

The Portrait of Regional Development Traps in Central and Eastern Europe

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Preliminary Draft Notice

This extended abstract presents preliminary results from ongoing research and should be regarded as a work in progress. The empirical analyses, methodological specifications, and interpretations reported here are subject to further refinement, validation, and revision. Consequently, the findings should be considered exploratory rather than definitive.

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Extended Abstract and preliminary results

Global economic development in the 21st century is increasingly structured by the inherent tensions between economic integration, national sovereignty, and democratic accountability, as conceptualized by Rodrik's political trilemma (Rodrik 2000, 2011). This framework highlights the structural trade-offs embedded in global capitalism: deep economic integration constrains national policy autonomy, while democratic demands for redistribution and protection often clash with the discipline imposed by global markets. Crucially, these tensions are not spatially neutral. They manifest unevenly across territories, producing differentiated regional trajectories within countries and across the European Union.

The growing body of literature on regional inequality has demonstrated that economic integration does not automatically generate territorial convergence (Iammarino, Rodríguez-Pose & Storper 2019). While some regions manage to embed themselves successfully into global production networks and innovation systems, others experience persistent stagnation, deindustrialization, or structural lock-in. Traditional core–periphery models explain these asymmetries through cumulative causation, agglomeration economies, and structural disadvantages rooted in geography and institutional capacity (Smetkowski 2018). However, these approaches often remain relatively static and do not fully capture the dynamic mechanisms through which regions become locked into persistent low-growth equilibria.

The concept of the regional development trap, introduced and elaborated in recent European policy and academic debates (European Commission 2020; Diemer et al. 2022, Cinar 2023 a,b), offers a more process-oriented and temporally sensitive framework. It shifts the focus from simple divergence to self-reinforcing stagnation dynamics. Regions caught in a development trap are not necessarily poor in absolute terms; rather, they fail to sustain productivity growth, structural upgrading, and innovation intensity over time. They become locked into low value-added activities, limited diversification, and weak institutional learning capacities. Importantly, development traps are not merely outcomes of external disadvantage but are also shaped by internal structural and socio-economic configurations (Diemer et al. 2022).

Although the regional development trap framework has been applied at the European scale, most analyses adopt an aggregate EU-wide lens. This perspective, while useful for comparative benchmarking, obscures important intra-national heterogeneity. Central and Eastern European (CEE) countries provide a particularly revealing case. Since EU accession, most CEE economies have demonstrated significant macroeconomic convergence toward the EU average, supported by foreign direct investment (FDI), structural funds, and export-oriented industrial integration (Gál & Lux 2022; Sass *et al.*; 2018, Vas et al. 2024). At the national level, GDP per capita and employment indicators suggest successful catch-up trajectories.

Yet this macro-level convergence masks profound territorial asymmetries. Beneath national averages, subnational regions follow highly differentiated development paths. Dynamic metropolitan regions—typically capital cities and major urban agglomerations—have integrated into global value chains, attracted high-skilled labour, and developed relatively diversified service and innovation ecosystems. In contrast, many rural, peripheral, and old industrial regions exhibit structural vulnerabilities: dependence on low value-added manufacturing, demographic decline, limited innovation capacity, and fragile labour markets. As a result, despite national-level catch-up, numerous regions remain trapped in low-productivity, low-innovation equilibria (Vas et al. 2024).

Furthermore, currently, the challenges facing CEE have become even more pressing due to shifting geopolitical and economic conditions. The Russian-Ukrainian conflict has fundamentally altered regional development dynamics, raising urgent questions about economic resilience, twin transition structural stagnation, and inequality (Egri-Lengyel 2024, Gao 2024, Kiss-Páger 2024). At the same time, the European Union's push for economic integration has placed increasing pressure on these regions to catch up with Western European standards, despite persistent structural barriers (Draghi 2024). Understanding why some regions continue to struggle despite decades of financial support and policy interventions is now more critical than ever.

This presentation seeks to provide a systematic portrait of regional development traps in Central and Eastern Europe by shifting the analytical focus to the NUTS3 territorial scale. The central research question guiding the analysis is: **What types of regional development traps exist in Central and Eastern Europe at the NUTS3 level?**

Addressing this question requires moving beyond conventional benchmarking against the EU average and developing a more territorially sensitive analytical framework.

Methodologically, we construct a modified regional development trap index tailored to the structural and historical specificities of CEE economies. Traditional approaches typically rely heavily on GDP-based indicators and EU-wide comparisons. However, given the distinct convergence trajectory of post-socialist economies, benchmarking CEE regions exclusively against Western European standards risks misclassifying structurally stagnant regions as converging. Our modified index evaluates regional performance relative to the CEE average and incorporates additional dimensions capturing productivity dynamics, employment growth, sectoral structure, and innovation intensity. This adjustment allows for a more accurate identification of territorially embedded stagnation patterns and structural lock-ins at the NUTS3 scale.

Preliminary Empirical Findings

The spatial distribution of regional development traps at the NUTS3 level reveals a highly uneven geography of structural stagnation across Central and Eastern Europe. Both versions of the modified development trap index (DT1_05 and DT2_05) identify a broadly similar territorial pattern, suggesting a considerable degree of robustness in the classification (Figure1, Figure 2).

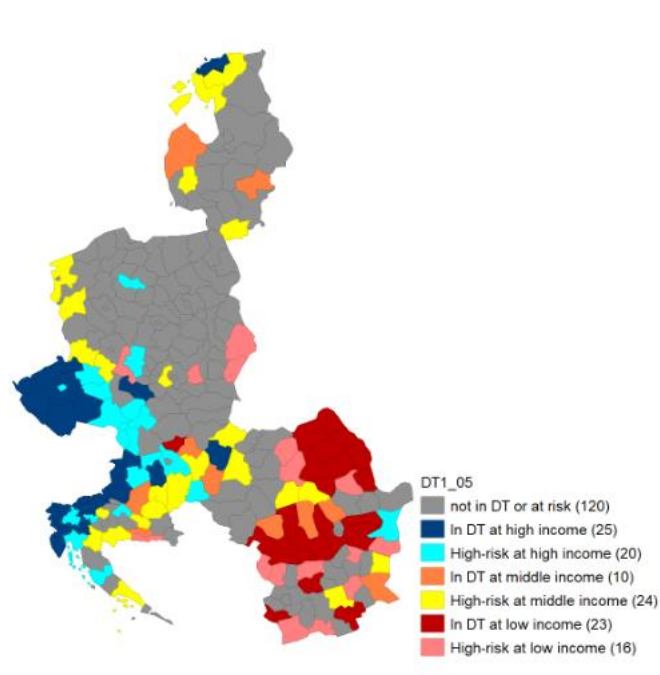


Figure 1. DT1 classification of regional development traps at the NUTS3 level.

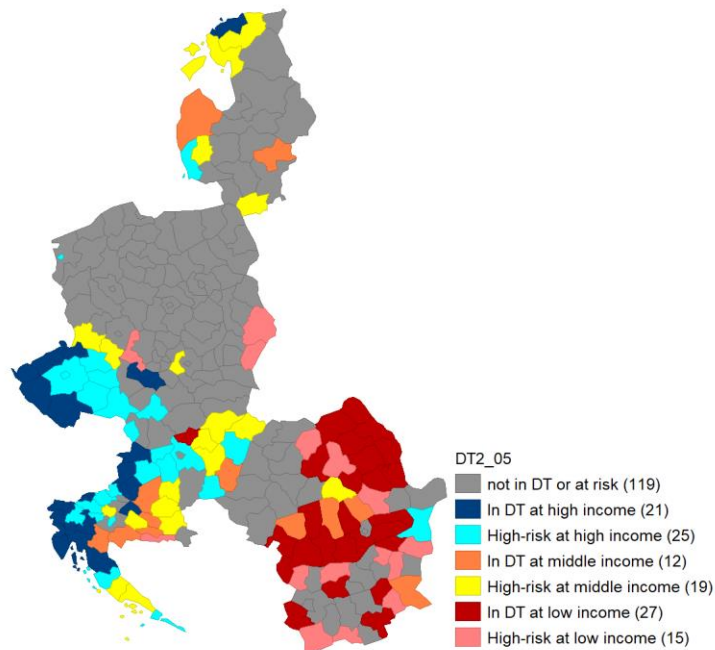


Figure 2. DT2 classification of regional development traps at the NUTS3 level.

A first notable finding is the strong concentration of low-income development traps in the eastern and southeastern parts of the macro-region. In the DT1 specification, 23 NUTS3 regions are classified as being in a low-income development trap and an additional 16 regions are considered high-risk low-income regions. Under the DT2 specification, these numbers increase to 27 and 15 respectively. These territories form relatively compact clusters, particularly in Romania and Bulgaria, highlighting the persistence of geographically concentrated disadvantage. The spatial continuity of these low-income trap regions indicates that structural stagnation is not randomly distributed but reflects deeper historical, institutional, and economic legacies.

In contrast, high-income development trap regions are predominantly located in the western part of Central and Eastern Europe. Regions in Slovenia, Croatia, western Hungary, and parts of Czechia are frequently classified as either being in a development trap despite relatively high income levels or being at high risk of doing so. DT1 identifies 25 high-income trap regions and 20 high-risk high-income regions, while DT2 identifies 21 and 25 such regions respectively. These territories represent cases where relatively favourable income levels are not accompanied by sufficient productivity growth or structural upgrading, confirming that development traps are not exclusively a phenomenon of poorer regions.

The maps also highlight the importance of middle-income traps. While fewer regions fall directly into this category, a substantial number are classified as high-risk. DT1 identifies 10 middle-income trap regions and 24 high-risk middle-income regions, whereas DT2 identifies 12 trap regions and 19 high-risk regions. These territories are primarily situated in transitional zones between metropolitan growth poles and more peripheral areas. Their

spatial position suggests that they may be particularly vulnerable to stagnation arising from limited innovation capacity, weak diversification, and dependence on externally controlled manufacturing activities.

A second important result concerns the role of metropolitan and growth-centre regions. Most capital city regions and their immediate hinterlands are not classified as either trapped or at risk. This finding supports arguments in the literature that agglomeration economies, knowledge-intensive services, innovation capacity, and stronger institutional environments provide greater resilience against long-term stagnation. At the same time, the presence of several trap and high-risk regions in the vicinity of strong metropolitan areas indicates that proximity alone does not guarantee successful development trajectories.

The comparison of DT1 and DT2 demonstrates a high degree of stability in the geographical pattern of identified development traps. The number of regions classified as neither trapped nor at risk remains virtually unchanged (120 regions in DT1 and 119 in DT2), while the overall spatial distribution of low-, middle-, and high-income trap categories changes only marginally. This consistency suggests that the observed territorial patterns are not driven by methodological artefacts but reflect underlying structural characteristics of regional economies.

Overall, the results reveal a pronounced west-east and core-periphery divide within Central and Eastern Europe. Development traps are concentrated in regions characterized by weaker innovation systems, lower economic diversification, demographic challenges, and greater dependence on external growth drivers. Simultaneously, the existence of high-income development traps demonstrates that regional stagnation cannot be understood solely through income levels. Rather, development traps emerge from a combination of insufficient structural transformation, weak endogenous growth capacities, and path-dependent economic specialization.

These findings support the argument that regional development traps in Central and Eastern Europe are territorially heterogeneous phenomena that require differentiated policy responses. The coexistence of low-income, middle-income, and high-income trap regions indicates that a uniform cohesion policy framework is unlikely to address the diverse mechanisms underlying regional stagnation. Instead, place-based interventions tailored to the specific structural characteristics of each trap type appear necessary to foster sustainable regional development and long-term convergence.

Furthermore, our empirical findings reveal that the CEE development trap has distinct structural roots. First, historical legacies of post-socialist transformation continue to shape regional trajectories (*Gorzela* 2021). The rapid liberalization and privatization

processes of the 1990s, combined with the collapse of socialist industrial networks, produced uneven restructuring outcomes. Regions able to attract foreign capital and integrate into export-oriented manufacturing networks experienced rapid growth, while others faced industrial decline without sufficient endogenous renewal.

Second, uneven sectoral restructuring has reinforced spatial polarization. Many CEE regions exhibit strong specialization in assembly-type manufacturing activities embedded in global value chains but limited local value capture. This form of dependent integration constrains technological upgrading and innovation diffusion. In contrast, metropolitan cores have diversified toward knowledge-intensive services, ICT sectors, and higher education functions, consolidating their growth advantages.

Third, the strong reliance on foreign direct investment has generated asymmetric development structures. While FDI inflows have supported modernization and employment in certain regions, they have also entrenched dual economic structures. Local small and medium-sized enterprises often remain weakly integrated into international networks, limiting spillover effects. This structural dualism contributes to regional lock-in mechanisms characteristic of development traps.

At the NUTS3 level, these processes produce distinct trap typologies. We observe: (1) old industrial traps characterized by deindustrialization, demographic decline, and weak diversification; (2) dependent manufacturing traps marked by export-oriented but low value-added specialization; (3) rural peripherality traps associated with limited accessibility, aging populations, and narrow economic bases; and (4) stagnating secondary urban regions struggling to compete with dominant metropolitan cores.

Across these types, common features include labour market polarization, limited human capital accumulation, fragile innovation ecosystems, and restricted social mobility. In several cases, internal income inequalities deepen alongside stagnation, reinforcing cumulative disadvantage. Consequently, despite overall national and relative convergence toward core Europe, numerous NUTS3 regions continue to experience modest productivity growth, weak employment expansion, fragile economic diversification, and vulnerability to external shocks.

The geopolitical and structural transformations of the 2020s—including digital transition pressures, energy vulnerability, and the economic consequences of the Russian-Ukrainian conflict—further expose these regional fragilities. Regions heavily dependent on energy-intensive manufacturing or external demand are particularly vulnerable, intensifying the risk of persistent stagnation.

By refining the development trap concept at a finer territorial scale, this analysis contributes to a more differentiated understanding of structural stagnation in middle-income European economies. It demonstrates that development traps in CEE are not uniform but territorially specific, shaped by the interaction of historical legacies, sectoral structures, integration patterns, and institutional capacities.

The findings underscore the limits of one-size-fits-all cohesion policies and highlight the need for spatially sensitive, place-based interventions. Breaking self-reinforcing cycles of

regional divergence requires policies that foster economic diversification, strengthen local innovation systems, enhance human capital formation, and improve institutional learning capacities. Only by addressing the territorially embedded mechanisms of stagnation can CEE regions move beyond partial convergence and achieve sustainable, inclusive development trajectories.

In this sense, the portrait of regional development traps in Central and Eastern Europe is not merely descriptive. It calls for a rethinking of how convergence is conceptualized, measured, and governed within the European integration framework, placing territorial heterogeneity and structural transformation at the center of regional development analysis.

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