial units followed a more even distribution. There are no significant deviations from the national average, either positive or negative, compared to the 2019 data. Budapest shows the highest value, but with an indicator of 179%, it is still below twice the national average, which is still moderate difference compared to later data. The counties of Szabolcs-Szatmár-Bereg and Nógrád, at the bottom of the range, are already underperforming the national average, but their GDP per capita is still above half the national average (Figure 2).



**Figure 1: GDP per capita (current prices) in Hungary's counties and Budapest in 2019, as a percentage of the national average**

Data source: own calculation based on KSH (2023)

Edited by: own elaboration (2023)



**Figure 2: GDP per capita (current prices) in Hungary's counties and Budapest in 1995, as a percentage of the national average**

Data source: own calculation based on KSH (2010)

Edited by: own elaboration (2023)



ripheral regions that are unable to catch up on their own, but he also questions whether it would be sufficient to overcome the territorial disparities in the country. Looking at the county-level data after 2004, Baranyi's doubts seem to be confirmed.

Analyzing the economic development indicators of the counties in the period before the pandemic, we can observe a core-periphery effect, a territorial polarisation of the country, with some areas becoming more and more developed, while others lagging behind. For the period 1995 to 2019, it can be observed that the spatial economic disparities in the country have typically increased, with the gap between the best and worst performing territorial units widening over the period. The winners of this trend include the capital, Budapest, whose GDP per capita has been twice the national average since the 2000s, and the performance of counties close to the north-western border and Budapest. On the negative side, it is noteworthy that the counties of Békés and Csongrád-Csanád, with a negative deviation of more than 20 percentage points from the average over the period 1995-2019, and Nógrád, with a smaller weakening of its relative economic position, but starting from a low base and ranking last throughout the period, are lagging behind the average.

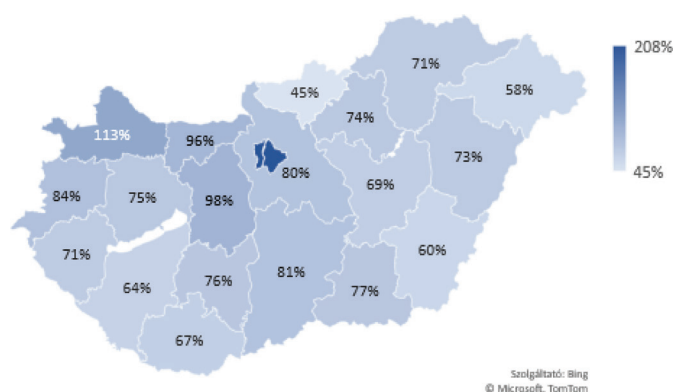
It can also be noted that the proximity and logistical links to the Western European core areas and to Budapest as a local centre have had a typically positive impact on the development of the regions since the economic transition in the 1990s. In this case, the positive effects of proximity to the border can be observed. In contrast, along the southern, eastern and north-eastern borders, the peripheral effect can be observed. Within the country, from west to east and away from Budapest, in most cases a general decline in economic performance can be observed. Since 1995, the GDP per capita ratio in Budapest relative to the national average has increased significantly, while most counties have seen their performance relative to the national average decline. Between 1995 and 2019, only five counties have improved their relative position compared to the national average, and only Komárom-Esztergom has caught up by more than 10%. In contrast, nine counties showed a decrease of more than 10% and two of them a decline of more than 20% in their relative indicators compared to the average.

#### DYNAMICS OF THE SPATIAL STRUCTURE OF THE HUNGARIAN ECONOMY AFTER 2019

In the first full year of COVID-19, when the first wave of the epidemic hit the domestic economy, the trends before 2019 appeared to be partially reversed. Unlike in the past, several of the counties with higher development indexes experienced a decline in their performance relative to the national average, while several counties with peripheral characteristics performed relatively well. The performance of the capital city, which is the local centre and far above the national average, also declined, albeit slightly, in 2020 compared to the national average (Figure 4).

In terms of GDP at current prices, most regions did not show a decline in 2020. Only in Komárom-Esztergom, Zala and Vas counties did GDP per capita at current prices decline. At the same time, according to KSH (2023) data, the volume of gross domestic product (GDP) fell by 4.5% in 2020 compared to the previous year, but preliminary data show an increase of 7.1% in 2021 at the national economy level.

In terms of GDP per capita at current prices, all counties showed significant growth in 2021. Somewhat unusually com-



**Figure 4: GDP per capita (current prices) in Hungary's counties and Budapest in 2020, as a percentage of the national average**

Data source: own calculation based on KSH (2023)

Edited by: own elaboration (2023)

pared to previous trends, the growth rate in 2021 was most moderate in the formerly leading county of Győr-Moson-Sopron, while several previously underperforming counties recorded significant increases. Budapest's weight remained stable during the epidemic period (Table 2).

**Table 2: Development of GDP per capita (at current prices) in Hungary's counties and Budapest in 2020 and 2021 as a percentage of the previous year's county value**

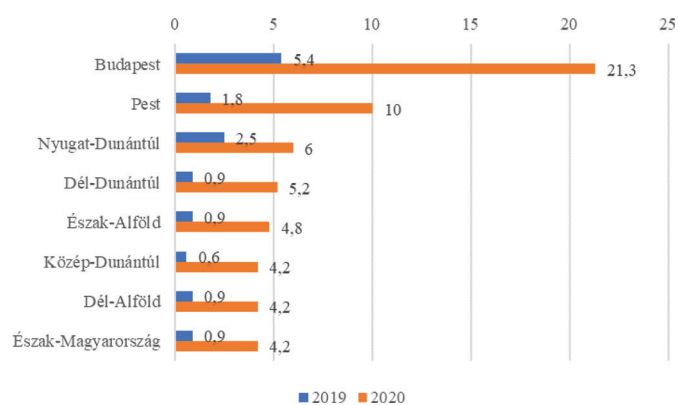
Territorial unit	2020	2021
Budapest	1.3%	14.5%
Pest county	2.7%	16.6%
Fejér county	1.2%	23.2%
Komárom-Esztergom county	-3.5%	12.3%
Veszprém county	0.4%	17.5%
Győr-Moson-Sopron county	0.7%	7.4%
Vas county	-4.2%	11.0%
Zala county	-2.7%	16.3%
Baranya county	0.6%	20.0%
Somogy county	3.5%	10.0%
Tolna county	1.7%	13.4%
Borsod-Abaúj-Zemplén county	5.2%	20.4%
Heves county	0.7%	10.9%
Nógrád county	4.6%	17.0%
Hajdú-Bihar county	3.7%	12.1%
Jász-Nagykun-Szolnok county	10.1%	14.1%
Szabolcs-Szatmár-Bereg county	2.2%	12.7%
Bács-Kiskun county	2.1%	9.5%
Békés county	6.6%	11.4%
Csongrád-Csanád county	5.8%	15.4%

Data source: own editing based on KSH (2023), software used:

MS Excel Edited by: own elaboration (2023)

An increase in spatial disparities in the impact of the epidemic may also be a realistic scenario, as less developed areas typically have fewer resources and reserves (Wallerstein, 2010; Káposzta, 2014). As a consequence, these areas are often more vulnerable and susceptible to negative impacts (Alpek B., 2017). Thus, it would have been a realistic scenario if we had seen a decline in the already underperforming counties and territorial units and an increase in the national spatial economic disparities. However, this was not the case when looking at the county GDP per capita indicators at current prices. However, by choosing a different indicator or a different spatial unit, such as districts or sub-districts, there could even be an actual increase in spatial disparities in other dimensions. For example a significant difference can be observed in the proportion of home office and telework in the workforce between the Budapest, which forms a local core and the other regions of the country (Figure 5).

In Budapest, and even in Pest county, the home office rate was several times higher than the average in other regions. The regional differences are illustrated by the fact that in 2020, around one in five workers worked from a home office, compared to around one in twenty in regions outside Pest county. This difference can partly be interpreted as a differ-



**Figure 5: Percentage of people working from distance or in home office by region.**

Data source: own calculation based on KSH (2023)

Edited by: own elaboration (2023)

ence in advocacy skills, since as Gyökér & Krajcsák (2009) and Krajcsák (2018) point out, workers typically prefer, and even perceive teleworking as a reward, compared to working in the workplace. On the other hand, it may be related to the fact that Budapest has a higher share of office jobs that can be

**Table 3: GDP per capita (at current prices) in Hungary's counties and Budapest between 2019 and 2021 as a percentage of the national average, and percentage point change in the deviation from the national average between 2019 and 2021**

	2019	2020	2021	Change 2019–2021 (%)
Budapest	209%	208%	208%	–1%
Pest county	79%	80%	81%	2%
Fejér county	99%	98%	106%	7%
Komárom-Esztergom county	101%	96%	94%	–7%
Veszprém county	76%	75%	77%	1%
Győr-Moson-Sopron county	114%	113%	106%	–8%
Vas county	89%	84%	81%	–8%
Zala county	74%	71%	72%	–2%
Baranya county	67%	67%	70%	3%
Somogy county	63%	64%	62%	–1%
Tolna county	76%	76%	75%	–1%
Borsod-Abaúj-Zemplén county	69%	71%	75%	6%
Heves county	75%	74%	72%	–3%
Nógrád county	44%	45%	46%	2%
Hajdú-Bihar county	71%	73%	71%	0%
Jász-Nagykun-Szolnok county	63%	69%	68%	5%
Szabolcs-Szatmár-Bereg county	58%	58%	57%	–1%
Bács-Kiskun county	81%	81%	77%	–3%
Békés county	58%	60%	59%	1%
Csongrád-Csanád county	74%	77%	77%	4%

Data source: based on KSH (2023) own calculation

Edited by: own elaboration (2023)

delegated more easily to home office, also the share of home offices in Budapest was already several times higher than the national average before COVID-19 (KSH 2023). If we consider teleworking as a preferred mode of work based on Krajcsák (2018), we can conclude that - regardless of the underlying reasons - in the end, both in 2019, the last year of the pre-COVID-19 boom, and in 2020, the year of the epidemic's spread, workers outside Budapest, suffered an overall disadvantage in terms of the mode of work. Given the significantly lower share of home office, which is typically preferred by workers (Gyökér & Krajcsák, 2009 and Krajcsák, 2018), in regions outside the center (KSH, 2023), compared its high penetration in the capital.

However, when looking at the indicators by county, it is precisely the counties that had previously performed better that were the weakest in the 2020 data series, and the recovery period in 2021 also shows a significantly different lead from the usual trend of previous years. In fact, compared to 2019, Nógrád county, which had previously been consistently lagging behind, was able to improve its indicator in both 2020 and 2021, even if only slightly. This can be interpreted as a kind of resilient reaction of Nógrád county, which has been regularly lagging behind the national average.

In the period 2019-2021, the regional disparities in the domestic economy have decreased overall, based on the county level GDP per capita indicators at current prices (Table 3).

The trend of increasing polarisation of the domestic economic space from the 1990s to 2019 started to move in the opposite direction during the pandemic. Overall, by 2021, the differences between counties had narrowed slightly compared to the past. Thus, during the pandemic a moderate narrowing of the regional differences could be observed (Figure 6). This may have been mainly due to the fact that, during the 2020 recession, counties with a higher economic performance in the past suffered a larger decline than counties with weaker performance in the preceding period. The labour market data has also shown that the decline in employment was more pronounced in the more economically advanced regions, which in turn pointed towards a trend towards regional equalisation (Czifrusz, 2021). In 2021, a very rapid recovery period started both in Hungary (KSH, 2022) and in the European Union (Eu-

rostat, 2023). Nevertheless, the differences between counties were even more moderate in 2021 than in 2019, the last year of the pre-pandemic period. However, the dynamics of the trends in 2021 foresaw a continuation of the polarising trend observed before 2020.

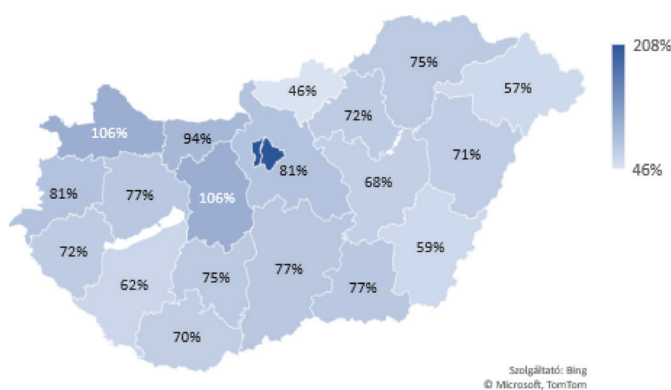
## CONCLUSIONS

As it has been highlighted, trends and dynamics have shifted significantly in the spatial economic structure of Hungary since the economic and political transition of the 1990s until the outbreak of the COVID-19 pandemic. The return to the Western, capitalist economic model and orientation since the 1990s has facilitated development and economic activity in certain parts of the country more, than the others. The study establishes that during the 2020-2021 period, previously underperforming counties often outperformed others during the pandemic, while the previously best-performing counties often underperformed. The 2020 recession temporarily reduced inequalities between counties, however, territorial differences increased again in 2021.

In an international context, we have highlighted the difficulties of peripheral and semi-peripheral economies and some of the factors that can make the way towards the core difficult. By examining the distribution of economic performance within the country, we have highlighted that the model can explain several elements of the spatial differences in development within country. Depending on the proximity of the centre and on peripheral conditions the expected performance of the county may vary. This is particularly striking when comparing the western and eastern border regions. As mentioned above, where in the west the proximity of the border means proximity to the European core, i.e. it facilitates development, whereas along the eastern border the peripheral effects of the proximity of the border, which inhibit the development of the region, prevail. Within the country, the centre is clearly Budapest, which is becoming increasingly remote from the periphery of the country (Lőcsei & Szalkai 2008). As shown by the dynamics of the ratio of GDP per capita of each county to the national average as an indicator of economic development, the differences in development between counties have been increasing since the 1990s within Hungary. And the country is becoming increasingly economically polarised along this indicator in spatial dimension.

Overall, it can be concluded that since the economic transition, the marginalisation of the poorer performing areas has increased and the economic polarisation of the country has advanced. The economic performance of most counties has declined relative to the national average over the period. In contrast, the relative performance and economic weight of the capital city has increased even further, with Budapest being the biggest winner of the transformation. In the period 1995-2019, the group of southern (except for Bács-Kiskun county) and northeastern border counties suffered the largest group-wide decline.

The core-periphery system is also apparent in employment modes. Based on data compiled by the Hungarian Central Statistical Office (KSH, 2023) for years 2019 and 2020, the share of home-office work, which tend to be preferred by workers (Gyökér & Krajcsák, 2009 and Krajcsák, 2018), is much higher in Budapest than in regions outside Pest county. So in terms



**Figure 6: GDP per capita (current prices) in Hungary's counties and Budapest in 2021, as a percentage of the national average**

Data source: own calculation based on KSH (2023)

Edited by: own elaboration (2023)



of the mode of employment, we have pointed out a particular representation of the periphery compared to the core. In 2020, around one in five workers in Budapest and roughly one in twenty workers in the regions outside Pest county worked from home (KSH).

From 2020 onwards, some of the previous trends seemed to be reversed. Both in the year of the first wave of the epidemic (2020) and in the recovery period starting in 2021, we noted that counties that had previously underperformed often overperformed, while a significant number of counties that had performed best before 2020 underperformed. Budapest maintained its leading position, holding its pre-pandemic level after a slight decline in 2020. It is noteworthy that Nógrád, which was consistently underperforming and at the bottom of the ranking throughout the period, was able to improve its GDP per capita at current prices as a share of the national average slightly in 2020 and 2021.

In the recession-hit year of 2020, the performance of counties in terms of GDP per capita moved closer together overall, with a noticeable reduction in the average dispersion between counties. The trend of polarisation was temporarily reversed, mainly due to a slowdown and decline in the best performing counties. A period of strong recovery starting in 2021 and high domestic growth again predicted a continuation of the pre-pandemic dynamics, as counties that had underperformed in 2020 but had previously had strong indicators showed significant growth. Nevertheless, in 2021, the gap between the performance of the counties was still smaller than in 2019, but the trend foresaw a different growth rate, which was more pronounced before 2019, favouring the more developed counties.

In relation to the polarisation of the domestic economy and the trend of growing territorial disparities could pose a risk to long term development due to the turbulence caused by large socio-economic disparities, both spatially and socially (Hadzi-Vaskov et al., 2021). This could significantly undermine the competitiveness prospects of the national economy, regions and enterprises in general. This finding is supported by research on competitiveness by Chikán et al. (2018) and Mlachila et al. (2014).

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