

# Characteristics and courses of uneven development in Central and Eastern Europe: The evolution of places of underdevelopment

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## Abstract

There are many quantitative analyses focusing on regional differences in Europe including Central and Eastern Europe (CEE). However, while in the West, there are running discussions on theories of uneven development aiming at understanding causes of inequalities, analyses from CEE are scarcely linked to these theoretical debates. The aim of this paper is to join the discussions on uneven development by exploring statistically measurable characteristics, driving forces and courses of it. A quantitative analysis grounded in a political economy approach methodologically and the uneven development framework theoretically is presented with a focus on the evolution of spaces and places of underdevelopment. The comparative analysis covers countries of CEE and situates the findings within the broader context of uneven development on the European semi-periphery. The article demonstrates how uneven development provides a powerful framework for understanding regional inequalities in CEE. The results indicate spatial differentiation since the early 1990s, characterized by simultaneous processes of equalization and differentiation across geographic space. The findings suggest that these inequalities are not temporary or accidental, but rather reflect an inherent mode of operation of capitalist development in the region.

**Keywords:** uneven development, Central and Eastern Europe, underdevelopment, convergence and divergence, regional differentiation

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## Uneven development in Central and Eastern Europe

Since the concept of uneven and combined development was first articulated by Leon TROTSKY in *History of the Russian Revolution* (2008 [1930]), scholars have built on this idea to examine disparities in economic and spatial development. Neil SMITH's seminal framework of uneven development (2010 [1984]) extends TROTSKY's insights by focusing on the geographical and structural dimensions of inequality, particularly within urban and regional contexts. SMITH, N. emphasizes how capitalist processes shape the unequal distribution of resources, wealth, and development across different places, highlighting the spatial consequences of broader economic dynamics.

Uneven development is understood as an immanent part of capitalism, the engine behind economic growth or relapse (WALKER, R. 1978; HADJIMICHALIS, C. 1986; CHRISTOPHERS, B. 2009; HARVEY, D. 2018 [1982]). It "broadly defined as the relationships between places that (re)produce inequalities in wealth, power and resources" (JONES, M. *et al.* 2022, 1392). Uneven development is a continually evolving analytical perspective on socio-spatial processes. It emerges from the Marxist geographical tradition of the 1970s and 1980s and critically responds to the neoclassical economic assumption that inequalities represent only a temporary phase of capitalist development and can be eliminated through economic growth.

Our research examines capitalist economic development not as a progress which ulti-

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mately leads to the abolishment of underdevelopment but something that creates both spatial equalization and differentiation. During this process capital fluctuates in space, creating places of development and underdevelopment (DUNFORD, M. 1996; DUNFORD, M. and SMITH, A. 2000; SMITH, N. 2010 [1984]). The aim of this paper is to analyse the evolution of regional economic inequalities in Central and Eastern Europe (CEE) on the NUTS3 level over the past three decades through the theoretical lens of uneven development, with a particular focus on identifying and interpreting the emergence, persistence, and transformation of places of underdevelopment. Such analysis may provide a wider contextual framework to studies focusing on the lived experiences of uneven development (such as BERKI, M. and SÁGI, M. 2026; MIHÁLY, M. and FABULA, Sz. 2026; TIMÁR, J. and TRÓCSÁNYI, A. 2026 in this issue).

To date, few empirical studies focusing on CEE use the concept of uneven (and combined) development in a critical sense. Most apply the term merely to describe regional economic differences. As a result, its potential for deeper analysis is often overlooked, leaving empirical research on the region through this lens relatively underexplored.

Although capitalism has integrated Europe – and the global economy more broadly – into a single productive system, this system is internally differentiated and composed of multiple, historically specific combinations. These combinations are shaped by the institutional foundations of capitalism, including states, capital and labour, as well as by political and cultural relations and civil society. HARDY, J. (2014) argues that the development of CEE over the past three decades is threefold: (1) combined, as the post-socialist transition must be understood in relation to global economic processes; (2) compressed, as development has unfolded through rapid, non-linear shifts rather than gradual progression; and (3) uneven, as national and regional trajectories have diverged markedly depending on historical and structural conditions.

This paper draws inspiration from DUNFORD, M. and SMITH, A. (2000), who analyse regional development in Europe using a small set of well-chosen statistical variables, with particular focus on ‘falling behind’ and ‘catching up’ regions. They highlight Marxist economic geography’s “long-term emphasis on capitalist uneven development” as a key force behind the unequal distribution of economic wealth and the complex mosaic of territorial development (DUNFORD, M. and SMITH, A. 2000, 171). Similarly, we employ a set of variables and methods well established in political economy, while paying particular attention to interpreting our results within the framework of uneven development, with a focus on simultaneous territorial equalization and differentiation.

### **A gap in research? Empirical applications of uneven development**

An overview of the literature was conducted to gain an initial insight into empirical applications of uneven development. This brief review serves as a preliminary exploration to identify key themes, areas of focus, and the extent to which studies engage with the framework. The selected works were drawn from a search of the Clarivate Web of Science database and consist mainly of quantitative studies. A common feature is their reliance on case studies, ranging from local to supranational scales. The articles range from merely mentioning uneven development to a small number of studies that critically engage with the concept. Our primary focus was to find works on Central and Eastern Europe and/or (post-)socialist contexts, but a few studies with broader geographical scopes were included as well.

Analyses employing the concept of uneven development tend to follow two broad approaches. One consists of studies grounded in political economy and/or economic geography that remain largely descriptive and engage weakly with the critical implications of the framework. In these works, uneven

development is used to label spatial disparities rather than to explain them as inherent outcomes of capitalist development.

Related research addresses foreign direct investment (FDI), economic dependency, employment, and productivity in relation to regional inequalities. ADRIAN SMITH (1994) examines dependent regional development in Slovakia's armaments industry and later links existing disparities to intensified territorial inequalities following EU expansion (SMITH, A. 2003). Similarly, PAVLÍNEK analyses Slovakia and FDI-related inequalities, linkages, and spill-overs, and their regional effects in the automotive industry (PAVLÍNEK, P. 2004, 2018, 2022).

Research on FDI is central in economic geography: JACOBS, A.J. (2017) highlights its role in shaping path-dependent urban development, while SOKOL, M. (2001) frames CEE as a Western 'super-periphery'. CUTRINI, E. (2019) similarly identifies regional convergence clubs based on income levels.

In the context of Hungary, MARTIN, R. (2008) explains unequal post-socialist development through quantitative economic factors, without engaging the uneven development framework. By contrast, GÁL, Z. and LUX, G. (2022) argue that FDI dependency and foreign bank dominance reinforce uneven development and external dependency, while also noting alternative paths and links to anti-EU sentiment. The other approach emerges from Marxist geography, where uneven development is understood as a fundamental concept – dynamic in nature yet widely accepted. Inequalities in CEE or the Global South are interpreted not as legacies of socialism or colonial past, but as inherent to capitalism – an outcome of Western economic domination and exploitation of these regions (HARDY, J. 2014). HICKEL, J. *et al.* (2022) show how advanced economies benefit from appropriating labour and resources from the Global South via unequal exchange, generating social and environmental harm. MARTINUS, K. (2018) links productivity and competitiveness to regional disparities in resource peripheries, highlighting capitalism's role in shaping

inequality and criticizing centralized regional policy. LIM, K.F. (2014) uses uneven development to explain China's hybrid position as a neoliberal global actor with socialist domestic principles. By problematizing the relationship and dynamics between state socialism and neoliberal capitalism and utilizing the concept of hybridity, GOLUBCHIKOV, O. *et al.* (2014) explore the historical roots of inequality in CEE as inherited spaces for capitalist development, as well as the region's ongoing transformation through capitalist processes. We argue that uneven development reflects structural spatial inequalities of capitalism rather than a simple divide between "more" or "less" capitalist regions (GOLUBCHIKOV, O. *et al.* 2014).

Our research is positioned at the intersection of these research traditions. Our methods and variable selection are grounded in political economy and regional studies. However, we apply the uneven development framework to interpret our results. While neither our theoretical approach nor our methods are new per se, their combination, together with our focus on CEE, enables a novel exploration of an under-examined research area. We challenge conventional notions of regional economic catching-up through deeper integration into capitalism, instead focusing on how structural regional inequalities in CEE have simultaneously equalized and differentiated over the past 30 years.

## Research design

This research uses basic economic indicators and inequality measures to provide an overview of spatial differentiation processes in Central and Eastern Europe. This thematic focus builds on a well-established tradition in geographical and regional research (PAUL, L. 1995; DOWNES, R. 1996; DUNFORD, M. and SMITH, A. 2000; HEIDENREICH, M. 2003; GORZELAK, G. 2009; SMĘTKOWSKI, M. and WÓJCIK, P. 2012; BENEDEK, J. and MOLDOVAN, A. 2015; LANG, T. 2015; NAGY, E. 2015; SCUTARIU, A. 2017; GORZELAK, G. and SMĘTKOWSKI, M. 2020). Previous analyses have identified

several characteristic and now well-documented features of regional economic inequality in CEE, including a core-periphery divide, the dominance of capital regions in economic performance, East-West gradients both across the macro-region and within individual countries, and diverging development trajectories between rural and urban areas (SMĘTKOWSKI, M. 2013; ABRHÁM, J. 2018; CHAPMAN, S.A. and MELICIANI, V. 2018; DYBA, W. *et al.* 2018; PEREDY, Z. *et al.* 2022).

Considering these antecedents, the potential added value and the novelty of the current analysis is the introduction of the concept of uneven development to the interpretation of regional differentiation processes in CEE. The Smithian way of analysing and better understanding regional inequalities is not unprecedented in regional analyses with a political economic approach, but these are usually more focused on spatial and economic processes related to the Global South (BOND, P. and RUITERS, G. 2017; ORTIZ, R. 2024), than supporting available knowledge on CEE regional differences. Using this concept in our investigation helps shift the focus away from static snapshots of high and low inequality towards the relational aspects of regional differentiation.

By examining spatial differentiation alongside the temporal dynamics of spatial change, our research seeks to highlight imbalances and inconsistencies in socio-spatial processes in CEE. This approach reflects a core insight from uneven development, according to which there is no absolute economic progress, as the movement of capital continually reproduces inequalities between territories. Such inequalities are therefore not conditions that can be fully overcome or equalized within capitalism (SMITH, N. 2010 [1984]). Accordingly, geographical scale, spatial variation, and the trajectories of uneven development play a crucial role in understanding regional economic inequalities, since processes of equalization and spatial differentiation unfold differently across spatial levels – within and between countries – and over time, following the seesaw-like fluctua-

tions of capital (DUNFORD, M. and SMITH, A. 2000; JONES, J. *et al.* 2017).

In quantitative regional research analysing spatial and economic variation in a Central and Eastern European context, the focus is often placed on understanding processes of equalization and differentiation (SMITH, A. and TIMÁR, J. 2010; MONASTIRIOTIS, V. 2011; SMĘTKOWSKI, M. and WÓJCIK, P. 2012; BENEDEK, J. and MOLDOVAN, A. 2015; KISIAŁA, W. and SUSZYŃSKA, K. 2017; HOLOBUIC, A. 2021; STAWICKI, M. and WOJEWÓDZKA-WIEWIÓRSKA, A. 2023; EGRI, Z. and LENGYEL, I. 2024). This study contributes to these efforts by examining spatial equalization and differentiation within the CEE macro-region, with particular attention to the relative positions of specific areas – especially spaces of underdevelopment (DUNFORD, M. 1996; DUNFORD, M. and SMITH, A. 2000) – that may be persistently affected by fluctuations in regional inequalities.

In order to capture these aspects of regional differentiation, the analyses presented in this paper focus on the question of what convergence is directed towards. Accordingly, the following questions are addressed in relation to understanding the trajectories of uneven development in Central and Eastern Europe:

- How did the catching-up to former levels of regional economic performance happen after the political and economic transition period in CEE countries?
- How do processes of convergence and spatial differentiation at different spatial levels (national, EU) relate to each other?
- What kind of regional variances characterize inequality patterns and the fluctuation of differences within Central and Eastern European countries?

To provide a basic overview of processes of economic differentiation in CEE the analyses presented in this paper are based on GDP per capita at the NUTS 3 level, as a proxy for regional economic performance, and productivity and employment rates at the NUTS 3 level, as a proxy for the movement of capital. By capturing a highly complex phenomenon in a

simplified form, GDP per capita is commonly used as the dominant indicator in studies of regional economic disparities and equalization, but it has well-known limitations.

On the one hand, GDP reflects only the formal economy and does not account for broader dimensions of well-being – such as health, education, environmental quality, or governance (HARVIE, D. *et al.* 2009; DĚDEČEK, R. and DUDZICH, V. 2022) – which are also shaped by capital movements. On the other hand, spatial biases (workplace-residence mismatch, scale sensitivity, focusing only average gaps regarding inequalities) may distort interpretations of spatial differentiation processes and their relationship to underlying economic realities (TVRDOŇ, M. and SKOKAN, K. 2011; STAWICKI, M. and WOJEWÓDZKA-WIEWIÓRSKA, A. 2023; PIETAK, L. 2024).

By acknowledging the drawbacks of applying this measure in regional analyses, GDP per capita measures are, for the purposes of our investigation, considered adequate for (re)exploring basic patterns of spatial economic differentiation in CEE, given the multi-layered focus on regional inequalities and the cautious interpretation informed by the concept of uneven development (DUNFORD, M. and SMITH, A. 2000).

To analyse capital mobility, we use productivity and employment rates as indirect proxies for capital movement (DUNFORD, M. and SMITH, A. 2000). Increases in productivity may indicate the spatial movement of capital and its fixation in the built environment and means of production (e.g. infrastructure, machinery). Complementing this, the employment rates serves as an additional indirect proxy for investment and economic expansion. We assume, with caution, that rising employment may reflect capital investment through job creation. When productivity and employment increase together, this may suggest that previously mobile capital is being fixed through investment, generating new employment opportunities.

We acknowledge that more direct measures, such as foreign direct investment data, would provide stronger proxies for capital

movement in CEE. Therefore, several limitations must be acknowledged in our approach. Increases in productivity may reflect capital investment in the means of production, but can also result from technological change, innovation, human capital development (e.g. skills and education), or efficiency gains, such as improved management practices. A similar caution applies to employment rates. Technological investments (e.g. automation) can alter employment structures independently of capital mobility. Changes in employment may indicate investment or disinvestment but can also reflect policy shifts. For example, declining employment rates in CEE after the transition were influenced by the elimination of hidden unemployment, while subsequent increases may be linked to government interventions, such as public works programs introduced in Hungary after 2010 (CSOBA, J. 2010; KÓTI, T. 2020; VASTAGH, Z. 2017; VIDRA, Zs. 2018). Despite these limitations, we argue that, when analysed together, productivity and employment remain useful proxies for examining capital mobility.

The source of the data is the ARDECO (Annual regional database of the European Commission's Directorate-General for regional and urban policy) Explorer, maintained by the Joint Research Centre [JRC] of the EU. The value of this database lies in the fact that (1) it provides various GDP-related indicators that are not available from other EU sources, (2) it offers long-term data, including information from before 2000, which was particularly useful for our research, and (3) successive changes in the NUTS system are addressed in the database, with all data available in the NUTS 2024 version.

From the ARDECO database, both GDP per capita at constant (2015) prices (ARDECO SOVGDP) and GDP per capita at current prices (ARDECO SUVGDP) were used, as well as productivity (ARDECO SUVGDE) and employment data (ARDECO SNETD). GDP at constant prices was calculated by the JRC using NUTS2- and country-level GDP growth rates from Eurostat. This measure was used to analyse the (self-)catching up of

CEE NUTS3 regions over time following the decline associated with the post-socialist economic transition, resulting from the regime change and the fully (re)introduced mode of capitalist economic production.

GDP per capita at current prices was measured and analysed in PPS (purchasing power standards) units. This measure was used in cases where the nominal GDP value itself was not of primary interest, but rather when annual regional values were compared with national averages or with the EU-27 average.

The territorial scope of the analysis was selected to focus on the eleven CEE member states of the European Union (BG, CZ, EE, HR, HU, LT, LV, PL, RO, SI, SK), while the spatial scale for analysing territorial differentiation processes was NUTS3. This level of detail is sufficient to uncover both country-level aspects, regional characteristics, and local specificities when these aspects are examined through the lens of the concept of uneven development.

### **The false hope for territorial equalization and the rise of inequalities**

Economic crisis began in many socialist countries of Central and Eastern Europe in the 1970s and intensified with the transition to a capitalist market economy in the early 1990s. This process brought significant economic changes and contributed to the realignment of existing spatial structures. The shock of political change of regime and the full return to the capitalist mode of production led to a transformational recession (KORNAL, J. 1994). At the same time, these processes also raised the hope of economic equalization (catching up to the Western European countries) and the mitigation of inequalities within national economies. Over the past three decades, these hopes have been dashed, and the idea of catching up give over to a reality of growing territorial inequalities within national economies.

Of course, on the macro-level Central and Eastern European economies are catching up to Western economies, and at lower regional

levels (NUTS3) there are also numerous areas from CEE (and not just capital regions), which GDP per capita levels have already surpassed that of many other regions of Western economies. However, equalization is not a general process, and real economic progress is not very common. When speaking about equalization, it is worth noting what kind of catching up is the focus of attention. Considering the short-term effects of the transformational recession, before comparing Central and Eastern European regions to other countries, it is useful to examine when these regions regained their previous relative levels of economic production – a process also shaped by broader global economic shifts.

For this, GDP per capita data from the early 1990s to the present days is analysed. From the time series of GDP data at constant prices, those years are selected and mapped, in which the given NUTS3 unit first reached the GDP per capita value measured in the early 1990s (see *Figure 1*). This interval does not allow us to look back perfectly on the economic performance achieved under state socialism, but without comparable data available pre-1990, this measure is used for grasping regional variations in (self-)equalization in CEE.

According to other studies, Central and Eastern European countries needed about 3–9 years after the early-1990s transformational recession to get GDP per capita back to its late-1980s level due to the region-wide recession in the early 1990s, and a more intensive period of growth from the mid-1990s to the mid-2000s (TIITS, M. *et al.* 2008; BILENKO, Y. 2022; WOŹNIAK-JĘCHOREK, B. 2024). Our analysis confirms these trends and also shows some variations between these countries. At the country level Slovakia or Poland avoided major per capita fall, but much of the other CEE countries have regained their pre-transition income levels by the mid-1990s. *Figure 1* shows that this process lasted until the 2000s in Romania and Lithuania, and even beyond 2010 in some regions of Bulgaria and Czechia.

Within country variations of the rate of these processes are significant. Where there

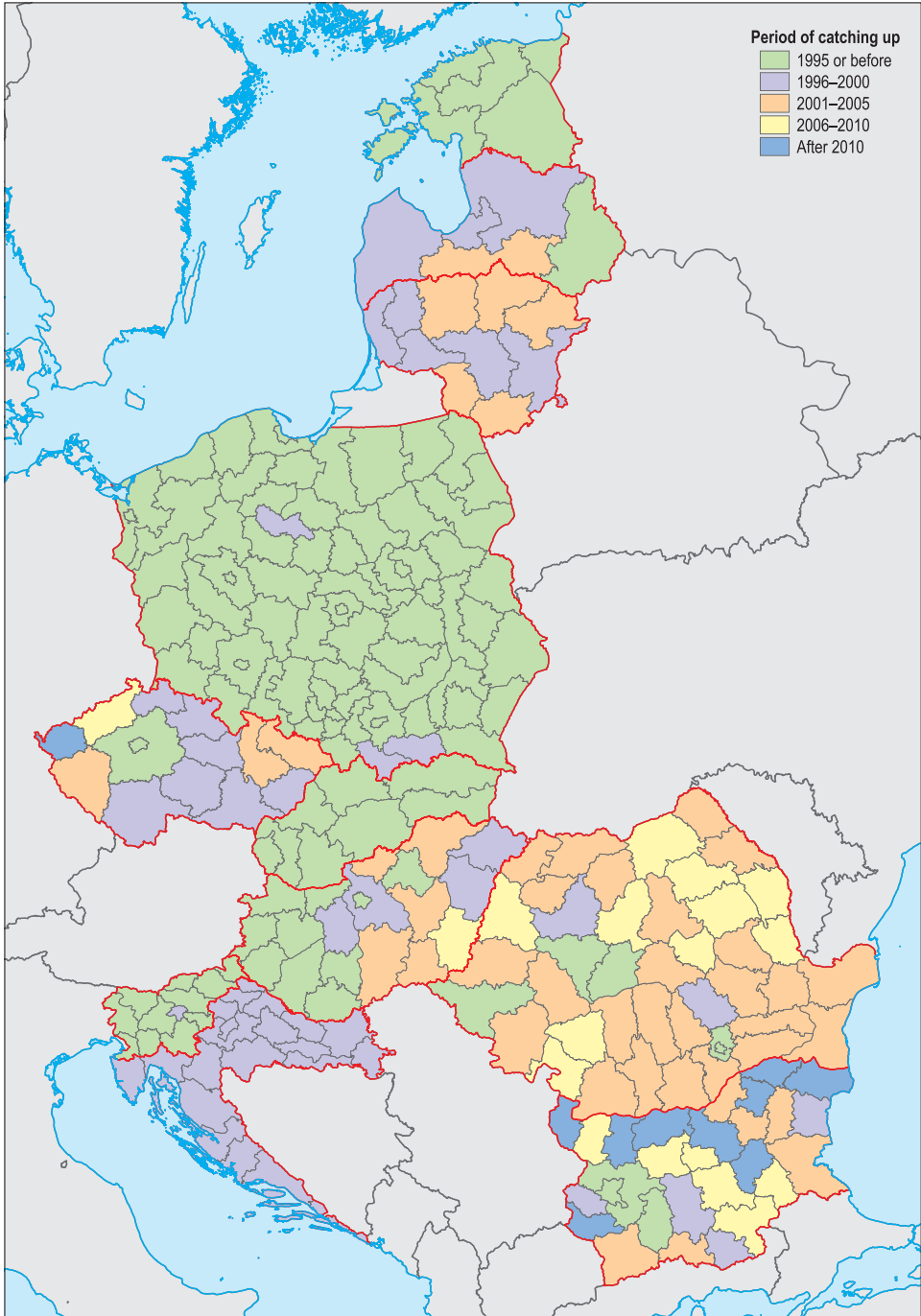


Fig. 1. When did CEE NUTS3 regions catch up to their early 1990s GDP/capita level in CEE countries? Reference years: 1990 – CZ, PL, RO; 1991 – BG, HU, SI; 1992 – LT, LV; 1993 – EE, SK; 1995 – HR. Source: Elaborated by the authors using ARDECO Database, SOVGDP, GDP at constant (2015) prices.

was no unified progress observable, usually capital and other leading urban regions recovered much faster than rural or peripheral areas (LANG, T. 2015; HOLOBIUC, A. 2021; EGRI, Z. and LENGYEL, I. 2023; EGYED, I. and ZSIBÓK, Zs. 2023). This can be observed in Czechia, Hungary and Romania, among other CEE countries (see *Figure 1*). The greatest lag in economic recovery characterizes peripheral areas of Czechia, Bulgaria and Romania, e.g. the majority of current Bulgarian NUTS3 regions only surpassed their pre-transition GDP level after the mid-2000s – the 2008 global economic crisis may further have prolonged the adjustment period. These groups of regions also indicate the first signs for identifying spaces of underdevelopment in CEE. This kind of interpretation of trends related to economic development processes from the early 1990s does not only reveal temporal inequalities in equalization but also highlights the dynamic rise of spatial differentiation as a sign of the systematic unevenness dominating capitalist development (SMITH, N. 2010 [1984]).

### Regional disparities and the spatial movement of capital

As previous findings show, although Central and Eastern European countries experienced strong overall equalization from the 1990s, within-country inequalities often widened until the past years (TVRDOŇ, M. and SKOKAN, K. 2011; BENEDEK, J. and MOLDOVAN, A. 2015; KISIAŁA, W. and SUSZYŃSKA, K. 2017; LENGYEL, I. and KOTOSZ, B. 2018; HOLOBIUC, A. 2021; PEREDY, Z. *et al.* 2022; JANKIEWICZ, M. 2025). These spatial patterns are followed by our paper too. Besides building on findings from previous studies, inequality measures are investigated by using productivity and employment rates at NUTS3 level to follow trends and characteristics of spatial movement of capital in the region.

The decomposition of GDP into productivity and employment factors appears in several studies. DUNFORD, M. and SMITH, A. (2000)

uses it to identify and describe the causes of uneven development, and to compare Western Europe with CEE to see how spatial equalization and differentiation operates. They argue that productivity differentials are affecting the investment potentials of capital, while employment rates shows the ability of economies to mobilize their human potential, labour. In Hungarian regional studies tradition LENGYEL, I. (2003), and NEMES NAGY, J. (2004) employ the same method to define different types of regional competitiveness. However, the use of these indicators as proxies for capital movements is not commonly found in geographical literature.

Within the Marxist tradition, DUQUE GARCIA, C.A. (2022) uses similar variables to conduct an econometric analysis of global employment and capital accumulation. The patterns identified are consistent with Marx's general ideas about accumulation processes in the capitalist system. The results show that "the level of employment tends to expand with the fixed capital stock but tends to contract with the growth in labour productivity" (DUQUE GARCIA, C.A. 2022, 606). Following this line of reasoning, we argue – with major limitations – that mapping productivity and employment rates can provide a general indication of the spatial movement of capital and the regional disparities it generates.

*Figure 2* visualizes NUTS3 regions according to their productivity and employment characteristics in 2023. Regions shown in green are in the most disadvantaged position, with both productivity and employment rates below the EU-27 average. A general trend is that many urban regions exhibit higher productivity with varying employment rates, while most capital regions display both higher productivity and higher employment levels than the EU-27 average. This can be explained by the greater employment capacity of capital areas, as well as differences in their ability to mobilize the workforce within their agglomerations. The relatively easier mobilization of labour in urban areas, together with generally higher wages, partly accounts for this stronger employment

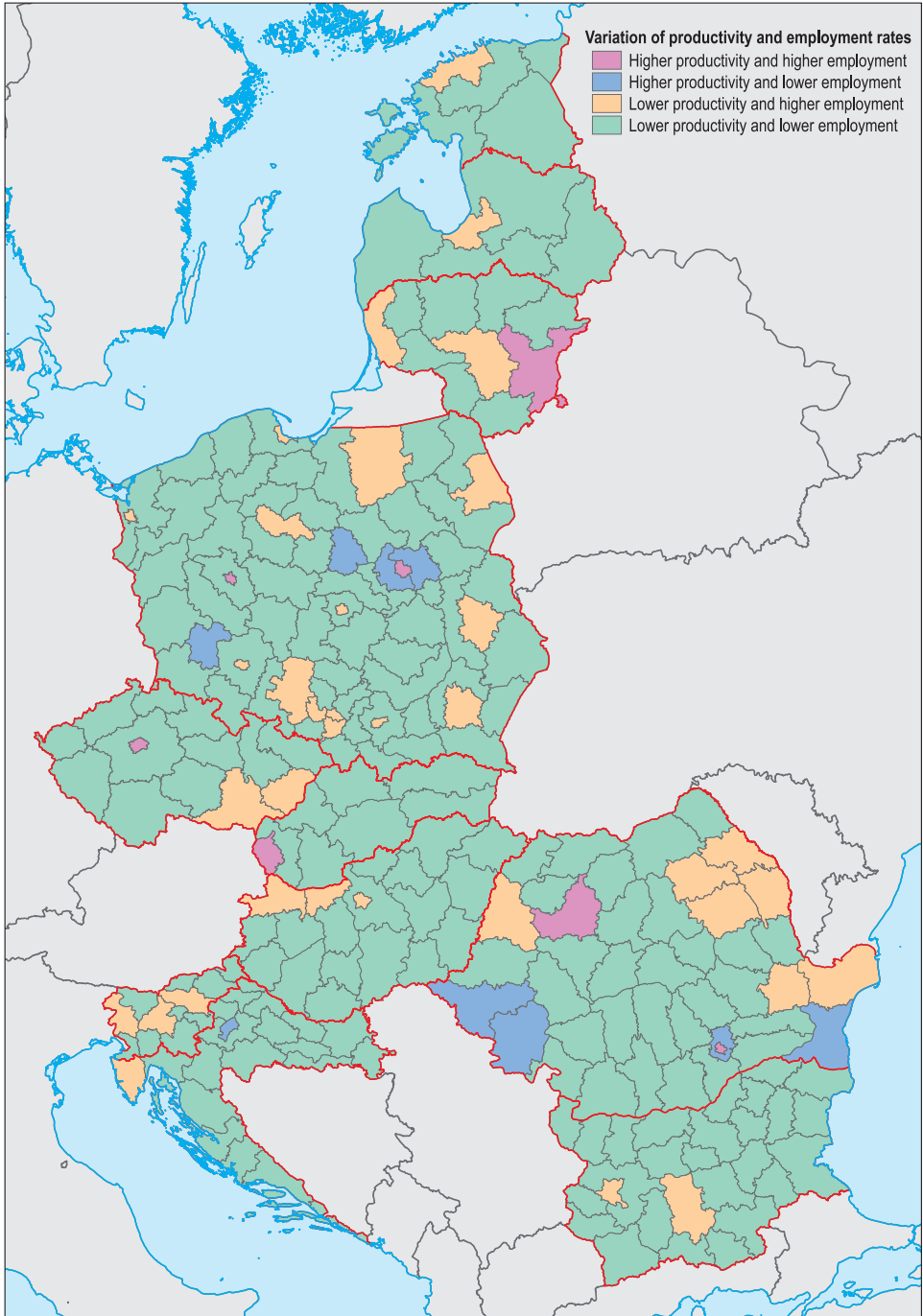


Fig. 2. Variation of productivity and employment rates in CEE NUTS3 regions in 2023 (compared to EU-27 average). *Source:* Elaborated by the authors using ARDECO Database, SUVGDE, labour productivity and SNETD workplace-based employment.

capacity. At the same time, the maps highlight that capital regions have emerged as new centres, while peripheral areas in CEE – often characterized by structurally unfavourable economies – are lagging behind both their own national centres and the EU.

Figure 3 illustrates temporal change in productivity and employment rates. In the dynamic centres of CEE countries, both productivity and employment increased following the economic transition. These regions are predominantly capital city regions and areas surrounding larger urban agglomerations. More generally, the most common trajectory is an increase in productivity accompanied by a decline in employment, which can be explained by the transition from a labour-intensive economic structure toward full integration into the capitalist system.

Regions with structurally unfavourable economies are those where productivity decreased over time despite rising employment. The most disadvantaged locations – referred to as “places of underdevelopment” – are regions that experienced declines in both productivity and employment between 1995 and 2023. By mapping directional change, we provide a basic indication of capital’s spatial mobility and how it has favoured certain regions over others in time.

The significantly lower productivity levels of CEE regions have improved considerably over time, and the gap between CEE and the overall EU average has narrowed. By contrast, employment rates have declined in most areas from the 1990s to the present, consistent with the relationship outlined above. Two key observations emerge from the maps presented that connect to the broader argument of this paper. First, although productivity growth in many CEE regions may reflect an increased capacity to attract capital, it has not led to equalization, on the contrary, regional inequalities have often widened (BENEDEK, J. and MOLDOVAN, A. 2015; LENGYEL, I. and KOTOSZ, B. 2018; JANKIEWICZ, M. 2025). Second, those regions where both productivity and employment had declined by the 2020s largely coin-

cide with areas that have lagged in terms of catching up to previous GDP levels and have shown little to no equalization toward the EU average over the past three decades. Taken together, these findings suggest that such regions can be characterized as places of underdevelopment. Capital has selectively mobilized labour and productive capacities in CEE, thereby reinforcing spatial differentiation (MASSEY, D. 1995).

### **Changing regional structures and the production of development and underdevelopment**

Capital mobility acted as a driver in Central and Eastern Europe not just in affecting the degree of regional differentiation but also influencing the national composition of variation in economic production levels and position changes of regions within these countries. During the 1990s, both FDI-led restructuring and export orientation shaped regional patterns of economic inequalities by concentrating high-productivity activities in a few regions reinforcing within country differentiation. Besides EU cohesion policy measures also supported growth, on national level, but significant equalizing effects between regions cannot be observed as a result of these efforts (BANDELJ, N. and MAHUTGA, M. 2010; TVRDOŇ, M. and SKOKAN, K. 2011; LENGYEL, I. and KOTOSZ, B. 2018; EGRI, Z. and LENGYEL, I. 2024).

To illustrate how the complex system of regional economic differentiation evolved in CEE and have changed over time due to the movement of capital, GDP per capita-based inequality measures in this study were supplemented by the identification and plotting the range and four characteristic values of analysed data sets: maximum, mean, median and minimum – all compared to the average EU-27 GDP per capita level for the given years.

The overall equalization process reflected in rising mean and median values may indicate genuine economic progress (Figure 4). However, this apparent progress is mislead-

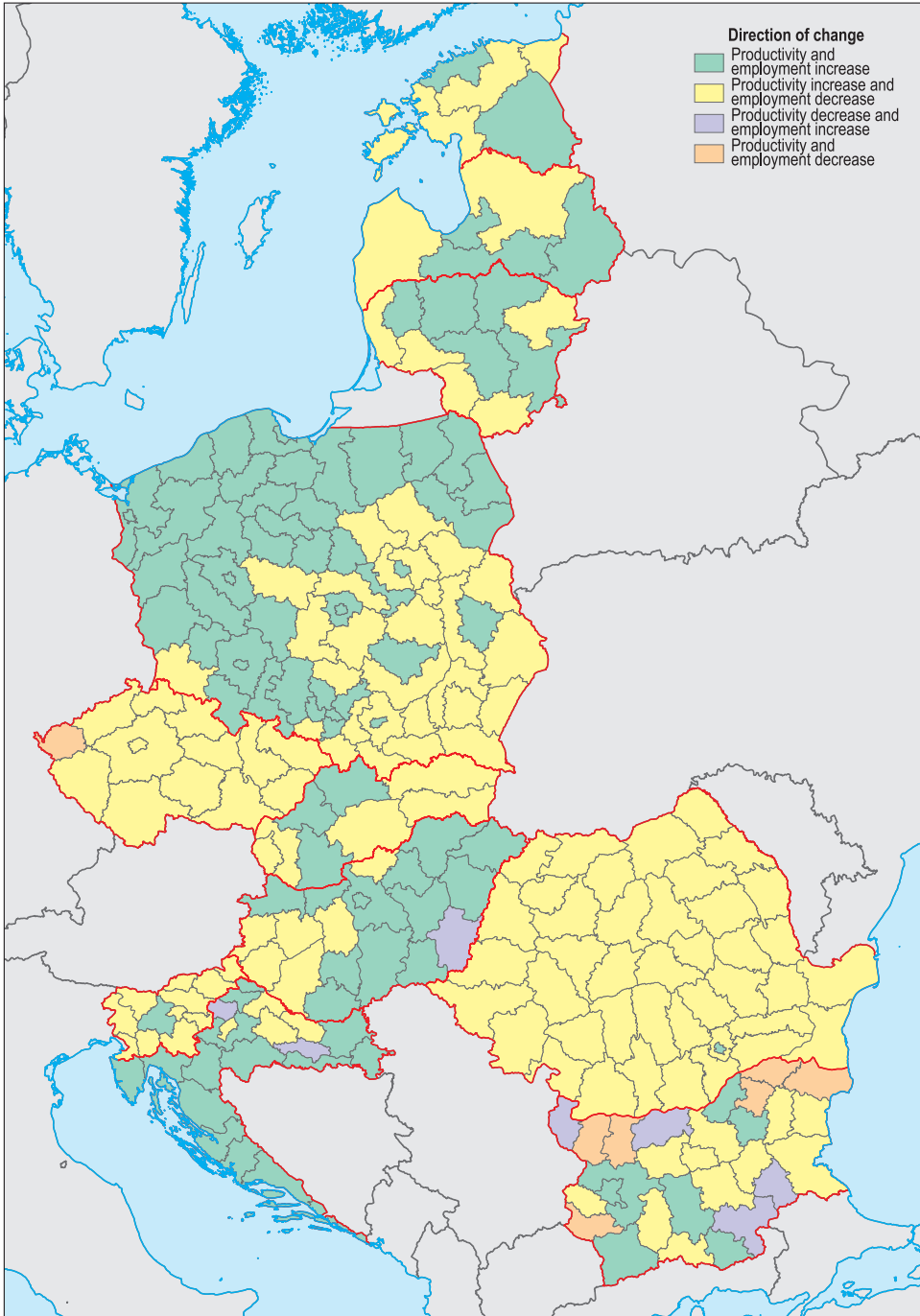


Fig. 3. Changes in productivity and employment rates in CEE NUTS3 regions between 1995 and 2023.  
 Source: Elaborated by the authors using ARDECO Database, SUVGDE, labour productivity and SNETD workplace-based employment.

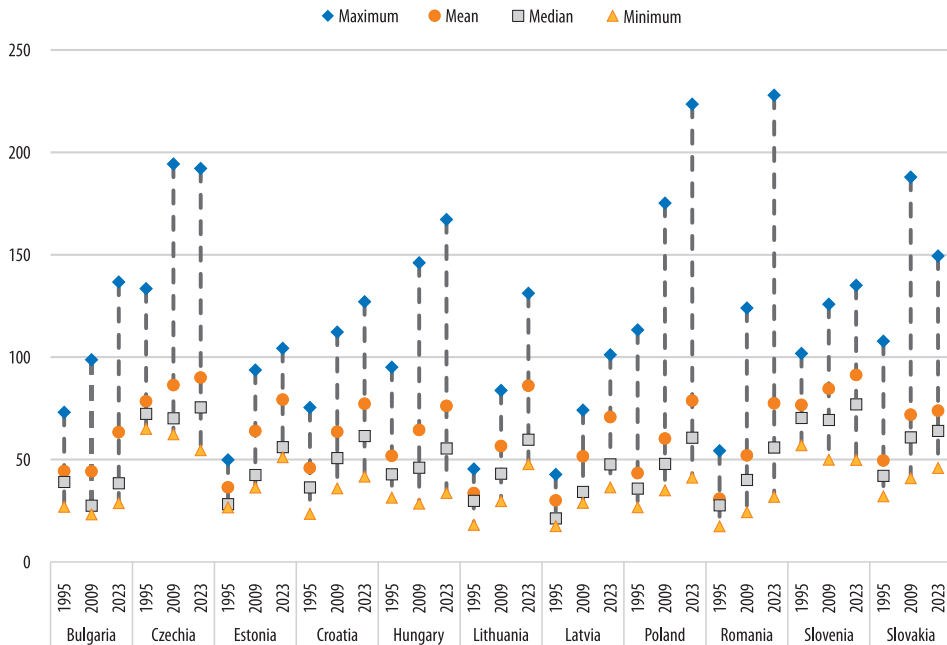


Fig. 4. Change of regional differences of per capita GDP in CEE countries at NUTS3 level, 1995–2023. *Source of data:* ARDECO Database, SUVGDP, GDP at current prices (PPS), adaptation of figure from LANG, T. (2015, 173).

ing if internal disparities are not considered. While relative macro-level equalization signals economic development, nevertheless, progress in certain spaces is accompanied by other regions being pushed to the periphery and becoming dependent on economic power relations (SMITH, N. 2010 [1984]) This dynamic is reflected in the widening gap between minimum and maximum values, suggesting that equalization and differentiation occur simultaneously, in contrast to neoclassical economic claims of continuous convergence.

Considering the results of the current analysis this can be interpreted as follows. Growing ranges of plotted GDP per capita data sets grasp the increasing regional differentiation (LANG, T. 2015). Beneficiaries of these trends are usually capital city regions and other dynamic urban areas where economic growth has been fuelled by investments since the beginning of the 1990s. The growth of these regions pulled country aver-

ages up, indicating overall economic progress within these countries. The significant separation of these areas from the rest of the country based on economic performance characterizes the first half of the analysed period (until the mid-2000s). After the financial crisis of 2008 this dynamism of the core regions is not so striking, except for Romania with the fast rise of economic potentials of Bucharest. In a few cases, for instance Czechia or Slovakia, the relative decline of former positions can be observed in this period.

If not mean GDP per capita values but medians of data sets are considered, different conclusions can be drawn on territorial equalization in CEE. Besides the dynamic engines of these economies, the rest of the country, especially poorer, peripheral and rural areas often show only slow equalization, if any, instead strengthening peripheralization and underdevelopment tend to be more common (CHAPMAN, S.A. and MELICIANI, V. 2018;

HOLOBIUC, A. 2021; EGRI, Z. and LENGYEL, I. 2024). These characterize the regional differentiation in Bulgaria, Czechia, Hungary, or Slovenia. In these countries, usually the poorest NUTS3 units show no real economic progress (or even are in a decline).

In general, the widening of the gap between minimum and maximum values indicates ongoing differentiation, while the relative co-movement of the mean, median, and minimum values suggests that (at the aggregated national level mainly) equalization is observable. This supports arguments that suggest regional restructuring simultaneously produces both advanced regions and spaces of underdevelopment (DUNFORD, M. and SMITH, A. 2000; SMITH, N. 2010 [1984]; HARDY, J. 2014).

Lag of the poorest NUTS3 areas and other less dynamic parts of CEE is also a characteristic of the capitalist system (SMITH, N. 1982). The rapid integration of the Central and Eastern European region was in the fundamental interest of Western capitalist economies, as it provided access to additional markets, (consumer) demand and (cheap) labour. However, full equalization was not the goal, as cheap labour and cheap (for example) manufacturing industry statuses are more profitable than the full integration of CEE countries (MAGNIN, E. and NENOVSKY, N. 2022).

Socialist structural legacies influenced how post-1990 restructuring unfolded and which regions developed at the expense of others. HARDY, J. (2014) notes that the initial inflow of foreign direct investment and transnational corporations' emergence in the region were key drivers of structural change. These investments tended to concentrate in areas where institutional and production infrastructure were already well established, reinforcing the development of (for example) capital regions while peripheral areas lagged behind. As a result, CEE became locked into a low-technology role, supplying raw materials and components to advanced economies (particularly Germany), with only a few innovation pockets capable of moving beyond this dependent position (HARDY, J. 2014). Another key factor shaping divergent regional pathways

was whether former highly industrialized areas managed to preserve their economic functions in the post-transition period or collapsed following the end of centrally planned production. Since the structure of transition varied across countries – some workers were able to influence the restructuring of firms and privatization forms – this further contributed to both regional and cross-country differentiation (HARDY, J. 2014).

### **(Re)production of places of underdevelopment**

This section focuses on the position of regions that are less dynamic or lagging among the NUTS3 regions of Central and Eastern Europe within the process of simultaneous regional equalization and differentiation. The previously explored imbalances are used to identify spaces of underdevelopment which are continuously avoided by movements of the capital during fluctuations of post-transition economic development in CEE. The regional economic performance of Central and Eastern European NUTS3 units is measured by GDP per capita data calculated in percentage of the EU-27 and national averages to make a distinction between initial levels of development of these regions in the early-to-mid-1990s. These classes are crosscut by indices of position changes over the analysed period by differentiating between growing and declining regions (*Table 1*).

Comparing regional data to the EU-27 averages, again equalization can be observed. During the period analysed, most of the Central and Eastern European NUTS3 regions (even slightly) approached the EU-27 GDP per capita average. Nevertheless, there is a group of regions, usually with weaker economic performance capacities, which diverged from that. The national level patterns are more ambiguous. The great majority of Central and Eastern European regions faced differentiation over time from national GDP per capita averages, regardless of their initial economic performance positions. This is

Table 1. National and EU-level convergence and divergence of CEE regions from the 1990s to 2023\*

Position change between 1995 and 2023	GDP per capita level in 1995 in percentage of the EU-27 average			
	under 75	75–100	over 100	Total
Growing	207	8	4	219
Declining	18	1	–	19
<i>Total</i>	225	9	4	238

Position change between the early 1990s and 2023	GDP per capita level in early 1990s in percentage of the national average				
	under 75	75–100	101–125	over 125	Total
Growing	22	20	7	10	59
Declining	29	98	32	20	179
<i>Total</i>	51	118	39	30	238

\*Region number in different groups. Source: ARDECO Database, SUVGDP, GDP at current prices (PPS).

also a sign of territorial differentiation due to uneven development within these countries, where only a smaller number of regions were able to keep or improve relative positions in national economic development.

The map of regions lagging behind, considering the EU-27 or the national averages, implies that these spaces do not necessarily coincide (Figure 5). Lagging regions in decline compared to the EU-27 average characterize regions from Bulgaria, Czechia or Slovenia. These are matching those spaces which are already suggested to be identified as underdeveloped regions in other parts of the current analyses with locked in development positions and delayed economic progress in absolute terms (see Figure 1). Lagging regions in decline compared to national averages usually represent peripheral areas of CEE countries both in terms of their spatial location and socio-economic characteristics.

The separation between spaces of underdevelopment compared to EU-27 and national averages shows that the levels of inquiry influences how territorial differentiation is understood, as well as reinforcing the spatially uneven nature of differentiation and the production of inequalities. Figure 5 is a visual representation of the argument that differentiation and equalization happen simultaneously (SMITH, N. 1982, 1992; DUNFORD, M. and SMITH, A. 2000).

## Concluding discussion

We set out to examine regional economic differentiation processes in Central and Eastern Europe through the theoretical lens of uneven development, with the aim of moving beyond neoclassical accounts of convergence and divergence and interpreting patterns as systemic outcomes of capitalist spatial dynamics. By analysing GDP per capita trajectories, inequality measures, and positional changes of NUTS3 regions since the early 1990s, the study demonstrates that the post-1990 economic development did not lead to generalized economic catch up to Western Europe or the mitigation of regional inequalities. Rather, a pattern of systematic unevenness was produced (SMITH, N. 2010 [1984]), characterized by the simultaneous presence of differentiation and equalization, as well as by the emergence of persistent places of underdevelopment.

The empirical results support previous accounts on uneven development in CEE (GOLUBCHIKOV, O. *et al.* 2014; HARDY, J. 2014), which argue that inequalities in the region should not be interpreted as transitional anomalies or as legacies of state socialism alone. Instead, the findings show that the change in the mode of production to capitalism in the early 1990s constituted a major spatial reorganization of economic activity.



Fig. 5. Spaces of underdevelopment: (Re)production of uneven development. *Source:* Elaborated by the authors using ARDECO Database, SUVGDP, GDP at current prices (PPS).

The transformational recession represented a severe shock, but it was accompanied by a widespread expectation of rapid economic development and a reduction of internal disparities. Three decades later, these expectations have largely proven illusory.

While some countries and regions experienced relatively rapid recovery – most notably Poland, Slovakia and Estonia – many Central and Eastern European regions did not display sustained or generalized economic progress, and in several cases did not even regain their former relative positions in economic production for prolonged periods. Delayed (self)catching-up was particularly evident in Lithuania, in peripheral regions of Hungary, in Transylvanian Romania, and in most Bulgarian NUTS3 units, where the most disadvantaged positions are concentrated. These temporal differences represent the dynamic production of spatial differentiation inherent to capitalist development.

A key contribution of the paper lies in demonstrating how relative equalization on the macro-level can coexist with differentiation on the regional level. Compared to EU-27 GDP per capita averages, most Central and Eastern European regions show some degree of catching up, reflecting the faster overall growth of the macro-region since the mid-1990s. However, this aggregate equalization masks widening inequalities within countries. National-level analyses reveal that many NUTS3 regions diverged from their national averages, regardless of their initial development levels. This finding reinforces the argument that capitalist spatial dynamics generate simultaneous differentiation and equalization rather than leading to uniform convergence claimed by neoclassical theories (SMITH, N. 1992, 2010 [1984]).

The identification of places of underdevelopment further reinforces this interpretation. Regions that are falling behind at both the EU and national levels – most prominently in Bulgaria, parts of Czechia, Slovenia and Croatia – occupy structurally disadvantaged positions. These areas are not simply lagging in a temporal sense but appear to be locked into trajectories of underdevelopment, as

capital repeatedly bypasses them in favour of more profitable locations. Many peripheral rural regions exhibit persistent move away from national averages, highlighting how uneven development operates not only between countries but also within them, reshaping internal spatial hierarchies.

The analysis of productivity and employment dynamics adds further depth to this interpretation. The most common development pathway in CEE has been increasing productivity accompanied by declining or stagnating employment, particularly in dynamic urban centres and capital regions. This reflects capital-intensive growth driven by foreign direct investment and export-oriented restructuring (see PAVLÍNEK, P. 2004, 2018, 2022; SMITH, A. 1994, 2003). In contrast, structurally unfavourable regional economies – especially in Bulgaria and Croatia – experienced declining productivity despite increasing employment. The most disadvantaged regions are those where both productivity and employment declined between the mid-1990s and late 2010s, and these areas largely coincide with regions experiencing differentiation from the EU-27 averages. These patterns reveal how capital selectively mobilizes labour and productive capacities, reinforcing spatial inequalities rather than resolving them (MASSEY, D. 1995).

Taken together, the findings challenge the neoclassical notion of economic convergence as an inevitable outcome of market integration and EU membership. Instead, they underscore that the rapid integration of CEE into global capitalism primarily served the interests of the broader capitalist system by opening new markets, securing cheap labour and facilitating capital accumulation. As a result, certain regions benefitted disproportionately from integration, while others were relegated to marginalized positions, sometimes falling below their former levels of economic production achieved under state socialism. By identifying persistent places of underdevelopment, the paper shows that these inequalities are not accidental or transitional but constitute an inherent mode of operation of capitalist development in the region.

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