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EDITORIAL: 20 years in the European Union – catching up, territorial policy and inequalities

Dear Reader,

Welcome to the thematic issue of the international journal DETUROPE. Our publication provides a selection of papers in connection with the 22nd Annual Meeting of the Hungarian Regional Science Association (HRSA). Our thematic issue gives a brief overview of the regional, urban and border studies focusing on Central and Eastern Europe.

The annual conference of the HRSA was held in Szeged on 17 and 18 October 2024, with 200 participants. The title of the event was: 20 years in the European Union: Catching up, territorial policy and inequalities. The annual meeting celebrated the accession of the first group of Central and Eastern European countries to the EU in 2004. The Faculty of Economics and Business Administration at the University of Szeged served as a co-organiser of the event. The conference included three plenary sessions, one roundtable session, and 24 parallel sessions. One plenary and three parallel sessions were English-speaking ones. The main topics were the EU accession and the major changes that have taken place since then.

Three foreign speaking plenary speakers delivered lectures in English on Thursday morning. Simona Iammarino (University of Cagliari, Department of Economics and Business) presented her research results on a novel topic: critical raw materials and the EU's strategic autonomy. The latter are raw materials the scarcity or overproduction of which can trigger global geopolitical instability. The presentation introduced this emerging field of regional science, overlapping with technological studies, digitalization, geology, mineralogy, geopolitics as well as fieldwork experience. The speaker stressed the importance of exploring potential resource traps, the criticality of resources, the breaking or acquisition of increasingly technology-based monopoly power for the EU in order to tackle technological transitions better. Deep geographical inequalities prevail in the case of raw materials, requiring a closer alignment of macro policies with global objectives (and their location-specific implications), smart specialisation and national cohesion policies, as well as open, inclusive and equitable international relations in the future.

The second speaker, Jiri Blazek (Charles University in Prague, Department of Social Geography and Regional Development) provided novel insights into regional innovation systems, forms of regional governance, and the development of regional industries. Regional innovation systems were presented as the main objectives and driving forces of regional development, whose strengthening through trust, social bonds, and cooperation can enhance

connectivity and innovation in development tools. The third speaker of the session was Valentina Ivanić (Economics Institute, Belgrade & ERSA Serbia), who discussed smart specialisation as a specific approach to regional development, in the case of Serbia and the Balkans. The lecturer emphasised the need to revive all partnerships centered on scientific and technological cooperation between Serbia and Hungary, with a particular focus on regional and territorial development.

The second plenary session was organised around a tribute to Professor Imre Lengyel (former vice president of HRSA), who celebrated his 70th birthday on November 11, 2024. The ceremonial session began with greetings from friends and colleagues, Gábor Szabó, former rector of the University of Szeged, Benedek Nagy, Dean of the Faculty of Engineering and Technology at the University of Szeged, Ilona Pálné Kovács, president of the HRSA, and Zoltán Gál, president of the HAS RTB. Zsófia Vas offered an overview of Imre Lengyel's life path, illustrating the major milestones with photographic documents. In recognition of the professor's scientific achievements and publication performance, Balázs Lengyel presented the „LI70 hypothesis." This was followed by the presentation of the book titled „Imre Lengyel 70 – A Life in the Service of Science" published in honour of the professor. A lecture by György Vida (SZTE GTK), recipient of the 2023 Outstanding Young Regionalist Award concluded the session, dedicated to the main features of regional development traps and income inequalities in the case of Hungary.

The rest of the evening was devoted to the award ceremony. The highest honour, the Regional Science Award, was granted for the seventh time based on the decision of the general assembly and following the recommendation of the presidency. This year's recipient was Viktória Szirmai (research professor at the Institute of Sociology, HUN-REN TK, editor-in-chief of City.hu Várostudományi Szemle) holder of the Széchenyi Award, for her outstanding contribution to regional science. The award was presented by President Ilona Pálné Kovács, who expressed her joy over granting the prestigious HRSA award to a woman, Viktória Szirmai, embodying the much needed „feminine" people-centered approach and scholarly personality that is required for the openness of regional science to related disciplines and a better understanding of regional disparities within Hungary. This was followed by the granting of two honorary certificates to Balázs Forman (associate professor at Neumann János University) and József Kárpáti (Dean of the NJE Faculty of Economics), co-presidents of the Local Organising Committee (LOC) of the 2024 RSAI World Congress in Kecskemét for their outstanding professional and community activities. The Outstanding Young Regionalist Award was granted to László Czaller, assistant professor at the Department of Economic

Geography and Urban Development at BCE and research fellow at HUN-REN KRTK KTI, in recognition of his valuable contributions to the field of regional science. The session concluded with the allocation of the HAS RTB „Regional Science Publication of the Year" awards.

The programme of the new HRSA presidency, elected at the end of 2023 for a four-year term, included strengthening cooperation with policy-makers. The first public event in this programme was a roundtable discussion on Friday morning with staff from the Ministry of Public Administration and Regional Development on the renewal of Hungary's National Development and Regional Development Concept, entitled „The Role and Opportunities of Functional Urban Areas in Settlement Network Development". The panel session featured two introductory presentations. First, Zsolt Czene presented the planning process of the National Development and Spatial Development Concept, highlighting its implications for urban areas. This method basically refines the FUA delimitation of the Hungarian Central Statistical Office (KSH) using classic EU spatial typologies (DEGURBA) and methodology (Eurostat Urban Audit) and taking into account the spatial structural specificities in Hungary. Kristóf Orbán presented an alternative approach drawing on existing land use data to delineate urban catchment areas and proposed their integrated management at the regional level. The latter is a bottom-up solution that produces contiguous space, while the former focuses on delimiting larger units (FUAs) to the detriment of smaller units identified on a residual basis, and the combined application of other units of spatial development can lead to significant overlaps. After the presentations, the panel took the form of a workshop discussion allowing guest speakers to present their comments, followed by a lively exchange of ideas reflecting on questions from the audience.

The panel debate was followed by three plenary presentations. Zsolt Szokolai (European Commission, Directorate-General for Regional and Urban Policy) discussed the results and challenges of cohesion policy at both European and Hungarian level. The results were supported by the presentation of key figures and successful projects, while development concepts were illustrated with the Draghi report and development strategies sensitive to local needs and potential. Representing Gábor Mayer, State Secretary for Regional Development, Zsuzsanna Farkas (Head of Department, Ministry of Public Administration and Regional Development), presented the ministry's official position, focusing on the contemporary challenges and perspectives of domestic regional development. The third speaker, Judit Timár (CERS IRS), offered a 20-year overview of social and spatial inequalities drawing on the results of various international and domestic projects.

The participants of the 22nd Annual Meeting gave altogether 155 presentations in 18 thematic sessions over the two days. Three sections were held in English. Six sections ran in multiple time slots. The sections covered the following topics: Innovation ecosystems – Building regional innovation hubs; Anchoring productive capital beyond the core – Small towns and peripheral industrialization in Europe; Challenges in GVC-dependent FDI development path in Central & Eastern Europe: Assessing regional development within global production networks; Smart and sustainable cities; Regional transport challenges and best solutions; State borders, integration and territorial policies – The consequences of European Union enlargement; Territorial inequalities from a historical perspective; Territorial and urban development in the European Union; Different aspects of territorial inequalities; Local governments and the European Union; Pandemic, crisis, inequality – The spatiality of post-COVID phenomena; Rural spatial processes, (dis)engaged villages; Networks and cooperation in social inclusion; Landscape character; Green infrastructure; Regional sustainability; Suburbanization and urban sprawl in recent decades – Social, economic and environmental impacts; Resilience and vulnerability – Socio-economic impacts of crises.

As in previous years, HRSA sought to provide journal publication opportunities for the conference participants. In 2024, ten journals offered place in their 2025 issues. The oldest collaboration in this regard is between HRSA and DETUROPE. After the usual double-blind proofreading process, eight original manuscripts have made it to publication in the framework of the present issue. We would like to thank all the authors who submitted high-quality manuscripts and the reviewers, who completed their tasks on time. The Hungarian Regional Science Association represented by the editors hereby express their gratitude to the Editorial Board of the journal DETUROPE and especially its Editor-in-chief, Dr. Kamil Pícha.

We hope that you will find inspiring ideas, research results or practical achievements in this collection. We wish you a good reading,

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Editors of the thematic issue

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Original scientific paper

CENTRAL AND EASTERN EUROPE: 20 YEARS IN THE EUROPEAN UNION

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Abstract

The first part of the article outlines the unique development path of Central and Eastern European countries after their market economic transition, and the changing geo-economic framework conditions referred to as "externally-driven capitalism" or "dependent market economy". Central European countries form a part of the so-called Central European Manufacturing Core and are strongly integrated in regional production networks. However, the region's reliance on FDI and lack of indigenous innovation capacities have increased its exposure to the vicissitudes of the world economy. The lack of development convergence is compounded by the unequal distribution of economic benefits: the failure of regional policy to promote the settlement of new industries and sectors is explained by the fact that most regions in the countries under study belong to the most disadvantaged and lagging regions of the EU.
The second part provides a brief summary of the articles included in the thematic issue. The studies review a wide range of approaches to addressing the socio-economic challenges, spatial problems and processes of the region.
The discussion chapter presents CEE regions in the context of polycrises. This is followed by a review of the specific problems of CEE peripheral regions that are lacking scale and visibility on the European level, caught up in the unfinished process of convergence promoted by pro-growth Cohesion Policy. Finally, the paper concludes by outlining possible future research directions.

Keywords: regions, cities, borders, disparities, development, integration

INTRODUCTION: CENTRAL AND EASTERN EUROPE

Central and Eastern Europe (CEE) is perhaps the most complicated formation of the European continent, based on geographical factors with historical and cultural attitudes. In a geopolitical and generally political sense the macro-region has always been historically fragmented and this feature persists even to this day. As Milan Kundera (1984, p. 6) puts it, the borders of Central Europe are imaginary and must be drawn and redrawn with each new historical situation. The history of the CEE countries over the past century has shown that border changes have mostly been driven by political and nation-state roles, while the human and economic relations of border regions are considered permanent (Scott & Wilson, 2025). The unfinished process of

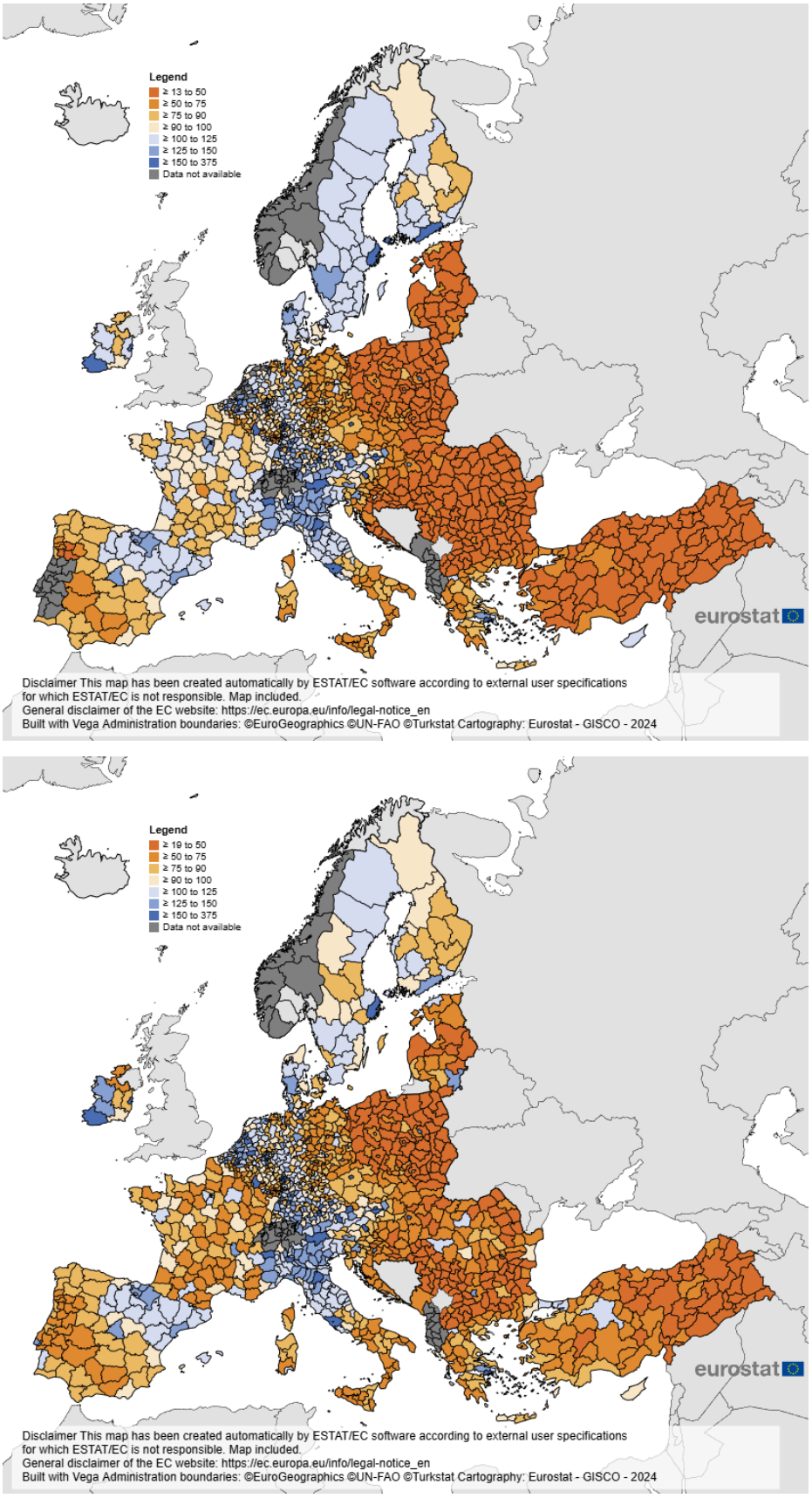
nation-building in the CEE space, has been a source of multiple tensions, often conflicting with the overarching goals of EU integration (Scott, 2021). The cultural capital of these areas is truly remarkable not only due to the plethora of co-existing nationalities and traditions but also the assimilating yet traditional inhabitants (Filep, 2018). For the entire region, the European Union (EU) has come to represent the dominant factor, the operator and financing agent of external and partially of internal integration. The regional initiatives and the different funding programmes directly convey the expectations and reactions of outsiders (European Commission, 2024; Finta, 2024). The EU's impact is not limited to material incentives, but comprises various ideational and institutional elements (Medve-Bálint & Scepanovic, 2020). The proper absorption of EU funds has been undermined in many places by inadequate government and institutional structures. A key priority for governance is therefore to identify and strengthen areas that reduce dependency on external support. Two studies in this special issue (Mayer & Mezei, 2025 and Péti, 2025) draw attention to spatial planning differences in such regional inequalities. Another major advantage, but also a factor causing dependency, is the presence of borders within the EU. Despite the numerous benefits of being a part of the Schengen area (for a more detailed account of factors promoting regional integration see Szilágyi et al., 2025), borders still represent a kind of administrative or mental barrier (European Commission, 2018). Svensson (2015) and Svensson and Balogh (2018) document that even processes of cross-border cooperation directly supported by the EU have in many instances fallen victim to persistent state adminstrative and legal barriers. Chilla and Evrard (2021) have also indicated that simultaneous processes of integration and disintegration are creating more complex policy environments for promoting socio-economic and territorial equality. The EU's attempts to mitigate the negative impacts of political, economic and social borders are in fact confronted with the continuous (re)emergence of these very same borders in contexts of crisis and political uncertainty, as the Covid pandemic has aptly demonstrated (Novotný, 2021).

The economic transition of CEE, and Central Europe in particular, was fuelled by neoliberal ideologies and political agendas of 'East-West convergence' that involved marketization, privatization and foreign direct investment (Appel & Orenstein, 2016; Smith, 2002; Krastev, 2016; Vida et al., 2025). All of these created a moral, legal and structural environment that conditioned EU integration trajectories as well as insertion of these countries into the global economic division of labour. As a consequence, the most advanced post-socialist countries – those of Central Europe – have become highly exposed to the global economy and have emerged as major manufacturing centres within Europe, joining the so-called Central European

Manufacturing Core (Stehrer & Stöllinger, 2015). This strong cross-border regional production network is led by Germany and constituted by highly advanced and high-income Swedish, Austrian regions as well as low-to-middle income regions in the Czech Republic, Hungary, Slovenia and Slovakia. Central and Eastern Europe is generally perceived by investors as a single entity although the capacity of individual countries to attract FDI is far from homogenous, not least due to differences in their institutional quality (Dorożyński et al., 2020). Nölke and Vliegenthart (2009) characterise CEE economies as "dependent market economies" that rely on external FDI and have comparative advantages in the assembly and production of relatively complex and durable consumer goods. This distinct variety of capitalism distances them from traditional core of the world economy. Capello and Dellisanti's (2024) latest research highlights that this historical divide remains unchanged, with CEE countries still being considered a host nearshoring region, characterized by an absence of headquarter regions and dominated by factory and primary resource regions. Rigid functional specialisation patterns in the EU have led to CEE semi-peripheral economies' (Artner, 2016) strengthening specialization in low value-added production as their main competitive advantage and persistent under-specialization in the most lucrative parts of the value chain (R&D, design, strategic decision-making).

Although economic productivity has increased in recent decades (Gál & Lux, 2022), it is still lagging far behind the EU average (Fig. 1) and R&D expenditures as a percentage of GDP in the region – as an indicator of innovation capacity – have been historically low. Their lower capacity of R&D generation indicates that in terms of pushing the knowledge frontier, CEE countries are still catching up due to a lack of indigenous innovation capacities and reliance on external technologies, experiencing constraints to advancing in innovation due to the so-called "Visegrad paradox". According to a study by Żółtaszek and Olejnik (2021) measuring the regional effectiveness of innovation, the worst performing regions in terms of innovation efficiency are found in Central Europe and the Baltic States. One feasible option for the region would be to develop innovation ecosystems, encourage innovative thinking, and strengthen multi-level governance, which would provide opportunities for maintaining cooperation that reduces external dependencies.

Figure 1 Gross domestic product in purchasing power standard (EU27 from 2020), per inhabitant in percentage of the EU27 average by NUTS 3 region, 2004 (above), 2023 (below)



Source: Eurostat nama_10r_2gdp table

An examination of regional GDP values confirms Győrffy's (2022) findings that CEE countries are locked in a kind of development trap. Countries have responded differently to this development trap: some have been more successful in catching up, while others have shown a more mediocre performance. As van Houtum & Strüver (2002) provocatively argued, the EU represents a form of 'economic bordering' in which the fluidity of internal economic flows contrasts with the consolidation of national and regional assets in the form of territorial interests and the restrictiveness of the EU's external borders.

The EU's current geopolitical (and geoeconomic) approach also remains very closely linked to its "transnational production sites", which reproduce pre-existing core and periphery divisions and unequal power relations that reinforce long-standing economic borders within the European Union (Dalby & O'Tuathail, 1998). Our perspective on economic bordering within the EU involves the investigation of links between post-socialist transformation, problems of capital accumulation and conditions of economic and political integration. In order to do this, we apply a geoeconomics perspective assessing the role of Foreign Direct Investment (FDI) in the transformation of CEE. The negative consequences of economic transformation are the main reasons for the discontent and the growing support of anti-EU and populist parties in CEE (Rodríguez-Pose, 2018).

Hungary and Poland constitute a case in point with their economic policy underpinned by elements of economic nationalism and conservative ideology and protectionist industrial policies (Feldmann & Popa, 2022; Gagyi & Gerőcs, 2025). Dependency on western FDI has been compounded by a high degree of energy dependency of CEE countries on Russian resources (Pawłuszko, 2018), further exacerbating their external vulnerability.

ARTICLES OF THE THEMATIC ISSUE

The first original scientific paper of the thematic issue examines the structural drivers of regional productivity change across the NUTS-3 regions in six CEE countries (Czechia, Poland, Hungary, Slovakia, Slovenia, and Romania) from 2000 to the Covid-19 crisis. The paper by György Vida, Marianna Sávai and Gábor Bodnár underscores the existence of significant spatial disparities and temporal shifts in regional productivity dynamics. It shows that over the past three decades, CEE has undergone a profound metamorphosis, transitioning to market-oriented systems embedded within the institutional and regulatory framework of the EU. These processes have been characterized by robust, albeit uneven economic growth, extensive industrial restructuring, and significant sectoral realignments. These transformations, however,

have triggered new spatial asymmetries and worsened territorial inequalities. The study demonstrates that structural change did not occur uniformly across the region. During the pre-crisis period (2000-2007), rapid productivity growth across the area, especially in Romania, was largely driven by sectoral and labour reallocation. The post-crisis period (2012-2019), in turn, saw more spatially fragmented patterns, with competition-based productivity gains overwhelmingly concentrated in urban centres, capital regions and industrial hubs, or dynamic second-tier cities, particularly those linked to global automotive value chains. The findings underscore the importance of sectoral specialization and the differentiated impact of labour productivity. The study concludes that while structural convergence is evident in some lagging regions, spatial inequalities persist. The post-Covid geopolitical and economic realignments have further reinforced these concerns (Vida et al., 2025).

The second article by Gábor Mayer and Katalin Mezei presents old and new challenges in regional development through a comparative analysis of European regional development policy approaches to identifying beneficiary regions. EU cohesion policy aims to reduce territorial disparities and promote harmonious development between member states and regions. Its instruments and interventions contribute significantly to economic growth in the EU and its member states. Most European countries apply development policy recipes to help disadvantaged regions catch up and seek effective solutions for territorial cohesion. These endeavours have been strongly encouraged by the European Commission in the successive programming periods. EU countries have experimented with various approaches to obtain a more accurate mapping of disadvantaged areas. Based on international experiences, more and more countries are calling for a more accurate mapping and delimitation of territorial disadvantages and functional spatial processes, beyond the use of traditional administrative units, incorporating soft spaces in spatial planning practice. The paper presents three distinct methodologies for identifying regions that are lagging behind and constitute key target areas for territorial cohesion policy. The approaches of the three European countries (Italy, UK, Hungary) show notable differences but also provide useful experiences that can be transferred across countries. An important commonality of the models used in the three European countries is the criticism they attracted regarding both the applied methodology and their effects in terms of regional convergence. A more in-depth analysis of the various practices and an exchange of country-level experiences can contribute to taking EU Cohesion Policy to the next level (Mayer & Mezei, 2025).

The paper of Márton Péti presents the co-existing spatial concepts around the Carpathian or Pannonian Basin. In certain aspects of spatial organization, the Carpathian Basin constitutes a unity, which can be demonstrated in terms of topography, hydrography, and biogeography. This natural cohesion is universally acknowledged even by representatives of differing ethnic and national backgrounds, nevertheless, it appears that social, economic, and urban spatial processes spectacularly cross national borders in the region. However, in historical, cultural, political, social, and economic dimensions, this unquestionable unity no longer holds, and ethnic considerations come to the fore. (It is worth noting that the Carpathian Basin forms a unity only in the representation of Hungarians in the region.) Multilateral cooperation initiatives originating from CEE (e.g. Carpathian Convention, Carpathian Euroregion, EU Strategy for the Carpathian Region, EU Strategy for the Danube Region, Visegrad Group, Three Seas Initiative) do not seek to interpret the Carpathian Basin, instead, they deal with issues and areas that are related to the Carpathians and the Carpathian Region. The term "Carpathians" does not necessarily cover the lowland areas of the Carpathian Basin, only its mountainous parts. At the same time, within the settlement areas of neighbouring peoples that extend to and beyond the Carpathian Basin (Austrians, Ukrainians, Romanians, Serbs, Slovenians), there is evidence of a distinctive regional identity – one specifically linked to spaces of the Carpathian Basin. Although this identity is based on the individual historical development paths of regions outside the Carpathian Basin (not belonging to the Kingdom of Hungary), in all likelihood, it was not shaped by a conscious awareness of historical heritage, but rather by general regional characteristics that are not closely or directly related to the Carpathian Basin or the heritage of the Kingdom of Hungary. These phenomena are common macro-regional features that are not shaped by national and ethnic borders, and they reflect contemporary Central and Eastern European and general regional dynamics rather than a direct connection to the Carpathian Basin (Péti, 2025).

The second group of papers examines spatial problems and processes from the perspective of border studies. According to the 9th Cohesion Report, EU border regions account for more than 40% of the EU's landmass, 30% of its GDP and 30% of its population. Almost 2 million people live in one country in the Schengen area and work in another, and some 3.5 million people cross one of the internal borders of the EU every day. Border studies is an "evolutionary" field of research. Borders, which can be interpreted in many ways, play a decisive role in the development of territorial structures and policies. Borders exert their essential influence as elements of the relationships between various active and passive actors. Border studies are currently experiencing a boom worldwide. The issue of borders as a political concern and

development opportunity remains a constant in the ever-changing European Union, both in terms of internal and external borders and border regions. From CCE's perspective, border issues are a traditionally researched topic that exists in many spatial dimensions. Although border regions have a high potential and contribute to cooperation (borders as resources) that benefits all, they often represent barriers to harmonious development, symbolizing a less unified Europe. Cross-border cooperation has become an integral part of EU Cohesion Policy, serving as a vital tool for developing border regions and fostering European territorial cohesion. While the recent years have seen a significant progress in cross-border interactions, border obstacles persist. The study by Zsuzsanna Fejes addresses two research questions. Firstly, it focuses on the increasing awareness of and recognition for cross-border cooperation within EU Cohesion Policy, particularly with regard to the future of Interreg. Secondly, it examines how legal and institutional barriers that hinder the everyday lives of people living in border regions can be eliminated, alongside EU efforts, such as Interreg (funding) and the European Grouping of Territorial Cooperation (legal-institutional instrument). In addition, the study analyzes the recently adopted BRIDGEforEU Regulation, which could provide a new governance mechanism for eliminating border obstacles. It summarizes the Regulation's potential benefits and relevance for cross-border cooperation within the EU. European Territorial Cooperation (Interreg) has emerged as the most effective tool for safeguarding the key values and achievements of European integration; however, its full potential has not been fully unlocked. Despite the EU's efforts to create financial programs and a legal-institutional framework, as well as tools for removing legal obstacles, administrative barriers continue to undermine the effectiveness of cross-border cooperation. Although cross-border regions can significantly promote EU territorial cohesion, their residents often encounter administrative obstacles when commuting, working or accessing public services across the border. BRIDGEforEU embodies a new generation of European cross-border governance, shifting away from project-based cooperation towards structural, legal facilitation. Its success, however, is determined by the willingness and capacity of Member States. Uncontestedly, the history of the European project has been defined by cohesion and solidarity. Its future is greatly shaped by EU border policy: how can funding (Interreg), institutionalised cooperation (EGTC) and the elimination of border obstacles (BRIDGEforEU) be ensured in parallel? (Fejes, 2025).

The following study by Ferenc Szilágyi, Szilárd Rácz and Réka Horeczki examines two specific border regions. It analyzes the potential effects of the 2023 and 2025 enlargement of the Schengen Area on the Croatian-Hungarian and Hungarian-Romanian borders. The Schengen Agreement is uncontestedly among the most significant achievements of the

European Union, having guaranteed – for over fourty years – the free movement of persons, labour, goods, and businesses within the Schengen Zone for the member states of the European Union. For 29 European countries, this implies the removal of internal borders, 25 of which are EU member states, and a further four members of the European Free Trade Association. The study discusses the challenges of opening Schengen borders and the associated new opportunities on both sides of the border along five main dimensions (nature of border sections, spatial structure and gravitational relationships, ethnocultural dimension – minorities and role of institutional background, infrastructural dimension, border crossings and transport connections). The Schengen enlargement could catalyze social and economic processes promoting integration, with positive effects for Hungary. The novelty of the research is that it presents various dimensions of cross-border integration by comparing two Schengen accessions relatively close in time, while also offering a frame of reference serving as a guideline for studies of other European border regions (Szilágyi et al., 2025).

The journal's name and thematic focus are oriented toward tourism research. The tourism sector is evolving to be more inclusive and accessible, focusing on meeting the needs of individuals with disabilities. This reflects a broader cultural shift that recognizes the economic and social impact of this demographic group, alongside their right to dignified travel experiences. By adopting accessible tourism practices, the industry highlights its commitment to a market segment with significant economic potential while promoting sustainable and responsible tourism. Accessible tourism has historically been an under-researched area within tourism studies. However, over the past decade, a growing recognition of its importance and the diverse range of stakeholders involved has led to a significant shift in attitudes. The paper by Tibor Gonda, László Csóka and János Csapó seeks to offer a better understanding of the current state and development potential of accessible tourism. The research indicates that prejudice continues to be a substantial obstacle for those with disabilities, affecting both physical accessibility and societal attitudes as well as service delivery. Accessible tourism is not just a legal or ethical concern but also an economic and social need. Notwithstanding advancements, considerable obstacles – both tangible and perceptual – persist for those with impairments. This study argues for a comprehensive strategy for accessible tourism (Gonda et al., 2025).

The last original paper in the current issue presents a case study of measuring sustainable social innovation at meso level, prepared by Tamás Sikos T. and Dóra Szendi. In the study, the authors attempt to assess the economic and environmental sustainability of the cities in Borsod-Abaúj-Zemplén County in Northern-Hungary (one of the most disadvantaged NUTS 3 regions

in the EU based on almost all the economic indicators) using the UN's SDG methodology and indicator set focusing on three main dimensions. The methodology developed for the analysis is suitable for measuring both sustainable development goals and social innovation through the analysis of goals 8, 9, and 11 (Decent Work and Economic Growth; Industry, Innovation, and Infrastructure; Sustainable Cities and Communities). The biggest limitation of the applied methodology is that there is significantly less data available at the meso level compared to, for example, the analysis of cities with county rights. It limits the generalizability of the results and the specificity of indicators for measuring social innovation potential. Furthermore, according to the model's methodology, cities with extreme values may have differential effects on the composite indicator in each region, potentially distorting certain elements and causing autocorrelation between the indicators. These factors should definitely be monitored when applying the model. As a result, in international comparisons, only the methodology can be smoothly transferred to practical analyses. From a spatial development perspective, however, the relevance of sustainable social innovation is unquestionable as it can significantly contribute to the catching up of settlements in peripheral situations (Sikos T. & Szendi, 2025).

The thematic issue is concluded with a book review by Katalin Lipták which is linked to the 150th anniversary of the unification of the Hungarian capital. The volume *Budapest: Past and Future*, edited by Tamás Sikos T. and Dóra Molnár, was published in 2024 by Ludovika University Press and the University of Miskolc. The collection of studies outlines a 150-year historical arc that takes the reader from the medieval functions of Pest-Buda through 19th-century metropolitan development to 21st-century Budapest facing global challenges. The thematic structure of the book is built around three main dimensions: historical urban development, contemporary urbanistic and social challenges, and future-oriented development proposals. The volume's main message is that Budapest is not merely a city but a spatial-social system shaped at the intersection of historical endowments, economic cycles, social mobility, and political decisions. This volume both warns and inspires: it reminds us that Budapest's development is not self-evident, yet also shows what resources and knowledge exist to guide the city strategically. It is an important work from scientific, educational, and urban policy perspectives (Lipták, 2025).

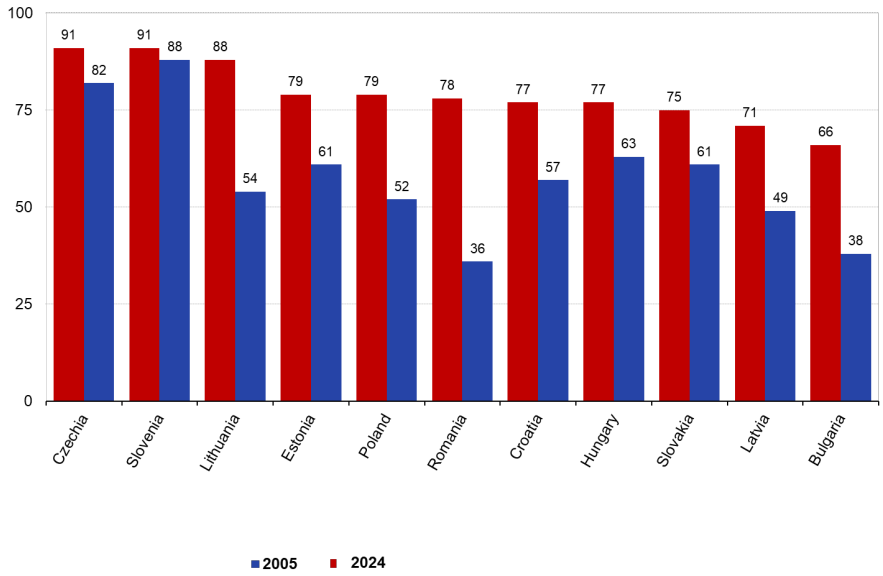
The studies review a wide range of approaches to addressing the socio-economic challenges of the region under review: at the macro-regional, national, and meso levels. In line with the scope of the journal, the thematic focus covered all major topics, from planning to border issues to tourism.

DISCUSSION: POLYCRISIS AND CEE-REGIONS

The challenges facing the macro-region, in particular for local, regional and national authorities, are substantial at a time of severe and multiple crises. Now more than ever, there is a need to have a common mindset and to set joint strategies. For years, Europe has struggled to meet the challenges of an ageing society, labour migration and depopulation. The demographic crisis is particularly threatening for the region, with the phenomenon of depopulation affecting not only rural areas but also cities. The region's performance needs to improve not only demographically and economically, but also in terms of governance. Against the backdrop of the prevailing geopolitical climate and numerous atypical economic shocks, including the global financial and economic crisis, the European sovereign debt crisis, Brexit and the COVD-19 pandemic, the EU's economy demonstrated a collective resilience, expanding by 24.3% in real terms between 2008 and 2023. It is important to note that economic activity across the EU showed an increase, albeit at a modest pace, during 2023 (Eurostat, 2025).

In 2004, the European Union experienced its largest expansion, nevertheless, a significant number of the new member states have been unable to catch up, and to this day are only able to generate GDP below or barely attaining the EU average. Poland constitutes an outlier with its trillion-dollar economy making it eligible to join the elite club at the G20 summit of 2026. Egyed and Rácz (2023) described this type of development succintly by arguing that the region under investigation has shifted its position from the east of the west to the west of the east. The convergence of Romania, Lithuania, and Bulgaria in terms of GDP per capita is spectacular; they are approaching the values of the Czech Republic at the time of EU-accession. The case of Hungary and Croatia shows an interesting duality, with values similar to the EU average over the past year, but with significantly lower starting values observed in the case of Croatia. The Baltic countries also show significant fragmentation; convergence is undeniable, although it has occurred at varying speeds and, taking into account the annual breakdown, with significant disruptions. The Czech Republic and Slovenia have managed to further increase their initially high values over the past twenty years, falling just a few percentage points short of the EU average (Fig. 2).

Figure 2 GDP per inhabitant at current market prices, 2005 and 2024
(EU27=100; based on PPS per inhabitant)



Source: own editing based on Eurostat, 2025 table: prc_ppp_ind

The applicaton of core-periphery categories in understanding economic development is not without its pitfalls; it involves a general characterization of hierarchical divisions of labour as well as measurements of relative levels of productivity, technological prowess and economic diversification, but can often represent a ‘blunt instrument’ that suggests static rather than dynamic relationships. Liberalization of goods and financial markets first led to deindustrialization and high unemployment in the Eastern European semi-peripheries and then to the emergence of a low-wage sector that was integrated into European supply chains in the second phase.

Accession to the European Union supported convergence, but despite all its advantages, while at national level there has been a levelling up, regional differences have increased over the years. CEE’s integration took an average of ten to fifteen years (Table 1), but it still not be considered complete. Although the entire region under review is part of the Schengen area, only seven countries have joined the eurozone (including Bulgaria, which will be ready to adopt the euro in 2026).

Table 1 The integration of CEE countries into the EU

State	Request for accession	Candidate status	Start of negotiations	Conclusion of negotiations	Accession to the EU	Implemen-tation of the euro	Entry into the Schengen area
Estonia	1995	1997	1998	2002	2004	2011	2007
Latvia	1995	1997	2000	2002	2004	2014	2007
Lithuania	1995	1997	2000	2002	2004	2015	2007
Poland	1994	1997	1998	2002	2004	-	2007
Czechia	1996	1997	1998	2002	2004	-	2007
Slovakia	1995	1997	2000	2002	2004	2009	2007
Hungary	1994	1997	1998	2002	2004	-	2007
Slovenia	1996	1997	1998	2002	2004	2007	2007
Romania	1995	1999	2000	2004	2007	-	2025
Bulgaria	1995	1997	2000	2004	2007	2026	2025
Croatia	2003	2004	2005	2011	2013	2023	2023

Source: own editing

CONCLUSIONS

The integration of Central and Eastern European countries into the European Union has brought opportunities for convergence, but it has also highlighted persistent inequalities. EU Cohesion Policy, which aims to reduce regional disparities, has promoted infrastructure development and cross-border cooperation. However, these initiatives have often prioritized growth, reinforcing urban-centered development patterns (Gál & Singh, 2024). Economic processes (relocation of industrial production, foreign direct investment-driven development) have further reinforced these trends. Peripheral regions, especially rural, mountainous, and border areas, have struggled to benefit from these processes due to their limited resources and institutional capacity.

The central objective of our future research is to understand how disruptive events since 2004 have impacted and continue to impact on Central Europe's identity and performance as a cooperation space within the European Union. Addressing these issues will serve to achieve further academic and policy-related objectives related to the future of Central European cooperation. On the one hand, we aim to gauge the resilience of CE cooperation throughout the different crisis situations. On the other hand, we intend to construct a robust evidence-based framework for the elaboration of potential scenarios of mutually beneficial common strategies. In terms of the conceptual development of the research on European cohesion, we aim to identify patterns of regional political cohesion, cooperation, unity, and fragmentation – "rebordering" in other words – that have characterized the positionality of the Visegrad Four states vis-à-vis the EU as well as with regard to their mutual relations.

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Original scientific paper

FROM TRANSITION TO TRANSFORMATION: DECOMPOSING REGIONAL PRODUCTIVITY GROWTH IN CENTRAL AND EASTERN EUROPE, 2000-2019

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Abstract

This study investigates the structural drivers of regional productivity change across 156 NUTS-3 regions in six Central and Eastern European countries – Czechia, Poland, Hungary, Slovakia, Slovenia, and Romania – between 2000 and 2019. Employing a refined shift-share decomposition-based simulation, the research disaggregates total productivity change into three components: the composition effect, the competition effect, and the reallocation effect. The analysis reveals significant spatial disparities and temporal shifts in regional productivity dynamics. During the pre-crisis period (2000-2007), rapid productivity growth across the area, especially in Romania, was largely driven by sectoral reallocation and labour reallocation. In contrast, the post-crisis period (2012-2019) witnessed more spatially fragmented patterns, with competition-based productivity gains increasingly concentrated in urban centres and industrial hubs – especially those integrated into global automotive value chains. The findings underscore the importance of sectoral specialization and the differentiated impact of labour productivity. The study concludes that while structural convergence is evident in some lagging regions, spatial inequality persists.

Keywords: Central and Eastern Europe, NUTS-3 regions, shift-share analysis, spatial competition effect

INTRODUCTION

Over the past three decades, Central and Eastern Europe (CEE) has undergone a profound metamorphosis, transitioning from centrally planned economies to market-oriented systems embedded within the institutional and regulatory framework of the European Union. These processes have been characterized by robust, albeit uneven economic growth (Smętkowski, 2015, Psycharis et al., 2020), extensive industrial restructuring (Nagy et al., 2021; Megyeri et al., 2023), and significant sectoral realignments (Szakálné Kanó et al., 2025).

However, alongside these transformations, the region has witnessed the entrenchment of new spatial asymmetries and the persistence of territorial inequalities. These changes were undoubtedly influenced by the phenomena highlighted by Dobrzanski et al. (2024), namely that periods of economic prosperity and growth in labor productivity over the past decades have been undermined by a series of unprecedented events, such as the global financial crisis, the

COVID-19 pandemic, and the war in Ukraine. These dynamics have reignited critical debates concerning the effectiveness of convergence mechanisms and the capacity of EU cohesion policies to foster inclusive and territorially balanced development trajectories (Zezza & Guarascio, 2024).

Currently, the strategic significance of the CEE region has been rearticulated. The ongoing Russia-Ukraine conflict has repositioned the region as both a geopolitical buffer and a vital node in safeguarding the EU's eastern frontier. Simultaneously, the reconfiguration of global value chains – catalysed by pandemic-induced supply disruptions, the resurgence of economic nationalism (Clausing & Obstfeld, 2024), and escalating transatlantic trade frictions – has foregrounded the CEE as potential pivot spaces in Europe's evolving industrial geography. These intersecting pressures underscore the imperative of a more nuanced and spatially sensitive understanding of how structural change, territorial resilience, and regional development trajectories intersect within the CEE context.

As a diverse and strategically important area, the Central and Eastern Europe area provides a unique context for studying the relationship between economic restructuring and spatial inequality. While capital cities and selected metropolitan regions have emerged as powerful growth poles (Parkinson et al., 2015; Smętkowski, 2018; Psycharis et al., 2020), many rural and peripheral areas remain vulnerable to economic shocks and sectoral stagnation (Nagy et al. 2024). This phenomenon raises critical questions about the spatial distribution of productivity gains and the effectiveness of cohesion-oriented development strategies (Butkus et al., 2020). The main research questions addressed in this paper are as follows:

- What patterns of regional productivity change can be identified at the NUTS-3 level across Central and Eastern Europe between 2000 and 2019?
- How do the key components of structural change – namely the composition effect, competition effect, and reallocation effect – contribute to the observed differences in regional productivity dynamics within and between countries?

Taking this into account, the main aim of this paper is to analyse the dynamics of productivity growth at the NUTS-3 level in six Central and Eastern European countries (Czechia, Poland, Hungary, Slovakia, Slovenia, Romania) between 2000 and 2019, using a refined shift–share framework. By applying this method, we are able to explain regional productivity change (how the composition effect, competition effect, and reallocation effect contribute to regional disparities).

Our contribution to the literature is threefold. First, we provide a long-term comparative perspective on regional productivity dynamics across multiple CEE countries at a granular

(NUTS-3) level, which remains underexplored in the literature. Second, we adapt the shift–share methodology by comparing regions to the average of the selected countries rather than to the EU average, thereby offering a more meaningful benchmark for semi-peripheral economies. Third, we highlight how regional productivity trajectories reflect broader patterns of development traps and structural transformation, with implications for EU cohesion policy. In doing so, the paper aims not only to identify the drivers of uneven productivity growth but also to provide a framework that can support alternative interpretations and policy conclusions.

The article is structured as follows. We first provide a theoretical overview of structural change and its role in regional development, with special attention to the legacy of post-socialist transition and the region's current geopolitical context. Subsequently, we present the main characteristics of the selected Central and Eastern European countries and justify our focus on the NUTS-3 level as a more granular spatial scale. We then outline the methodological framework, applying a refined shift-share decomposition to capture the structural components of productivity change. Finally, we present and interpret the spatial patterns revealed by the empirical results and discuss their relevance for regional policy and future research.

THEORETICAL BACKGROUND

Economic development is accompanied by a gradual reallocation of employment and resources across sectors with differing productivity levels, thereby inducing structural change (Andergassen et al., 2018). In post-socialist Central and Eastern Europe, this process has been deeply intertwined with EU accession, market reintegration, and exposure to global production systems supported by FDI (Bilenko, 2022; Gál & Lux, 2022). While aggregate productivity levels have been increasing over the past two decades, the underlying transformation has been highly uneven in both sectoral and spatial terms (Gál & Singh, 2024). To better understand the territorial unevenness of these transformations – and in light of increasing policy emphasis on reindustrialization (EC 2012) as a strategic tool for regional development– recent theoretical frameworks have sought to capture how structural change unfolds across space through distinct reindustrialization patterns.

Recent theoretical advances have refined our understanding of how this unevenness emerges. In particular, Capello and Cerisola (2023) conceptualize structural change through the lens of reindustrialization, offering a typology of regional trajectories that helps explain differential productivity outcomes. Their framework distinguishes four patterns of regional reindustrialization: upgrading of existing industrial specializations, diversification into new but

related activities, reorientation toward unfamiliar sectors, and the creation of entirely new industrial systems. These patterns differ in terms of continuity with the past, knowledge intensity, and institutional requirements – and, crucially, in their potential to enhance regional productivity (Capello & Cerisola, 2023).

The literature suggests that upgrading-based reindustrialization, which reinforces established industrial paths, is the only pattern consistently associated with significant productivity gains (Christopherson et al., 2014). In contrast, diversification and creation strategies may lack the depth and coherence needed to generate broad-based improvements in the short to medium term. This distinction is especially relevant in the CEE context, where historical legacies and narratives (Balogh et al., 2022), post-socialist restructuring, and path-dependent institutional capacities have led to highly differentiated regional growth paths (Barta et al., 2008; Shkolnykova & Wedemeier, 2025). In western border zones – such as Bratislava, Western Hungary, or Southern Poland – FDI-driven manufacturing concentrations have enabled upgrading processes, often in the automotive or electronics sectors. In contrast, rural or eastern regions and settlements have faced the dual challenge of economic stagnation and weak innovation ecosystems, making diversification or creation strategies far more uncertain and policy-dependent (Egri & Táncos, 2018; Pénzes & Demeter, 2021; Egri & Lengyel, 2024; Caravella et al., 2023). Moreover, there are obvious demographic implications in terms of population migration from rural and some border regions and concentration in urban areas (Boros et al., 2022; Lados et al., 2024).

These spatial asymmetries reflect deeper centre–periphery dynamics in the European economic space, wherein CEE countries occupy semi-peripheral positions. Within these countries, capital cities and second-tier urban centres increasingly function as national cores, while peripheral rural regions struggle with limited access to knowledge networks, investment, and institutional resources (Vas et al., 2024). The persistent urban–rural divide and the east–west productivity gradient are not merely statistical patterns – they are structural outcomes of differentiated reindustrialization and digitalization capacities across space (Kiss & Páger, 2024). This perspective implies that structural change is not only about sectoral shifts, but also about the nature and quality of those shifts: which sectors grow (for instance: the tourism sector in rural areas), where, and how they interact with local capabilities (Bagdi & Mondok, 2024).

To capture the spatial complexity of these types of transformations, the literature increasingly recommends the use of shift-share decomposition approaches (Capello & Cerisola, 2023). By distinguishing between the composition effect, the competition effect, and the reallocation effect, such models make it possible to identify whether regional productivity

changes are primarily driven by favourable sectoral structures, superior sector-specific performance, or dynamic shifts in employment. These analytical components correspond closely to the categories introduced by Capello and Cerisola: strong composition effects may reflect upgrading processes within existing specializations; competition effects signal internal efficiency or innovation; and reallocation effects may be indicative of transitions toward new structural configurations. For our purposes, this framework allows researchers not only to assess patterns of productivity convergence or divergence, but also to infer the types of structural dynamics that underpin them.

Sectoral aggregation, typically into a manageable number of broad groups, is also considered appropriate in this context, both for reasons of data availability and theoretical coherence. In particular, the use of aggregated sector categories facilitates comparability across regions and countries – especially where detailed NUTS-3 level data is scarce – and reflects the meso-level at which industrial transformation and reindustrialization processes tend to occur. Moreover, analyses conducted at the NUTS-3 level, rather than at broader territorial scales, are better suited to detecting spatial nuances, such as urban–rural divides, regional upgrading centres, or persistently stagnating peripheries (López-Villuendas & Campo, 2022). Such granularity is essential for accurately interpreting how structural change interacts with territorial development paths, particularly in the heterogeneous economic geography of Central and Eastern Europe.

In summary, the literature emphasizes that structural change goes hand in hand with economic development, but its regional outcomes depend heavily on how economies are embedded in global production systems and how spatial structures shape the distribution of gains. In Central and Eastern Europe, structural transformation has been closely linked to integration into global value chains, particularly through the automotive industry (Pelle & Tabajdi, 2023; Sass & Tabajdi, 2023). While this has brought about notable productivity growth and export performance, it has also led to selective regional upgrading and persistent territorial inequalities. The centre-periphery dynamic, the hierarchical structure of supply chains, and the limited autonomy of peripheral regions all contribute to uneven development paths. Moreover, while EU cohesion policy has aimed to mitigate these disparities, its success has varied by region and institutional context (Zezza & Guarascio, 2024). Building on these theoretical foundations, the present study empirically investigates how structural change – captured through composition, competition, and reallocation effects – has shaped regional productivity trajectories across NUTS-3 regions in CEE between 2000 and 2019.

DATA AND RESEARCH DESIGN

First of all, we choose six countries – Hungary, the Czech Republic, Poland, Romania, Slovakia, and Slovenia – to test and analyze the special peculiarities of structural changes that these regions have undergone. These countries share a similar historical and economic background, shaped by their socialist past and EU accession in the 2000s. Their reintegration into the common market and access to EU funding have had a significant impact on their development paths. In addition, they occupy more or less similar positions in the global value chain, where the automotive industry plays a key role to varying degrees (Megyeri et al., 2023; Pelle & Tabajdi, 2023). As semi-peripheral economies, they also share structural similarities within the broader European core-periphery framework, which makes them suitable for comparative regional analysis.

In our methodology, we use a special form of shift-share analysis based on Capello and Cerisola (2023). Instead of using the EU average, we have compared the values of each region to the average of the countries studied, because only two regions have shown a lower than average level of productivity growth compared to the EU average. The total productivity change can be divided into the sum of the composition effect (MIX), competition effect (DIFF) and the reallocation effect (REALL). The first component is the reallocation effect, which measures the reallocation of employment over time between sectors at different productivity levels. The second, the competition effect, measures the different rates of productivity growth of an industry in a region compared to the same industry elsewhere, reflecting efficiency improvements. The third component, the composition effect, measures the combination of different rates of productivity growth of industries in a region, reflecting sectoral modernisation. It can be calculated as follows:

$$\left(\frac{P_r^1}{P_r^0} - \frac{P_{CCE}^1}{P_{CCE}^0}\right) = \sum_{i=1}^{n} \frac{E_{i,r}^0}{E_r^0}\left[\left(\frac{P_r^1}{P_r^0} - \frac{P_{i,r}^1}{P_{i,r}^0}\right) + \left(\frac{P_{i,r}^1}{P_{i,r}^0} - \frac{P_{i,CCE}^1}{P_{i,CCE}^0}\right) + \left(\frac{P_{i,CCE}^1}{P_{i,CCE}^0} - \frac{P_{CCE}^1}{P_{CCE}^0}\right)\right] \quad (1)$$

where P is the gross value added (GVA) per employed person; CCE is the weighted average of the countries under investigation; r refers to the given NUTS-3 region; i refers to the given sector; n is the total number of sectors examined (6); 1 is the final year of the examined period (2007 or 2019); 0 is the starting year of the examined period (2000 or 2012). This decomposition also requires some clarification regarding our interpretation of structural change. It should be noted that in our framework, structural change is not captured through employment reallocation alone, as in some classical shift-share formulations, but through the combined

dynamics of sectoral productivity (P = GVA per employed person). Since P already incorporates both output and employment, changes in employment are implicitly accounted for in the decomposition. In this sense, our interpretation of structural change follows Capello and Cerisola (2023), where relative sectoral productivity trajectories reflect both labour reallocation and efficiency improvements.

In addition, we have preferred GVA to GDP because it measures the economic value generated by individual industries, sectors or regions and therefore gives a more accurate picture of local economic performance, whereas GDP includes taxes and subsidies, which can vary significantly from region to region. In recent years, it has become increasingly apparent that NUTS 2 regions are too large and diverse (López-Villuendas & Campo, 2022), which has led many studies to focus on the much smaller NUTS 3 regions. In this analysis, we focus on data for NUTS 3 regions between 2000 and 2019, all data were obtained from Eurostat's database, where sectoral breakdowns are available. At the NUTS 3 level, we were able to identify 6 main sectors, as this was the only way to produce data for the Polish regions that were suitable for analysis (Tab. 1).

Table 1 The input main sector groups for determining the composition effect within the shift share analysis

Code	NACE activities
A	Agriculture, forestry and fishing
B-C-D-E	Mining and quarrying (B); Manufacturing (C); electricity, gas, steam and air conditioning supply (D); water supply; sewerage, waste management and remediation activities (E)
F	Construction
G-J	Wholesale and retail trade; transport; accommodation and food service activities; information and communication
K-N	Financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support service activities
O-U	Public administration and defence; compulsory social security; education; human health and social work activities; arts, entertainment and recreation; repair of household goods and other services

Source: own editing based on Eurostat.

In line with Eurostat's database structure, our calculations rely on gross value added (GVA) expressed in current euro. While the use of constant prices or PPS-based indicators is often preferred in order to eliminate the impact of inflation, relying on current values is a methodologically acceptable choice for us in this context for three reasons. First, since our analysis is primarily comparative across regions within the same countries and across countries over a relatively homogeneous integration period, inflationary effects are largely shared and do not distort the relative spatial patterns. Second, the shift–share decomposition focuses on differences in growth contributions (sectoral mix, competition, and reallocation), which are

ratio-based and therefore less sensitive to absolute price levels. Finally, several EU Cohesion Policy reports and applied regional studies have also employed current-price GVA for regional comparisons (Darvas et al., 2019; Di Caro & Fratesi, 2021; Medeiros et al., 2022), underlining the practical relevance and robustness of this approach. Accordingly, while we acknowledge the limitations of using current prices, we consider the results to reliably capture the structural and spatial dimensions of productivity dynamics in Central and Eastern Europe.

Although the analysis covers the entire period from 2000 to 2019, the financial crisis (2008-2009) has caused structural breaks in the time series. Therefore, in addition to considering the full period, we have also analysed two separate, crisis-free sub-periods – 2000-2007 and 2012-2019 – which are of equal length and thus easily comparable.

As metropolitan areas have a significant economic and social impact on the surrounding areas, urban and peri-urban areas are often treated together in regional analyses. We have done the same and, mainly based on Eurostat and literature recommendations (Vas et al., 2024), we have combined some of the metropolitan and suburban spatial elements. We merged the capital cities' regions with the suburbs in Czechia, Hungary, Poland and Romania. In addition, in the case of Poland, the theoretical population threshold was set at 400,000 inhabitants. This is because, beyond this size, even in Poland, the cities become significantly smaller, and – Brno being the exception – second-tier city regions in the other countries studied also fall below this threshold. Thus, our approach was rooted in a settlement-based perspective. Hence, we combined Bucharest-Ilfov, Budapest-Pest, Prague-Central Bohemian Region, Miasto Kraków-Krakowski, Miasto Łódź-Łódzki, Miasto Poznań-Poznański, Miasto Szczecin-Szczeciński, Miasto Wrocław-Wrocławski, Gdański-Trójmiejski, and Miasto Warszawa-Warszawski wschodni-Warszawski zachodni. Our total observation units are 156.

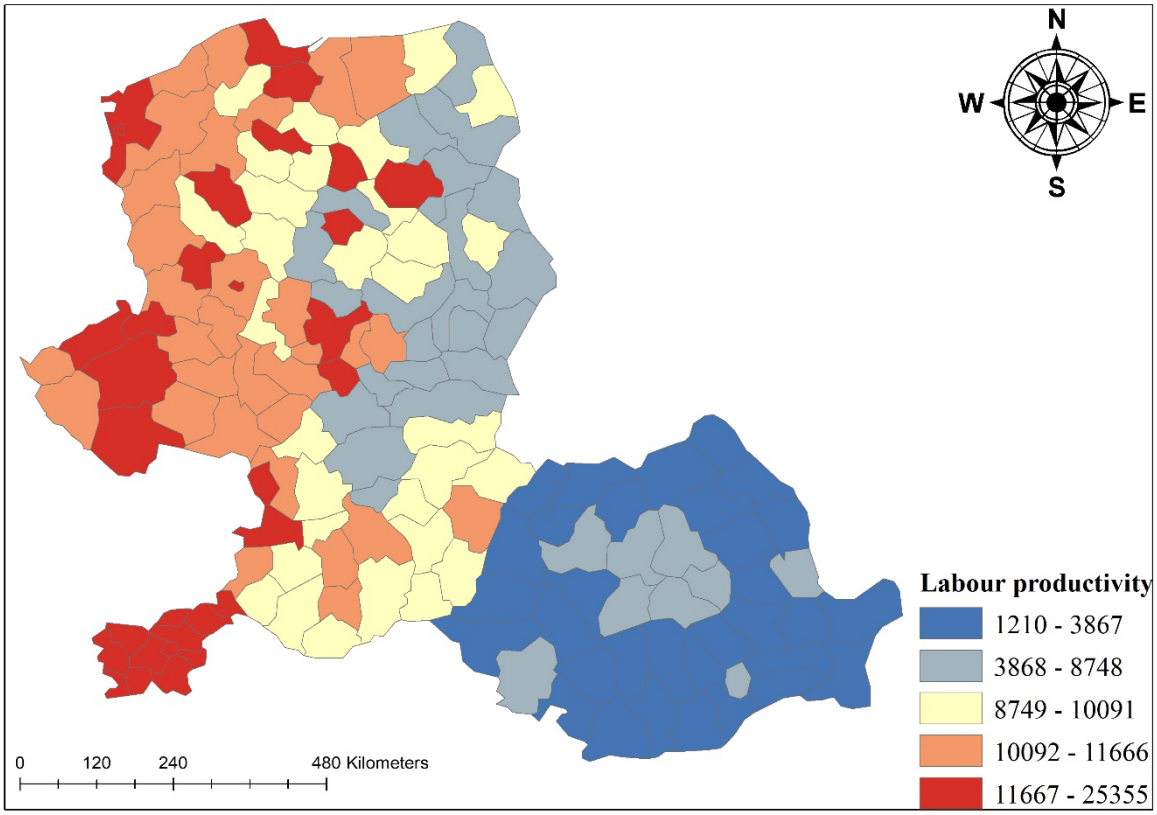
To sum up, our research design combines sectorally disaggregated regional data with a refined shift-share framework to capture both the sources and spatial structure of productivity change. By focusing on NUTS-3 regions and analyzing two distinct pre- and post-crisis periods, we aim to offer a granular and temporally nuanced view of structural transformation in the CEE region.

RESULTS

The map shows labour productivity levels (measured as gross value added per employed person) across NUTS-3 regions of six Central and Eastern European countries in the year 2000 (Fig. 1). The values are grouped into five categories based on quintiles, allowing for a

comparative assessment of regional performance on the eve of EU accession. This snapshot illustrates the spatial structure of economic development before large-scale European integration took effect and highlights the path-dependent legacies that shaped early productivity patterns across the region.

Figure 1 Labour Productivity Across NUTS-3 Regions in Central and Eastern Europe, 2000 (Real GVA per Employed Person, euro)



Source: own editing based on Eurostat.

At the turn of the millennium, labour productivity levels were still strongly aligned with national borders, reflecting the enduring impact of country-specific institutional frameworks, reform trajectories, and pre-accession economic policies (Burlea-Schiopoiu et al., 2021; Kuruczleki et al., 2022). Czechia and Slovenia stood out as uniformly high-performing countries, with virtually all of their regions falling into the top two quintiles. This reflects their relatively advanced industrial base, successful early restructuring, and stronger integration into Western European markets (Pelle & Tabajdi, 2023). In contrast, Romania displayed uniformly low productivity levels across the entire country, suggesting structural lag, weak FDI inflows, and limited participation in global value chains at that time (Dobrzanski et al., 2024). The remaining countries – Hungary, Poland, and Slovakia – exhibited more heterogeneous patterns,

with a mix of high- and low-performing regions, indicating transitional spatial structures in the making.

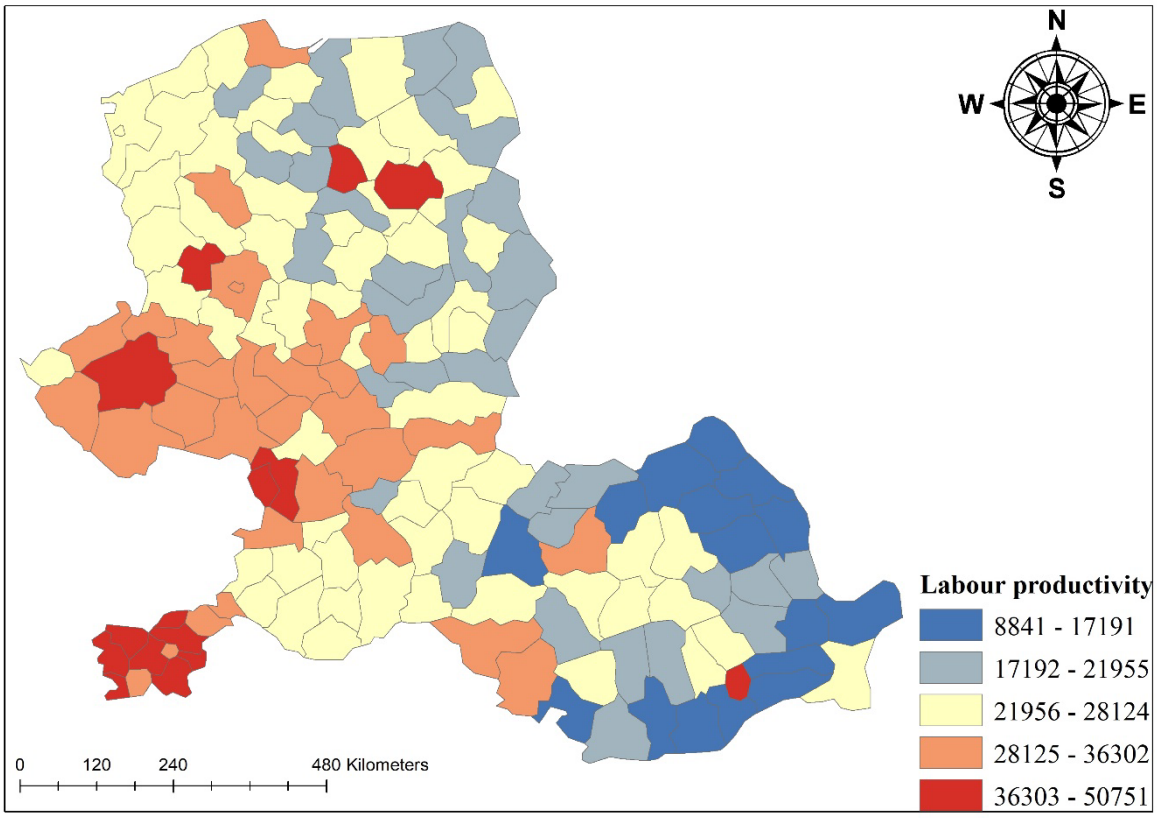
The spatial distribution of labour productivity in 2000 revealed a pronounced West-East divide within Central and Eastern Europe. The highest productivity levels were concentrated in the western regions of the area under study, particularly in Hungary, Poland and Slovakia. In contrast, eastern and inland regions of these countries – more remote from cross-border economic flows – were lagging behind. This divide was further accentuated by the urban–rural duality: urban centres and capital regions showed significantly higher productivity than rural hinterlands, a structural gap that became more pronounced as urban economies specialized in higher value-added sectors (Egri & Lengyel, 2024; Vas et al., 2024, Szakálné Kanó et al., 2025).

In Poland, early signs of an emerging urban hierarchy were already visible by 2000. Regions including Warsaw and major second-tier cities such as Kraków, Wrocław, and Poznań exhibited relatively high productivity, indicating their growing role as regional economic hubs. This spatial differentiation was not merely economic – it also reflected deep historical-geographical fault lines, often referred to as phantom borders. In Poland, for example, the western regions – formerly under German or Austro-Hungarian administration – were more developed than the historically agrarian eastern parts (Gorzelak, 2021).

This core-periphery pattern reflected both historical legacies and path-dependent development processes (Censolo & Colombo, 2016). Regions close to national capitals or transnational corridors – such as Győr, Bratislava, and Prague – emerged as early winners of economic restructuring, while more remote and predominantly rural areas were largely excluded from these gains. In Romania, the dominance of low-productivity regions across the entire country suggested delayed industrial modernization and limited integration into global value chains at the time. Overall, the map illustrated a spatially selective structural transformation process at the turn of the millennium, laying the foundation for future regional divergence within the CEE region.

The overall productivity levels increased significantly throughout Central and Eastern Europe between 2000 and 2019, yet spatial inequalities largely persisted (Dobrzanski et al., 2024). The 2019 labour productivity map demonstrates that, while many regions shifted into higher productivity categories compared to 2000, the core-periphery divide remained visible (Fig. 2).

Figure 2 Labour Productivity Across NUTS-3 Regions in Central and Eastern Europe, 2019 (Real GVA per Employed Person, euro)



Source: own editing based on Eurostat.

By 2019, the spatial structure of productivity in Central and Eastern Europe had shifted in important ways. In line with the literature (Smętkowski, 2015, 2018; Psycharis et al., 2020), while the west–east gradient remained a relevant factor, the urban–rural divide became even more pronounced, emerging as the dominant spatial cleavage across the region. Capital cities and major regional centres consistently outperformed their surrounding areas, and in most countries, these metropolitan areas not only maintained but further reinforced their productivity advantage. This pattern reflects the increasing concentration of high-value-added activities, investment, and innovation in urban cores, while many rural and peripheral areas experienced more modest growth.

Capital city regions have consistently played a leading role in driving economic growth and productivity within Central and Eastern Europe. The Bratislava region in Slovakia stands out as a clear example, with labour productivity rising dramatically from €14,081 per person in 2000 to €50,751 in 2019. A similar trend can be observed in the Prague region, where productivity increased from €16,128 to €50,476 per capita over the same period. The capital region of Poland has also demonstrated dynamic growth, with productivity per person rising from €18,701 in 2000 to €48,835 in 2019. Together, these cases highlight the pivotal role of

capital regions as drivers of structural upgrading and productivity gains in post-socialist Europe. Their continued outperformance reflects both inherited centrality and the ability to attract investment, talent, and innovation in the post-accession period (Sávai & Bodnár, 2024). However, a valuable contrast can be drawn with Budapest, whose performance as a metropolitan region has been relatively less dynamic, and Slovenia, which – despite lacking a dominant metropolitan centre – has managed to sustain a remarkably balanced and advanced productivity profile across its territory.

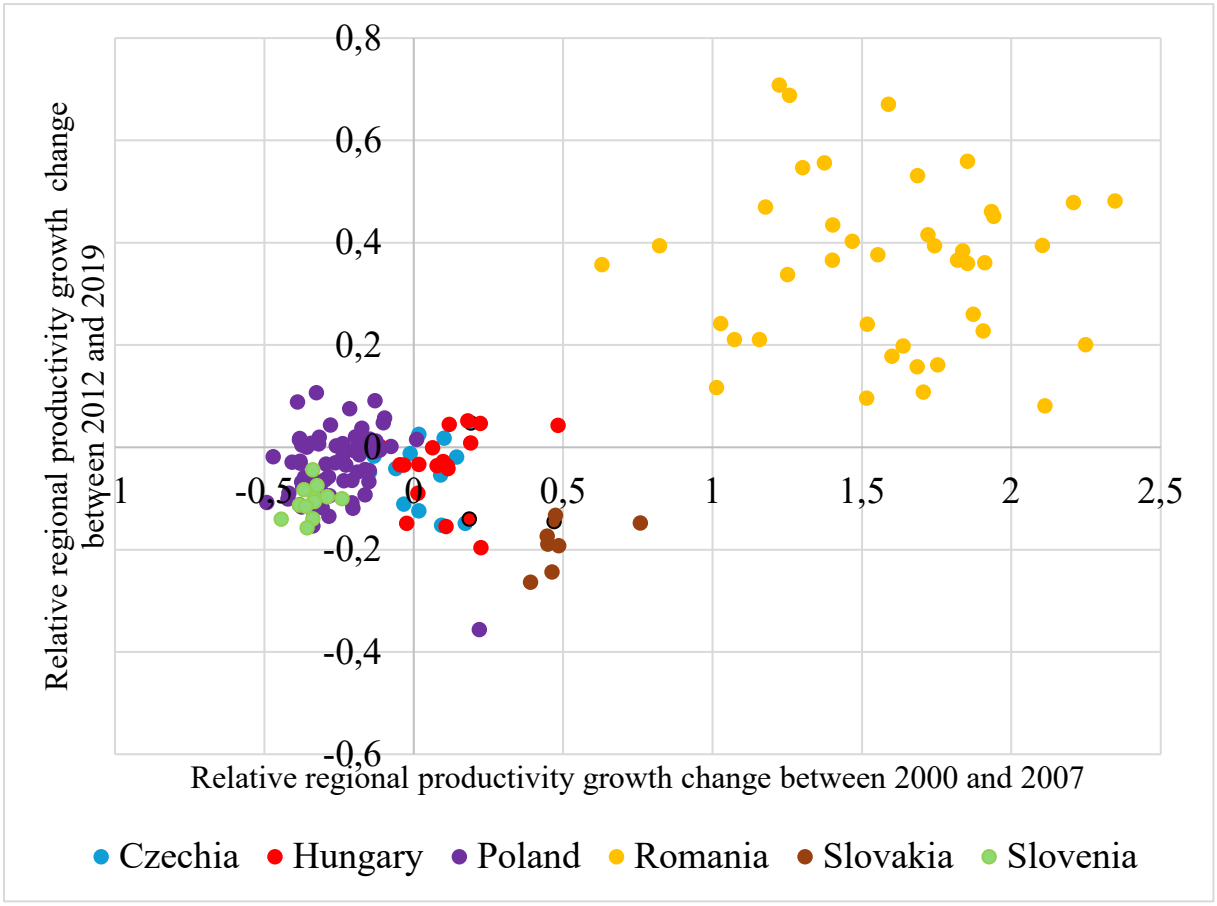
Moreover, in Poland, the historical phantom border that once clearly separated the more developed west from the lagging east (Gorzelak, 2021) became less visible by 2019, though not eliminated. The relative convergence of rural areas suggests some equalization of development opportunities across the national space, likely aided by infrastructure investments and EU cohesion funds. Slovenia maintained a strong and balanced productivity performance across its entire territory, confirming its role as one of the most consistently successful cases within the CEE region. In Hungary, however, the data indicate a relative decline in productivity position compared to other countries in the region, suggesting either stagnation in formerly leading regions or stronger advancement elsewhere. In contrast, Slovakia showed a more favourable productivity profile in 2019.

At the same time, Romania remained predominantly in the two lowest productivity categories, despite overall growth, indicating that convergence at the national level did not translate into balanced regional development. A few Romanian regions – particularly around Bucharest and Cluj-Napoca, Timisoara – emerged as relative exceptions, suggesting some degree of metropolitan-driven growth (Zsibók & Egyed, 2022; Horeczki et al., 2023). Nonetheless, peripheral areas continue to face substantial structural challenges and lag far behind national and regional productivity averages. For instance, Vaslui County in eastern Romania, while showing some improvement – from €1,210 per capita in 2000 to €8,841 in 2019 – remains one of the least productive regions in the entire sample. A similar pattern is observed in Neamț County, where productivity rose from €1,724 to €10,412 per person over the same period. Overall, the 2019 map reflects a process of spatially selective structural transformation, driven by global economic integration but moderated by national and regional institutional capacities.

An examination of productivity growth using shift-share decomposition provides additional insight into the spatial and temporal dynamics of structural change in the CEE region. As described in the methodological section, we compare each NUTS-3 region's total productivity

change to the weighted average of the six selected CEE countries. The scatterplot in Fig. 3 summarizes the results for two sub-periods: 2000-2007 and 2012-2019.

Figure 3 Results of relative regional productivity growth in the examined periods, 2000-2007 and 2012-2019



Source: own calculation and editing based on Eurostat.

In the first period (2000-2007), regions generally moved in closer alignment within each country. Notably, Romanian regions showed strong above-average productivity growth, indicating a clear convergence trend. This was largely driven by modernization in agriculture and industry, enabled by foreign direct investment inflows – especially into the manufacturing sector. The composition effect (MIX) confirms this catching-up process in most Romanian counties, and to a lesser extent, in Hungarian regions as well. The reallocation effect (REALL) also supports this trend, as labour began shifting from low-productivity sectors toward more productive branches. In contrast, in Czechia, Hungary, and Slovenia, the reallocation already reflects a transition from industry to services. The competition effect (DIFF) highlights that productivity growth in more developed areas was primarily driven by performance gains within sectors – particularly specialization in higher value-added activities.

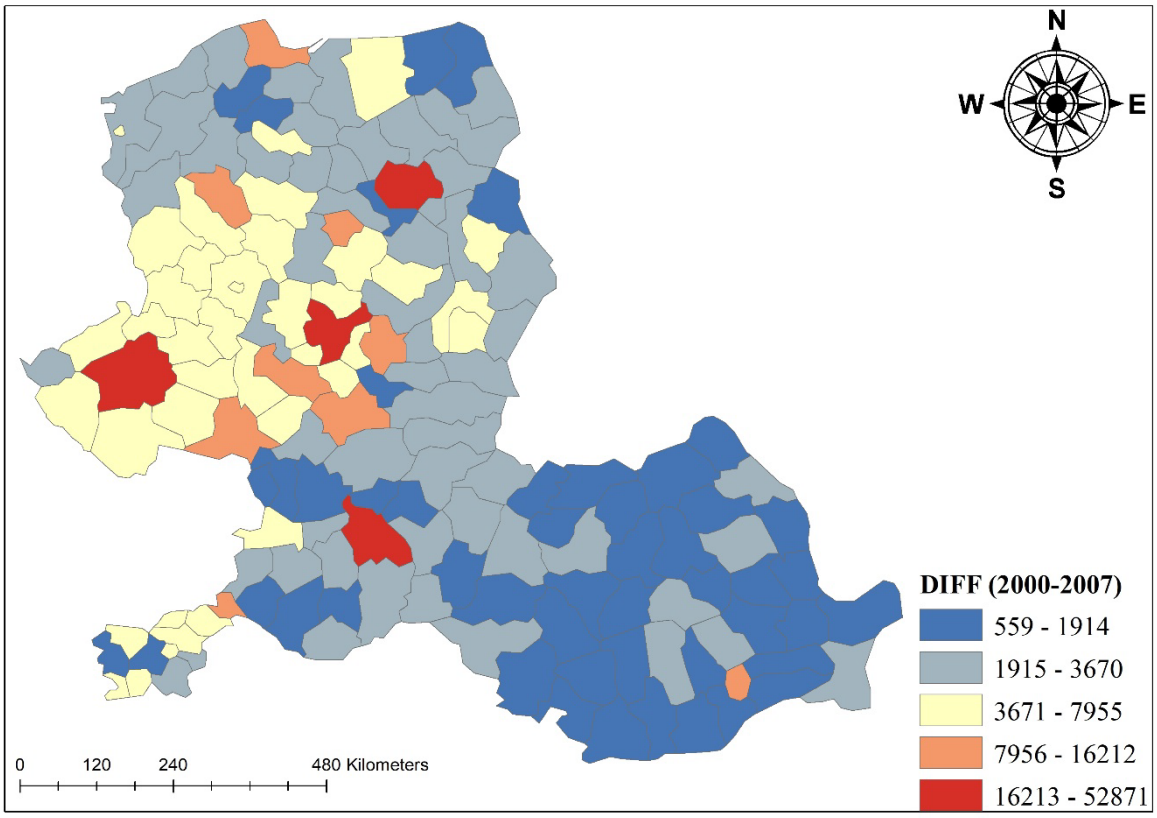
The second period (2012-2019) revealed more pronounced spatial inequalities across and within countries. While in the earlier period regional trends were more synchronized, by the 2010s, regional specificities had become more dominant. Romania again recorded the highest productivity growth, suggesting a continuation of its convergence trajectory. However, the role of the 2008-2009 global financial crisis must also be acknowledged, as the years between the two periods were marked by systemic shocks that influenced productivity trajectories. In this period, the composition effect became more prominent in Hungarian counties – mainly reflecting dynamics in agriculture and industry – whereas in Romania, this effect diminished. The competition effect (DIFF) identified Romanian regions as high performers again, joined by urban regions in Poland and Czechia. At the same time, some eastern regions in Poland and Hungary exhibited structural fragility and weaker productivity growth. In line with previous analyses (Sávai & Bodnár, 2024), the reallocation effect indicated a continued shift of labour in more developed areas toward knowledge-intensive and higher value-added service sectors.

Comparing the two periods revealed a multi-speed structural transformation. Romania experienced the most notable dynamics in productivity at the national and regional levels, although regional disparities within the country remain significant. In the other countries, productivity dynamics were lighter, and within-country disparities less pronounced. Overall, the findings suggest that while convergence occurred in certain lagging regions – particularly in Romania – urban regions across the CEE area remain the dominant engines of productivity growth (Sávai & Bodnár, 2024).

When decomposing productivity growth through the shift-share analysis, it becomes possible to uncover the underlying dynamics behind aggregate increases (Appendix). Both the composition effect (MIX) and the reallocation effect (REALL) exhibit similar spatial patterns, as productivity expansion tends to be higher in more urbanized areas due to the concentration of service-oriented sectors. In addition, over time, labour has increasingly shifted toward more productive branches of the economy – this was particularly pronounced in Romania.

If the aim is to isolate and interpret the efficiency-driven dimension of growth, special attention should be paid to the competition effect (DIFF). This component captures the extent to which regional productivity gains stem from superior performance within the same sectors, thus reflecting differences in production efficiency, innovation capacity, and institutional quality across regions (Fig. 4 and Fig. 5).

Figure 4 The dynamics of the competition effect (DIFF) within a Shift-Share decomposition between 2000 and 2007



Source: own calculation and editing based on Eurostat.

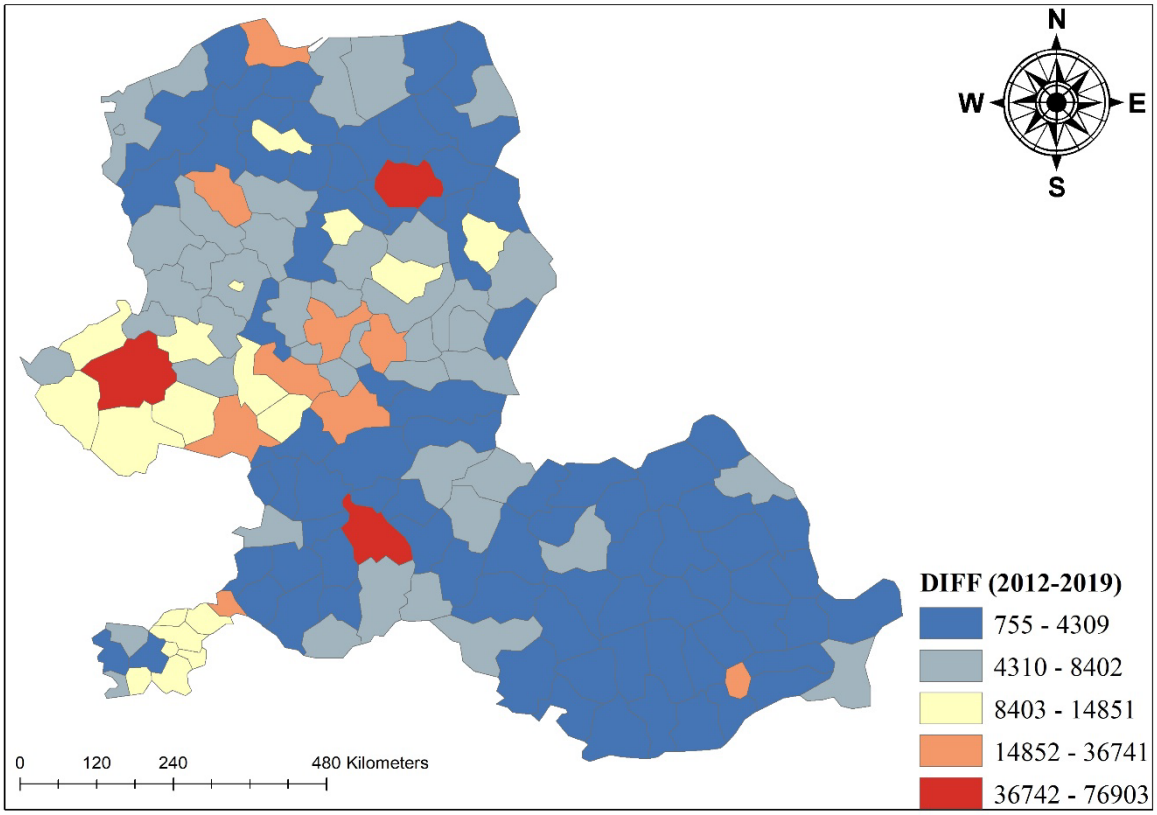
The spatial distribution of the competition effect (DIFF) between 2000 and 2007 reflects significant regional disparities in productivity performance driven by within-sector efficiency gains. Most regions in Romania, as well as large parts of Hungary and Slovakia, fall into the lowest two categories (blue and grey), indicating weak competitive performance.

A key observation is the strong influence of the national context: entire countries or macroregions exhibit relatively consistent performance levels. In particular, Slovenia, Czechia, and the western part of Poland clearly stand out with above-average DIFF values, suggesting that intra-sectoral productivity improvements were more widespread and systematic in these areas. This likely reflects stronger administrative capacities, early integration into global production networks, and higher levels of human capital or innovation activity.

Notably, regions such as Warsaw (Mazowieckie), Prague (Praha), Bratislava (Bratislavský kraj), and selected counties in Western Hungary (e.g., Győr-Moson-Sopron) and Southern Poland exhibit strong competition effects, suggesting that productivity growth in these areas was largely driven by superior performance within the same sectoral structure. This typically indicates higher innovation capacity, better infrastructure, and more efficient production systems, possibly supported by foreign direct investment (FDI) or urban agglomeration effects.

By contrast, many less developed areas, especially in Romania and parts of Slovakia and Hungary, show minimal DIFF contributions, which suggests limited gains in intra-sector productivity. In these areas, productivity growth – if present at all – was likely driven to a greater extent by sectoral reallocation or compositional shifts than by increased efficiency.

Figure 5 The dynamics of the competition effect (DIFF) within a Shift-Share decomposition between 2012 and 2019



Source: own calculation and editing based on Eurostat.

However, certain areas defied this trend. Slovenia and Czechia stand out for the broadly distributed and sustained competition effects across not only their capital regions but also rural and non-metropolitan areas. This enduring performance reflects strong subnational governance, stable industrial ecosystems, and the diffusion of innovation beyond core urban centres. Regions such as South Moravia (Jihomoravský kraj) and Podravska in Slovenia exemplify this territorial resilience, maintaining mid-to-high DIFF values throughout the period. This consistency suggests a more balanced and territorially inclusive growth model, where productivity gains were not overly concentrated in capital cities.

Nonetheless, the map also highlights noteworthy regional exceptions linked to industrial specialization, especially in automotive manufacturing. For instance: Žilina (Žilinský kraj) in Slovakia, home to the KIA Motors plant, demonstrated above-average DIFF values, suggesting

that the presence of globally integrated production networks may facilitate internal learning, technological spillovers, and local supplier upgrading. Similarly, Moravian-Silesian Region (Moravskoslezský kraj), encompassing Ostrava and linked to Toyota's operations, also shows moderate to strong DIFF values, indicating that even post-industrial regions can pivot toward efficiency-based growth when anchored by high-value global sectors.

In addition, the strong performance of second-tier cities – including Cluj (RO113), Kraków (PL213), and Poznań (PL415) – also reinforced the idea that urban productivity growth was no longer solely concentrated in capital regions. These areas leveraged growing tech sectors, university-industry partnerships, and EU funding effectively, translating into sustained within-sector efficiency improvements.

To sum up, the period between 2012 and 2019 illustrates a dual narrative: while many peripheral regions remained stagnant in terms of competition-driven productivity, a combination of sectoral specialization, institutional readiness, and urban dynamism enabled others. The differentiated performance of even similarly specialized regions points to the critical role of local innovation capacity, workforce quality, and multi-scalar governance in translating global sectoral presence into meaningful regional gains.

DISCUSSION AND CONCLUSION

The aim of our research was to present the structural changes in the economies of the CEE regions from the 2000s to the Covid-19 crisis. In line with this objective, our research question examined the differences and similarities in describing productivity changes in NUTS-3 regions. The period is divided into two equal periods, the former covering the years 2000-2007, and the latter the period 2012-2019, excluding the 2008 crisis, which can be interpreted as a structural break.

This paper set out to examine how structural change – captured through the composition effect (MIX), competition effect (DIFF), and reallocation effect (REALL) – contributed to regional productivity trajectories in six Central and Eastern European (CEE) countries between 2000 and 2019. The empirical analysis revealed a multi-speed, territorially uneven transformation process, shaped by sectoral specialization, labour market shifts, and integration into global value chains.

The study demonstrated that structural change did not occur uniformly across the region. Romania experienced the most pronounced productivity gains in the early 2000s, largely due to modernization in agriculture and manufacturing, supported by FDI inflows. Yet this

convergence remained partial and was accompanied by persistent internal disparities. In contrast, the 2010s were marked by the rising importance of competition-based (DIFF) effects – driven by within-sector efficiency gains – particularly in capital regions (e.g. Warsaw, Prague, Bratislava) and dynamic second-tier cities (e.g. Cluj, Poznań, Győr).

Moreover, the composition and reallocation effects played a stronger role in the initial phase of transition, enabling lagging regions to benefit from labour reallocation and structural upgrading (e.g. from agriculture to manufacturing, or from low-productivity to service sectors). However, as the economies matured, the competition effect became more dominant, indicating a gradual shift toward endogenous, innovation-led growth. This was especially visible in urban regions with strong institutional frameworks and educational capacity.

Country-level patterns showed that Slovenia, Czechia, and western Poland achieved more territorially balanced productivity gains, including in rural and intermediate regions. This reflected the benefits of decentralized innovation systems and robust public institutions, which helped mitigate excessive concentration of growth in capital cities.

In addition, the role of sectoral specialization – particularly in the automotive industry – proved critical. Regions such as Žilina, Ostrava, and urbanised Polish areas recorded high DIFF values, illustrating how integration into global production networks could stimulate regional competitiveness. Still, performance varied considerably even among similarly specialized regions, suggesting that local institutional quality and innovation ecosystems played a mediating role in converting specialization into productivity growth.

As a result, a new industrial paradigm has begun to take shape – one grounded in strategic autonomy, technological sovereignty, and regional cohesion. This paradigm shift entails more than short-term economic adjustment: it calls for a fundamental rethinking of industrial policy aimed at resilience and diversification, fostering innovation and sustainability not only at the national level but also within the regions that underpin the European economy. In this context, our findings supported a shift from place-blind to place-based regional policy (Iammarino et al., 2019). Productivity growth needs not only to be achieved but also more equitably distributed. Capital regions remained important engines of growth, but targeted interventions were necessary to support lagging areas and second-tier cities (Vas et al., 2024). Infrastructure development, investment in human capital, and stronger regional institutions appeared essential to unlock untapped potential.

Several broader policy implications emerged. While cost-driven nearshoring may have temporarily narrowed regional disparities, quality- and automation-driven industrial transformations posed a risk of deepening spatial inequalities – especially where structurally

weaker regions lacked institutional or innovation capacity (Dachs et al., 2019; Pedroletti & Ciabuschi, 2023; Capello & Dellisanti, 2024). The recent geopolitical and economic realignments further reinforced these concerns. Moreover, the outbreak of the war in Ukraine in 2022, the collapse of Europe's energy import framework, and structural shifts in the Chinese economy exposed the vulnerabilities of Germany's long-standing competitiveness model – one heavily reliant on cheap Russian energy and steady Chinese demand. These shocks revealed the fragility of the continent's export-oriented industrial core, which has long depended on geographically concentrated supply chains and energy sources. The future regional peculiarities of the current economic trends and phenomena merit further analysis.

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APPENDIX

Appendix 1. Results of shift-share analysis by components in examined periods

Region	Region_name	REALL (2000-2007)	DIFF (2000-2007)	MIX (2000-2007)	REALL (2012-2019)	DIFF (2012-2019)	MIX (2012-2019)
CZ010	Praha	45866	39452	49437	132821	74185	29745
CZ031	Jihočeský kraj	6468	6528	6780	17100	11424	1422
CZ032	Plzeňský kraj	6218	5712	6477	17397	10111	1932
CZ041	Karlovarský kraj	2726	2620	2810	6157	5384	-652
CZ042	Ústecký kraj	7767	7527	8119	19827	13454	1448
CZ051	Liberecký kraj	4064	4225	4258	11253	6822	1296
CZ052	Královéhradecký kraj	5582	5403	5812	16569	9434	1792
CZ053	Pardubický kraj	5122	4878	5285	13664	8098	1808
CZ063	Kraj Vysočina	5053	4914	5277	13930	8879	1592
CZ064	Jihomoravský kraj	12402	11236	13129	36681	24425	3644
CZ071	Olomoucký kraj	5487	5917	5871	16607	11814	-73
CZ072	Zlínský kraj	5911	5220	6014	16930	9220	2565
CZ080	Moravskoslezský kraj	12434	10796	12754	31159	22213	2724
HU110	Budapest	41049	36035	44373	101955	76903	5755
HU211	Fejér	3683	3606	3608	9685	4248	1780
HU212	Komárom-Esztergom	2878	2428	3052	7147	2618	1618
HU213	Veszprém	2402	2170	2466	5911	4018	73
HU221	Győr-Moson-Sopron	4610	4375	4719	12826	5175	2422
HU222	Vas	2099	2134	2152	5224	2899	536
HU223	Zala	2024	1827	2141	4434	3640	-88
HU231	Baranya	2376	2435	2517	5472	5129	-1306
HU232	Somogy	1795	1671	1844	4242	3528	-519
HU233	Tolna	1483	1438	1492	4069	2488	-59
HU311	Borsod-Abaúj-Zemplén	4092	3454	4147	10159	6888	-449
HU312	Heves	1975	1732	2021	5208	3004	71
HU313	Nógrád	814	747	850	1884	1775	-551
HU321	Hajdú-Bihar	3381	3144	3548	8549	7022	-665
HU322	Jász-Nagykun-Szolnok	2209	1996	2262	5382	3604	-15
HU323	Szabolcs-Szatmár-Bereg	2636	2435	2743	7404	5842	-1013
HU331	Bács-Kiskun	3113	2818	3274	9389	5456	551
HU332	Békés	1970	1914	2034	4297	3936	-784
HU333	Csongrád-Csanád	2718	2454	2811	6573	5108	-425
PL911	Warszawa	10962	13610	12932	38423	24269	5385
PL711	Lódz	1893	2460	2312	6074	4513	244
PL213	Kraków	1963	2754	2517	7157	5191	235
PL415	Poznan	1189	1628	1496	3935	3172	151
PL634	Gdansk	2934	3810	3289	8688	5156	1326
PL22A	Katowice	2808	3779	3580	9478	5364	1598
PL217	Tarnowski	4078	5993	4930	14015	7421	3394
PL218	Nowosądecki	3765	4315	4148	11711	6432	2675
PL219	Nowotarski	23564	27497	25191	60103	34418	14294

Region	Region_name	REALL (2000-2007)	DIFF (2000-2007)	MIX (2000-2007)	REALL (2012-2019)	DIFF (2012-2019)	MIX (2012-2019)
PL21A	Oświęcimski	2230	2884	2435	6816	3933	644
PL224	Częstochowski	3320	4310	3769	11120	5989	1912
PL225	Bielski	12320	16212	13882	37940	20569	10499
PL227	Rybnicki	3553	4482	4003	12831	6498	2455
PL411	Pilski	3106	4130	3531	10538	5302	2378
PL414	Koniński	3592	4702	4099	9474	8212	243
PL416	Kaliski	2087	2551	2337	5920	4622	148
PL417	Leszczyński	1933	2497	2138	5112	3862	170
PL424	Miasto Szczecin	2769	3554	3110	8393	5718	1001
PL426	Koszaliński	2317	3047	2615	6663	4309	637
PL427	Szczecinecko-pyrzycki	3883	4499	4324	10986	6770	1329
PL428	Szczeciński	6410	7955	7342	23969	14851	2550
PL431	Gorzowski	3085	3884	3423	9256	6183	823
PL432	Zielonogórski	5318	5013	5707	12411	6841	3639
PL514	Miasto Wrocław	3690	4242	4100	9991	6571	702
PL515	Jeleniogórski	2921	4035	3464	12594	5971	3713
PL516	Legnicko-głogowski	1684	2192	1981	4662	3269	227
PL517	Wałbrzyski	4141	4826	4668	11849	7439	1321
PL518	Wrocławski	5929	7291	6615	16174	10903	1882
PL523	Nyski	1736	2274	1948	5510	3372	637
PL524	Opolski	1796	2286	2002	4957	3211	525
PL613	Bydgosko-toruński	936	1255	1021	3217	1331	670
PL616	Grudziądzki	1814	2355	2084	4953	3313	302
PL617	Inowrocławski	2562	3167	2863	7558	5106	345
PL618	Świecki	3482	4404	3876	9921	7991	-125
PL619	Włocławski	1216	1516	1357	3621	2633	-200
PL621	Elbląski	9806	12061	11074	31254	20800	6065
PL622	Olsztyński	1825	2117	1977	5428	3731	133
PL623	Ełcki	1040	1228	1161	3109	2141	36
PL636	Słupski	2427	3021	2663	7125	4168	1071
PL637	Chojnicki	8332	10668	9442	26171	14018	3851
PL638	Starogardzki	3480	4338	3949	12334	5644	2601
PL713	Piotrkowski	2233	2846	2575	6822	3689	696
PL714	Sieradzki	1829	2301	2140	5588	3214	656
PL715	Skierniewicki	4435	5361	5192	11701	9770	660
PL721	Kielecki	2135	2844	2611	5722	4481	653
PL722	Sandomiersko-jędrzejowski	1218	1536	1464	3305	3206	-9
PL811	Bialski	2571	3214	3069	6089	6018	-275
PL812	Chełmsko-zamojski	4096	5105	4762	12770	10996	223
PL814	Lubelski	1914	2757	2366	5654	4199	747
PL815	Puławski	1893	2645	2323	5651	4481	-34
PL821	Krośnieński	1427	1955	1817	3825	3794	-333
PL822	Przemyski	2856	3894	3606	11099	8402	1328
PL823	Rzeszowski	2882	3827	3514	9352	5163	1858

Region	Region_name	REALL (2000-2007)	DIFF (2000-2007)	MIX (2000-2007)	REALL (2012-2019)	DIFF (2012-2019)	MIX (2012-2019)
PL824	Tarnobrzeski	2982	3450	3405	8565	7106	33
PL841	Białostocki	1724	2143	1994	5364	3515	450
PL842	Łomżyński	1236	1516	1402	3535	2484	141
PL843	Suwalski	41854	52871	48977	135651	72213	38236
PL921	Radomski	2847	3670	3269	8715	6067	843
PL922	Ciechanowski	1680	2282	1893	5388	2996	921
PL923	Płocki	3006	3503	3319	10507	3872	4097
PL924	Ostrołęcki	1765	2184	2020	5740	3537	951
PL925	Siedlecki	1928	2503	2264	6531	4137	1090
PL926	Żyrardowski	1333	1851	1553	4299	2585	1267
RO321	Bucuresti	2739	1998	3232	7481	3301	2252
RO111	Bihor	1139	922	1348	3244	1798	776
RO112	Bistriţa-Năsăud	4233	3046	4988	15423	7884	5053
RO113	Cluj	1622	1257	1886	5283	2566	1630
RO114	Maramureş	1198	995	1458	3755	1677	1306
RO115	Satu Mare	838	683	1031	2566	1325	853
RO116	Sălaj	1880	1225	2175	6066	1955	1569
RO121	Alba	3505	2414	3823	11746	3768	3932
RO122	Braşov	921	742	957	2820	832	621
RO123	Covasna	1355	996	1421	4006	1305	1092
RO124	Harghita	2606	1831	2791	7606	2999	1714
RO125	Mureş	2339	1473	2553	8294	2514	2089
RO126	Sibiu	2010	2000	2713	7151	2951	1321
RO211	Bacău	963	872	1241	3830	1352	547
RO212	Botoşani	2479	2388	3339	11765	5509	1755
RO213	Iaşi	1292	1346	1786	5444	1822	857
RO214	Neamţ	1887	1630	2383	7266	2720	1125
RO215	Suceava	714	752	1018	3595	1499	163
RO216	Vaslui	1216	997	1574	3347	1766	1062
RO221	Brăila	1378	1157	1714	4795	1854	1353
RO222	Buzău	3633	3221	4637	11663	6312	4637
RO223	Constanţa	2318	1654	2491	5914	3395	1075
RO224	Galaţi	669	608	879	2331	1257	692
RO225	Tulcea	1018	950	1242	3435	1667	785
RO226	Vrancea	3542	2105	3856	9689	2976	3073
RO311	Argeş	664	679	867	2728	950	706
RO312	Călăraşi	2039	1248	2204	5902	2512	1848
RO313	Dâmboviţa	579	559	745	2072	984	529
RO314	Giurgiu	666	755	906	2530	1124	942
RO315	Ialomiţa	3937	2758	4512	12387	3962	4638
RO316	Prahova	968	1072	1296	3164	1393	1048
RO317	Teleorman	27736	15939	28664	92365	36741	29599
RO411	Dolj	2235	1885	2905	8131	3749	2313
RO412	Gorj	1678	1266	1994	5736	1842	2101

Region	Region_name	REALL (2000-2007)	DIFF (2000-2007)	MIX (2000-2007)	REALL (2012-2019)	DIFF (2012-2019)	MIX (2012-2019)
RO413	Mehedinţi	786	714	1011	2334	1154	519
RO414	Olt	1177	1204	1493	4178	1785	1148
RO415	Vâlcea	1470	1193	1845	4579	1849	1555
RO421	Arad	2303	1597	2576	8556	1379	2377
RO422	Caraş-Severin	1317	858	1417	3223	1367	1158
RO423	Hunedoara	2171	1502	2468	4921	2406	1623
RO424	Timiş	4543	2610	5001	15513	5303	5309
SI031	Pomurska	13616	10313	14456	41883	30995	1295
SI032	Podravska	6053	4450	6456	17837	10637	2435
SI033	Koroška	5172	4105	5333	12917	11968	-1178
SI034	Savinjska	5330	4244	5634	15908	9369	3636
SI035	Zasavska	5483	4063	5658	17250	11316	1736
SI036	Posavska	4414	3369	4672	12229	10566	157
SI037	Jugovzhodna Slovenija	3952	3176	4245	13975	9635	990
SI038	Primorsko-notranjska	5871	4561	6231	17085	11381	2399
SI041	Osrednjeslovenska	1100	1482	1247	2765	2022	-19
SI042	Gorenjska	3902	4872	4315	9341	7585	-381
SI043	Goriška	854	1069	892	2151	1215	182
SI044	Obalno-kraška	3267	4062	3534	8075	5255	1255
SK010	Bratislavský kraj	540	688	573	1066	755	73
SK021	Trnavský kraj	881	1060	947	2293	1454	259
SK022	Trenčiansky kraj	1992	2514	2157	5345	2798	884
SK023	Nitriansky kraj	564	701	601	1269	927	115
SK031	Žilinský kraj	10918	13604	12016	27359	25029	-3217
SK032	Banskobystrický kraj	2535	3116	2736	6508	4199	751
SK041	Prešovský kraj	1677	2082	1826	3835	3304	-470
SK042	Košický kraj	1688	1996	1884	3638	3545	75

Source: own calculation and editing based on Eurostat.

Original scientific paper

OLD AND NEW CHALLENGES IN REGIONAL DEVELOPMENT – COMPARATIVE ANALYSIS OF EUROPEAN REGIONAL DEVELOPMENT POLICY APPROACHES TO IDENTIFYING BENEFICIARY REGIONS

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Abstract

Most European countries apply development policy solutions to help disadvantaged regions catch up and seek effective solutions for territorial cohesion. This endeavour has been strongly supported by the European Commission in both the 2013-2020 and 2021-27 programming periods and is likely to remain so in the period after 2028. This is an understandable and logical endeavour, as being 'left behind' in economic, social or geographical terms not only reinforces internal migration flows within the European Community and its Member States but also increases political discontent.

A number of approaches have emerged in European countries to identify disadvantaged regions and address their problems. The differences stem partly from the different intervention intentions of individual countries and partly from their different spatial, state and public administration structures. Various development policy solutions have been devised to help disadvantaged regions catch up, taking these factors into account. In Hungary, development policy has placed greater emphasis on the catching up of regions and settlements lagging behind in terms of socio-economic development since the 1980s, but the importance of delimitation in development policy practice has increased since the country's accession to the EU, with the establishment of differentiated support resource allocation mechanisms and targeted support programmes. The methodology currently in use for designating beneficiary regions has been in place since 2014. The socio-economic changes that have taken place since then have shifted the focus of both scientific and policy interest in recent years towards more location-specific regulatory mechanisms that measure development differences at a lower level and are more sensitive to functional links between settlements.

To support efforts in the renewal of the Hungarian regional development toolkit, our study seeks to outline alternative options by analysing Italian and British development policy practices, in addition to presenting Hungarian beneficiary regions. The international examples examined, despite their limitations as presented in the study, provide examples of multi-level governance, development policies based on functional units, and methodologies for measuring development below the settlement level. Current legislation in Hungary allows for changes in this direction, but their incorporation into domestic practice is only possible after careful preparation.

Keywords: beneficiary regions, territorial polarisation, regional development, regional planning, support policy

INTRODUCTION

The European Union's cohesion policy aims to reduce territorial disparities and promote harmonious development between Member States and regions. The instruments and

interventions of cohesion policy contribute significantly to the economic growth of the European Union and its member states (Crucitti et al., 2023; Nyikos & Soós, 2020; OECD, 2023).

While acknowledging the efforts made under cohesion policy, it should be noted that only modest progress has been observed in the territorial patterns of development within the Union. As the 9th Cohesion Report points out, the gap between the most and least developed regions has not narrowed significantly in many places (European Commission, 2024), and OECD (2023) research even draws attention to the increase in regional inequalities. All this highlights not only the need for significant and targeted regional development efforts, but also the need for a problem-oriented rethinking of the approach to regional policy.[1]

A number of approaches have emerged in European countries to mapping disadvantaged areas more accurately. The differences stem partly from the specific intentions of individual countries and partly from national characteristics that determine the instruments used, including settlement structure and statistical data collection criteria (territorial level, range of indicators, etc.), and partly from the different structures of the administrative and spatial planning systems of the countries concerned, which are a decisive factor in terms of the institutional framework. Various development policy solutions have been devised to help disadvantaged areas catch up, taking these factors into account.

International experience shows that more and more countries are calling for a more accurate mapping and delimitation of territorial disadvantages and functional spatial processes that goes beyond the use of traditional administrative units (Rodríguez-Pose, 2018; Barca et al., 2012). Salamin (2023) provides a comprehensive review of the literature on the emergence of so-called soft spaces in international spatial planning practice. Salamin and Péti (2023) point out that these soft spaces do not replace the spaces of formal local, regional or national governments, but rather complement them, as experience has shown. These soft spaces and their fuzzy boundaries are often interpreted in terms of spatial governance, but they are not necessarily associated with decentralisation mechanisms, and one of the main criticisms is that they actually bypass legitimate, decentralised local governments (Salamin & Péti, 2019). Hungary has a particularly rich history in the use of soft spaces in design, the development of which is described in detail by Salamin (2024). In international comparison, it can be concluded that changes in attitudes towards soft spaces are quite common in Hungary, which makes it difficult

[1] For specific Hungarian experiences see Rácz and Egyed (2022).

to strategically apply these spaces in support policies, even though international examples show that these areas should be taken into account when defining beneficiary areas.

Before examining international examples, we outline the development history of the beneficiary regional system in the European Union and Hungary, highlighting the points of connection. This part of the paper focuses on identifying the types of beneficiary regions and the relevance of their delimitation. In examining the current Hungarian beneficiary classification system, we use secondary data analysis methods and examine the possibilities for further development from a statistical methodology perspective.

The next part of our study, which presents international practical examples, will fundamentally rely on document analysis methods; drawing on a review of legislation, planning and other policy documents, we will evaluate the Hungarian situation, the Italian and English experiences, and formulate recommendations for the possible restructuring of the Hungarian beneficiary regional system, covering both the method of delimitation and the nature of development.

BENEFICIARY REGIONS IN THE EUROPEAN UNION

The concept of beneficiary region is not new in regional science and policy. In fact, it has been a central element of regional policy since its inception. Between 1957 and 1989, the main objective of the national regional policies operated by individual Member States within their own sphere of competence was to reduce territorial disparities within countries, since, until the first wave of accession, no significant differences existed between the participating countries at the macro level in terms of GDP per capita, while the national averages concealed significant regional differences. The traditional regional policy of the period took a dichotomous approach in terms of development and supported geographically defined (permanently) disadvantaged regions, typically in the form of non-repayable grants (Rechnitzer & Smahó, 2016). During this period, national characteristics rather than Community standards were decisive in Member States' regional policies, despite the coordinating role played by DG Regio. The adoption of the Single European Act (1987) and the introduction of the single internal market made it essential to raise Community regional policy to a new level, which meant that common European standards also came to the fore in terms of development/underdevelopment. In the “Europe of Regions” of that time, beneficiary regions were defined at NUTS2 level. Although support for lagging regions was primarily justified on grounds of equity, clear economic considerations were evident in the background. Accordingly, underdeveloped regions were identified on the

basis of economic indicators (GDP). However, measuring regional development/ underdevelopment is a more complex task than this, as it is influenced not only by economic factors but also by environmental and social elements, and varies greatly in space and time, which also poses a major challenge in terms of aligning it with the perceptions of the smaller and larger communities concerned. The measurement of regional development is determined by the period under review (time), the regional level and the geographical location of the area (space), the statistical data available in relation to the above, and the method chosen (key indicator, composite indicator or multivariate statistical method) (Szabó & Szabó, 2023).

Over time, the economic determination of development studies has diminished, as the first Cohesion Report published in 1996 (European Commission, 1996) already referred to economic and social cohesion, and the Treaty of Lisbon (2007) refers to territorial cohesion in an even broader sense. As the concept of sustainability has gained prominence in EU community policies (since AGENDA 2000) and its interpretation has become more complex, so has the demand for more comprehensive territorial analyses, which is also reflected in the methodology used (Human Development Index, Regional Competitiveness Index). And although the Barca report (2009) foregrounding the 2014 renewal of cohesion policy suggests that other indicators besides GDP should be used to assess eligibility for support, the classification of regions as beneficiaries continues to be based on GDP per capita. A notable exception is the Cohesion Fund, which specifically aims to support so-called cohesion countries that have difficulty meeting the Maastricht criteria. In this case, a GNI-based eligibility criterion at national level is used.

At the subnational level, the EU also uses other territorial typologies. The current version is contained in the 2019 amendment to the NUTS Regulation, the methodological background for which is provided by the Eurostat methodological publication (2019). The new territorial typology defines new types of regions at three levels. The GRID grid cell-based categories are completely independent of the NUTS system and are primarily linked to the establishment of urban and rural clusters. Most of the innovations appeared at the regional level, interpreted as NUTS3, where, in addition to the traditional urban-rural, metropolitan and coastal typologies, the categories of mountainous, island and border regions appeared. At the LAU level, in addition to the traditional classification according to the degree of urbanisation, a new category, Functional Urban Area (FUA) and its catchment area was introduced. The Territorial Agenda 2030 (2020) identifies even more types of areas, emphasising that Europe is made up of different types of territories: These include capital and metropolitan regions, small and medium-sized towns, urban fringe areas, rural areas, inner peripheral areas, peripheral areas,

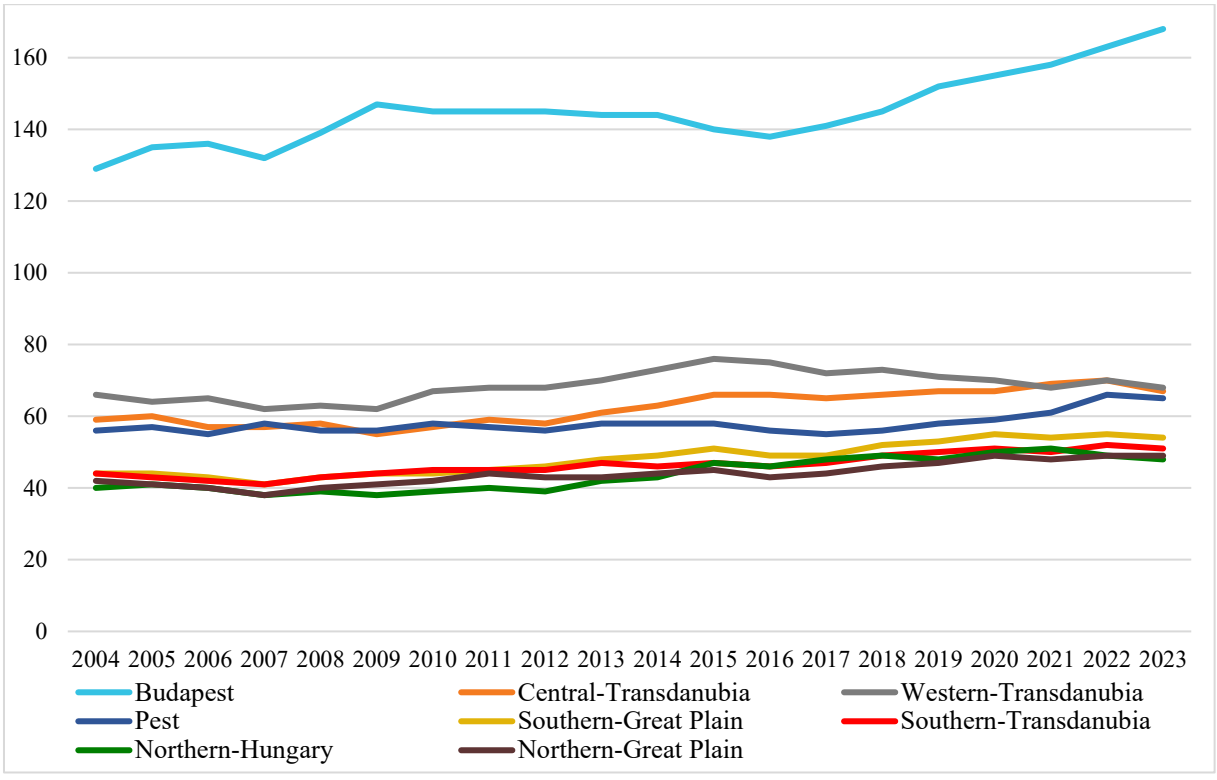
northernmost areas, sparsely populated areas, islands, coastal areas, mountain areas, outermost regions, cross-border regions, macro-regions, areas facing demographic decline, and areas affected by economic and industrial transition. These areas have very different development potential and face different challenges, the precise identification of which can contribute to increasing the effectiveness of cohesion policy. Institutionalised instruments that differ from traditional ones have been available since 1989 to deal with the specific territorial units of the EU. Initially, this was the purpose of the Community Initiative Programmes (CIP) (e.g. rural areas – LEADER, cities – URBAN, border regions – INTERREG), which ceased to exist in their original form in 2007, but most of them have been continued in some form. Since 2014, new instruments have been introduced in the new type of cohesion policy, which are specifically designed to support the complex development of areas not linked to the traditional NUTS3 level, such as Integrated Territorial Investment and Community-led Local Development.

It is also worth noting that, apart from regional policy, the Common Agricultural Policy, which is the second largest user of the EU budget, also applies special territorial delimitations that differ from those of regional policy. This is justified by the needs of rural development, which have been defined as the second pillar of the Common Agricultural Policy since 2000. There are several methodologies for delimiting rural areas, some of which are of theoretical importance, while others are indispensable from a statistical point of view. However, in support policy, only the LEADER delimitation is accepted, which is based on Local Action Groups interpreted at LAU level, which are not compatible with NUTS. The methodology for delimitation in this case is very simplified, based solely on population and population density data, does not include economic or social indicators, and has remained essentially unchanged since the launch of the LEADER programme in 1991, despite its transfer from regional policy to the CAP in 2007, which fundamentally changed its financing and objectives. It is precisely the latter that has led to increasingly sharp criticism of LEADER, as the objectives set out envisage increasingly complex rural development interventions, for which only limited resources are available. Naturally, the question arises as to what extent a fundamentally sectoral policy can be expected to apply a territorial approach to its sub-policies and to use its sectoral resources to fix social problems. The development of rural areas is a typical area where joint intervention by several community policies may be justified.

NATIONAL DEVELOPMENT, TERRITORIAL POLARISATION AND ITS MANAGEMENT IN HUNGARY

The positive impact of EU cohesion policy on economic development (European Commission, 2024; OECD, 2023; TA2030, 2020) is undeniable at both the Community and individual Member State levels. Hungary's economic development relative to the EU average increased from 63% at the time of accession in 2004 to 77% in 2024 (Eurostat, 2025a). Over the same period, domestic GDP growth significantly exceeded the EU average (1.4%), averaging 2.1% per year (Eurostat, 2025b). However, as highlighted in the 9th Cohesion Report, territorial disparities have not disappeared, with more than a quarter of the European Union's population still living in regions with less than 75% of the average per capita economic development of the EU (European Commission, 2024). The global and European trend of intra-country territorial polarisation of development (Ezcurra, 2019; Heidenreich & Wunder, 2008) is particularly pronounced in the region of Central and Eastern Europe, where the driving force of national economies is concentrated in capital cities (European Commission, 2024). In line with this, a time series analysis of gross domestic product at NUTS 2 (regional) level also points to the fact that not all regions benefit equally from the results of economic development, and this trend has not changed significantly in nearly two decades (Fig. 1).

Figure 1 GDP per capita (PPS) in Hungary's regions in percentage of the EU-27 average

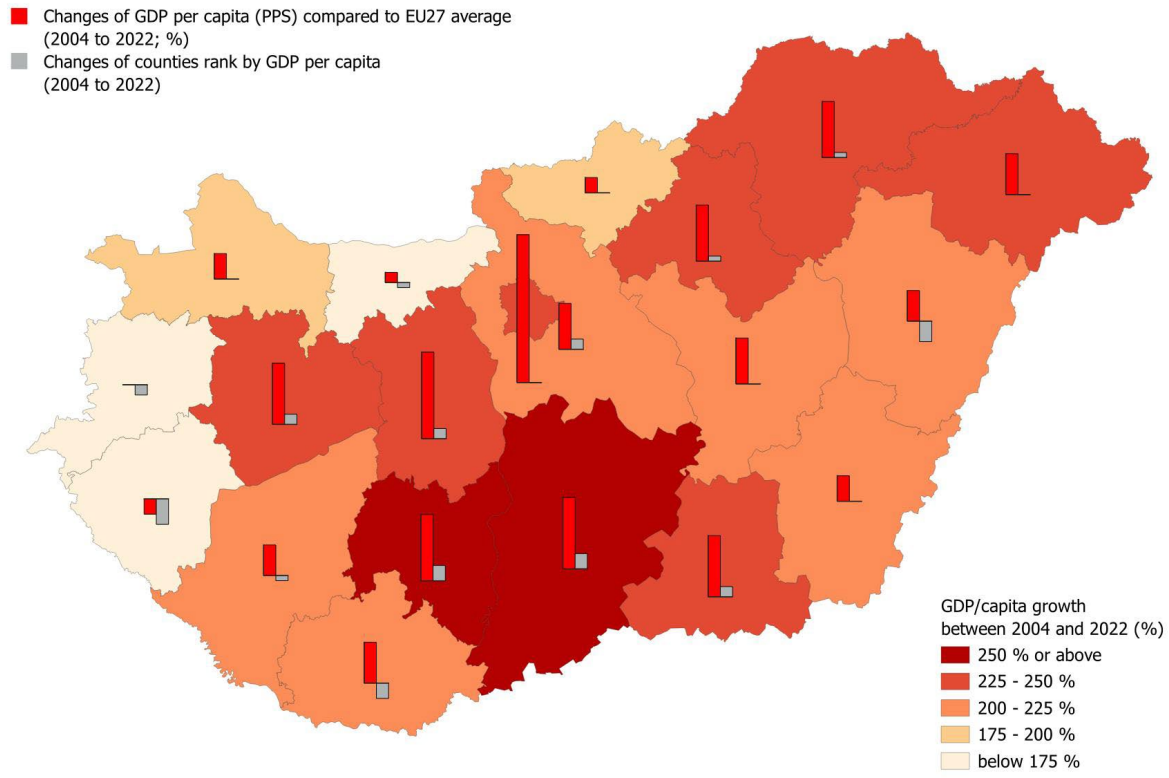


Source: edited by the authors based on Eurostat, 2025c.

This deeper level of regional analysis reveals that the long-standing polarisation of the Hungarian economy and the concentration of economic and social resources within the country have caused the development gap between the capital and the regions to widen in recent years (Medve-Bálint, 2024).

An analysis of economic growth since 2004 at the county (NUTS3) level further nuances the picture (Fig. 2). While Budapest's economy grew from 129% of the EU average in 2004 to 158% in 2022, the economy of Nógrád county, which borders the central agglomeration, grew from 32% to only 35% over the same period.

Figure 2 GDP per capita (PPS) in Hungary's counties from 2004 to 2022



Source: Edited by the authors using data from the Hungarian Central Statistical Office.

Examining development differences at a lower statistical level (NUTS 3 on the map above) provides a more nuanced picture of the internal development differences within a country or region. On the one hand, this draws attention to the limitations of the regional (NUTS 2) resource allocation mechanism of cohesion policy (due to the territorial differences characteristic of most regions) and, on the other hand, raises the need for more detailed analyses at even lower territorial levels.

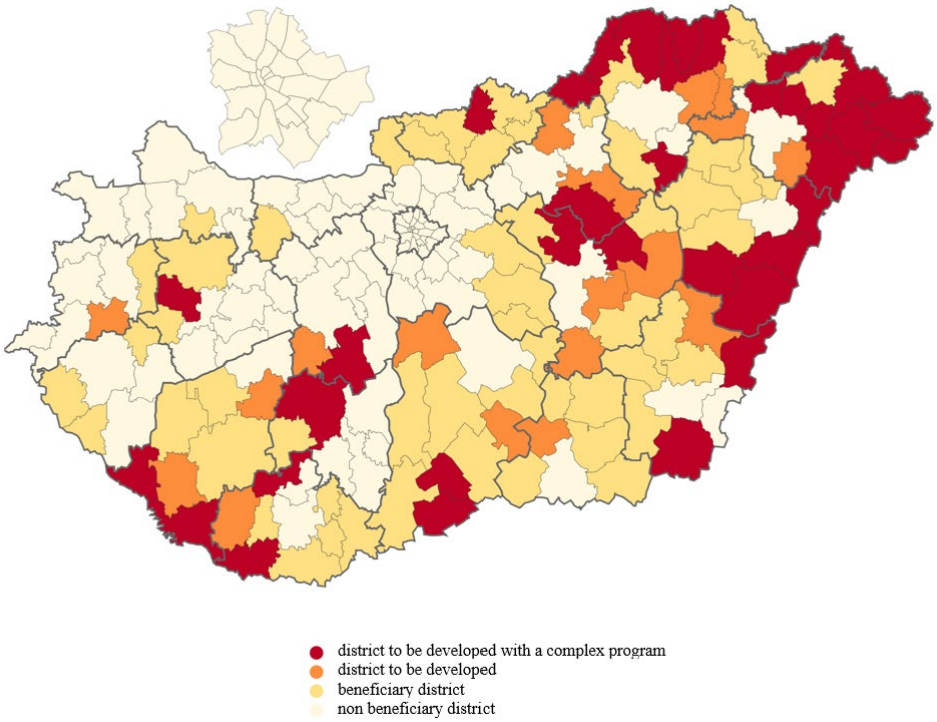
In Hungary, development policy has placed greater emphasis on the catching up of regions and settlements lagging behind in terms of socio-economic development since the 1980s. Initially, the focus was on settlements, but it was not until 1996 that regional-based delimitation came to the fore, which has since been supplemented by disadvantaged settlements. During the transition to a new political system and preparations for EU accession, the direction and framework of development policy changed significantly, which also affected the interpretation of beneficiary regions.

The first differentiated, multi-level beneficiary system was introduced by Government Decree 80/1996. (VI. 7.), which defined four thematic target areas: in addition to regions with significant unemployment, socio-economically disadvantaged regions, regions undergoing industrial restructuring and regions eligible for agricultural rural development were also identified as target areas. Until 2007, there were no significant changes in the territorial benefit system of development policy, with only the target area of regions with significant unemployment being changed to regions with long-term unemployment.

The classification of target areas based on a complex indicator system similar to the regional benefit system used today was first applied by Government Decree 311/2007. (XI. 17.), which defined four beneficiary target areas based on a complex indicator comprising 32 indicators: disadvantaged areas, most disadvantaged areas, most disadvantaged areas requiring complex programmes, and temporarily beneficiary micro-regions. During this period, the support policy instrument system already widely applied this classification by dedicating targeted support funds, ensuring higher aid intensities and awarding additional points during the evaluation of applications, both under EU and domestic support schemes.

The regional-based beneficiary structure currently in force, as defined by Government Decree No. 290/2014 (XI. 26.), defines four target areas: beneficiary districts, districts to be developed, districts to be developed with complex programmes, and temporarily beneficiary districts (Fig. 3). The system assesses the development of Hungarian districts using a composite indicator based on a total of 24 social, economic, environmental and infrastructure indicators. The indicator and the set of indicators examined assess the development of the 174 domestic (non-capital) districts using a much more complex set of criteria instead of an assessment based solely on economic performance. The government decree establishes a list of 109 districts that do not meet the national average level of development by setting up three beneficiary categories. The municipalities in the districts classified in this category were able to obtain additional resources through positive discrimination in the allocation of funds for both the 2014-2020 and 2021-27 programming periods.

Figure 3 Beneficiary districts in Hungary, 2025



Source: https://www.ksh.hu/teruletiatlasz_egyeb_teruletilehatarolasok

ASSESSMENT OF THE HUNGARIAN REGIONAL AID SYSTEM

The Hungarian practice described above and its evolution clearly show that development policy interventions and beneficiary systems in Hungary have been continuously adapted to changes in socio-economic processes, but have largely been implemented along administrative and statistical boundaries. Although the current composite indicator system provides a complex picture of territorial disparities, its review would be justified from several points of view. In the following, we will basically list the factors that were already discussed in the presentation of EU practice: time factor, territorial level, methodology and instruments used.

In Hungary, the current regulations governing beneficiary areas were adopted in 2014 and supplemented at municipal level in 2015. Previously, Hungarian regulations were linked to the renewal of the National Development and Regional Development Concept programme periods, but since this was not completed for the 2021-2027 budget period, the review of the regulations on beneficiary regions was also postponed. Although the application of beneficiary classification across several programming cycles is not unprecedented (see, for example, Poland's current classification, which was established in 2018 (Szabó & Szabó, 2023), this time frame is likely to provide a meaningful opportunity to track changes over time in a relatively

flexible manner only in the case of multi-level governance, which is currently not feasible in Hungary with its unitary system. On the other hand, from a methodological point of view, it is not advisable to leave it unchanged for more than 10 years. Pénzes (2015) has already reported in detail on the temporal changes in the statistical procedure used to delimit beneficiary areas. In Hungary today, the set of indicators used to define beneficiary regions includes several elements linked to census data, but given the shortage of updated data since then, it still contains the 2011 indicators despite the availability of the 2022 data. For the other indicators, we used the 2013 values. Other issues have also emerged concerning the methodology. As pointed out in our previous study (Mezei, 2024), in addition to updating the data for individual indicators, it is also advisable to modify the set of indicators, due to the presence of indicators that are outdated, no longer measure development, or do not differentiate between regions (e.g. urban/rural index); as well as those that are affected by changes in legislation regarding their collection or background (e.g. local tax revenues of municipalities). In addition, there are indicators related to access to public services that should be included in the indicator set (e.g. population with local access to basic education and health infrastructure).

The analysis of changes in the relative development of districts, in accordance with the recommendation of the Ministry of Public Administration and Regional Development, can be carried out by a comparison of the 2013 and 2022 data, and by classifying the districts into three thematic groups instead of the previous four, using 23 indicators and normalised group indicators to calculate an average complex indicator (Table 1). As a result, the number of beneficiary districts would decrease from the current 109 to 99.

Since 1996, the territorial level used to define beneficiary areas in Hungary has been the so-called lower middle level, to which settlements are only linked on a supplementary basis. Between 1996 and 2013, the delimitation was based on LAU1, although small regions without historical traditions followed a unique path of development in the country. Since 2014, the basic units have been beneficiary districts, meaning that the territorial framework for delimitation and resource allocation has shifted from regional development to public administration. However, this approach has several limitations.

On the one hand, the boundaries of administrative units do not always reflect the actual spatial organisation of socio-economic functions, such as labour market networks, commuting zones or agglomeration processes (Mayer & László, 2024). On the other hand, measuring development and designating target areas using composite indicators is often a static system that is rarely updated, and is not necessarily able to respond flexibly to economic and social changes or the dynamics of territorial differences.

Table 1. Components of the composite indicator recommended for district classification

I. Social and social situation	1	Mortality rate (number of deaths per thousand inhabitants) (average for the last five years), ‰ (2017-2021)
	2	Domestic migration difference per thousand inhabitants (average of the last five years), persons (2017-2021)
	3	Number of places in nurseries and day-care facilities per 10,000 permanent residents aged 0–2, number (2021)
	4	Proportion of the permanent population aged 0–24 receiving regular child protection benefits, % (2021)
	5	Number of persons receiving employment replacement benefits or municipal benefits per thousand permanent residents aged 15 and over, persons (2021)
	6	Life expectancy at birth by male district, average for 2019-2021
	7	Life expectancy at birth for women by district, average for 2019-2021
II. Economic and employment situation	8	Income forming the personal income tax base per permanent resident, thousand HUF (2021)
	9	Number of passenger cars operated by natural persons, weighted by age, per thousand inhabitants (2021)
	10	Proportion of people aged 18–X with at least a secondary school leaving certificate
	11	Proportion of registered job seekers in the working-age population (annual average), % (2021)
	12	Proportion of long-term unemployed (registered for at least 6 months) in the working-age population, % (2021)
	13	Proportion of registered job seekers with at most primary education, % (2021)
	14	Number of active enterprises per thousand inhabitants, number (2020)
	15	Number of retail stores per thousand inhabitants (2021)
	16	Aggregate tax capacity per capita (2022)
	17	Proportion of dwellings connected to public sewage collection network, % (2021)
III. Infrastructure and housing situation	18	Average price of second-hand dwellings, million HUF (2021)
	19	Proportion of dwellings built in the last five years in the total housing stock at the end of the period, % (2017-2021)
	20	Proportion of dwellings without amenities, substandard dwellings and other dwellings in occupied dwellings, %, (2016)
	21	Proportion of paved roads in total municipal roads, % (2021)
	22	Proportion of the district population living within 15 minutes of a motorway junction, % (2019)
	2	Percentage of the district population with local access to basic education and healthcare infrastructure, % (2021)

Source: Ministry of Public Administration and Regional Development, State Secretariat for Regional Development, Support Policy Department.

When examining the issue of beneficiary regions from the perspective of instruments, it is worth treating direct and indirect instruments separately. With regard to direct instruments, the question of how targeted these resources are, i.e. how specific the objectives for which they can be used are and/or how specific the methodology used for delimitation is, cannot be avoided.

In terms of terminology, Act CII of 2023 is rather vague, referring to “areas defined on the basis of statistical characteristics, taking into account the applicable regional development objectives, where development programmes and projects planned for implementation in the administrative area are eligible for priority support through financial and economic incentives”. In the absence of specific intervention objectives, the indicator used is complex, albeit comprehensive, but provides a general picture of the development/underdevelopment of districts and is not particularly suitable for thematization. From a support policy perspective, the advantage of this method is that it does not narrow down the pool of potential applicants in advance, but its effectiveness is questionable. With the targeted selection of indicators, the methodology could be easily optimised for a specific set of objectives, but this would narrow down the circle of stakeholders in advance, which, although welcome from a resource concentration point of view, would increase the risk of resource-driven planning practices.

With regard to the resources that can be used specifically by the beneficiary regions, as underlined in our previous paper (Mezei, 2024), until 2010, a complex, significantly decentralised system of resources from the domestic budget was available to support disadvantaged regions and settlements, which was supplemented by EU funds in parallel with the EU accession process. Post-2010, the absence of substantial domestic regional development resources prompted the prioritisation of the use of EU funds. As a result, the number of municipalities in the beneficiary districts was positively discriminated against in the allocation of resources for the 2014-2020 and 2021-2027 programming periods (Mayer & László, 2024). It should be noted, however, that decentralised actors (counties) have been designated to resolve this task, but given their lack of independent, free resources, they only dispose of EU funds, and are thus ill-equipped to support the beneficiary areas entrusted to them. However, as domestic regional development priorities can only be implemented to a limited extent through the use of EU funds, a centrally distributed domestic fund (the Hungarian Village Programme) was introduced to meet these priorities, primarily to support small-scale infrastructure developments in the smallest settlements. Although the decision-makers' intentions regarding the Hungarian Village Programme are commendable, it should be noted that this programme is explicitly aimed at settlement development, and although its scale does not allow for any regional impact, no expectations in this regard are formulated in the application procedure. Another problem with the Hungarian Village Programme is that it effectively competes with the LEADER programme, which is financed by the European Agricultural Fund for Rural Development (EAFRD), and, due to its simpler administration, is attracting potential applicants away from the LEADER programme. In other words, rather than filling a gap, it is creating

duplication. Based on an examination of direct instruments, it can therefore be concluded that the Hungarian system fundamentally lacks direct domestic, decentralised distribution channels to supplement EU funds. The Competitive Districts Programme, launched in 2025, takes the first steps in this direction, but in terms of the scale of resources and operating mechanisms, it should be treated as an experimental programme for the time being, and its implementation experience and impact on regional development can only be assessed at a later stage. That said, it is safe to conclude that the new Hungarian policy initiatives presented above, which are aimed at catching up, are not linked to a spatial planning and/or regional development system, and in this respect they differ significantly from the EU system.

Among indirect instruments, the OECD (2024) recommends examining factors such as the practice of multi-level governance (particularly in terms of the division of tasks and powers and financial autonomy), the functioning of Regional Development Agencies (RDAs) and the structure of the spatial planning system. In Hungary, however, the district is not the territorial level at which the above-mentioned factors can be meaningfully interpreted. The district does not have a local government, nor does it generate its own resources at this level, it is therefore obviously not involved in multi-level governance. The district is an administrative unit whose basic task is to organise public services at the regional level. No planning documents are prepared at this regional level, and since the district does not appear as an independent entity in calls for proposals, it does not perform any classic regional development activities either. Regional Development Agencies only operated in Hungary until 2013, and even then, only at NUTS2 level, while the districts were established in the same year.

Overall, it can be concluded that the system of beneficiary districts in Hungary faces a number of challenges, from setting objectives and designating the appropriate territorial level to the methodology used and the structure of the toolkit. As the review of the beneficiary regional system is also justified by time constraints, it is advisable to learn about European best practices and incorporate their experiences into the new system.

INTERNATIONAL EXPERIENCES IN THE DEVELOPMENT OF BENEFICIARY REGIONS

Reducing territorial disparities is a priority of EU regional policy, and all Member States must commit to this objective. However, when defining beneficiary regions, Community rules only need to be followed if support is provided directly from EU funds. Where use is indirect (e.g. where eligibility only plays a role in prioritising applicants for EU funds, as is the case in

Hungary) or where domestic funds are used, an independent national eligibility system may be applied at Member State level.

When examining the national beneficiary systems of individual Member States, we attempted to select examples that appeared useful in some respect. In terms of geographical location, historical background and settlement structure, the most obvious choice would have been to examine the V4 countries, but a comprehensive study on this topic was recently published by Szabó and Szabó (2023). Instead, we chose England as the country with the longest tradition of regional development, seeking to determine to what extent the classification of beneficiaries was modified as a result of Brexit. The choice of Italy was justified by its fragmented settlement structure comparable to Hungary, but a regionalised state structure and a long tradition of multi-level governance, not only at the lower middle level but also in relation to the FUA.

Italy: National strategy for internal territories

In 2012, at around the period of the first assessment of district development in Hungary, Fabrizio Barca, Italian Minister for Territorial Cohesion, launched a national strategy for internal areas (Strategia Nazionale Aree Interne) (Porta et al., 2022), in order to promote a place-based approach to economic growth and development interventions and to respond more effectively to territorial challenges (Barca et al., 2012). The initiative gained further momentum during Italy's Presidency of the European Commission between July and December 2014, drawing attention to the internal peripheries across Europe (Servillo et al., 2016).

The programme initiated by Barca aims to explore and develop internal peripheral areas, characterised by small and medium-sized towns as centres, generally located in rural, in many cases mountainous areas (Servillo et al., 2014). An important feature of the programme is that it analyses territorial inequalities not at a regional level, but at a deeper, intra-regional level (Brovarone, 2022). The motivation behind this initiative is that in previous decades, these areas had become significantly marginalised in terms of population, age structure, employment and the quality of public services (Lucatelli et al., 2013).

The strategy, first defined in the 2014 National Reform Programme and the 2014-2020 Partnership Agreement, was also given a prominent role in the 2021-2027 Partnership Agreement (European Commission, 2022) as a key instrument for Italy's territorial cohesion. The document defines groups of settlements characterised by a significant distance from main service centres, particularly in terms of education, mobility, and social and health services.

The Italian model therefore identifies peripheral areas primarily on the basis of their distance from service centres, while emphasising that remoteness from the centre does not necessarily mean below-average development. To resolve this contradiction, the programme offers a two-stage selection mechanism.

The first stage involves identifying less urbanised areas located far from urban centres, which consists of two steps. The first step is to designate the centres that will serve as reference points for identifying rural areas. The methodology was originally based on the initial hypothesis that towns with a population of 35,000 or more occupy a central position. However, subsequent analyses led to the conclusion that there is no necessary correlation between the 'physical' size of a centre and its ability to provide certain services (Agenzia per la Coesione Territoriale, 2021). The methodology for designating centres has therefore shifted over time towards examining the availability of services (education, health and public transport).

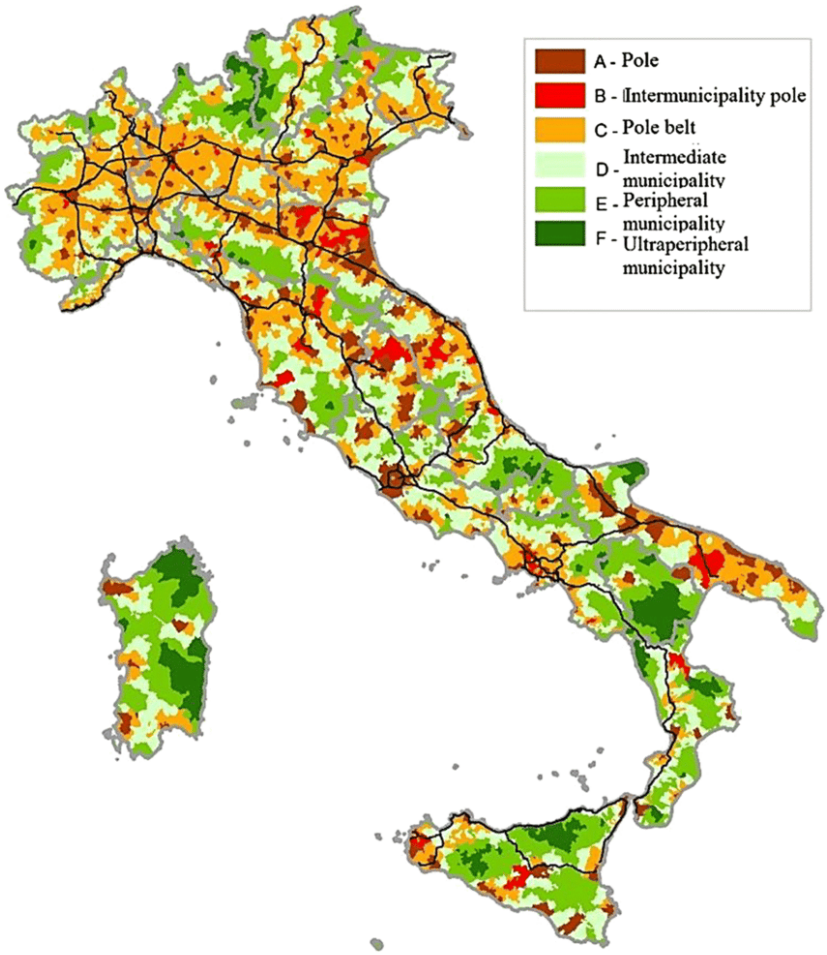
As a second step in the first stage of the identification of internal areas, municipalities not meeting central position criteria are classified into four categories (Fig. 4): belt, intermediate, peripheral and ultra-peripheral areas, based on their distance from the nearest central municipality (Barca et al., 2014).

The internal areas of the country are made up of municipalities belonging to the peripheral and ultra-peripheral zones.

The second phase of the national strategy for the inner areas involves the selection of specific municipalities to receive funding under the programme.

As stipulated in the Partnership Agreement, project areas are selected on the initiative of the regions, following instructions from the Ministry responsible for Cohesion Policy, taking into account demographic, economic, social and environmental indicators that point to critical problems in the area. In line with the Barca Report (Barca, 2009) and its efforts to create more spatially sensitive sectoral policies, the Italian Government proposed a multi-level governance system through the cooperation of the relevant ministries, the regions and local authorities, as well as the economic and cultural actors in the project areas. During the process, each region/autonomous province must submit a nomination dossier specifying the geographical area covered by each area proposed for support (list of municipalities). On the basis of the application documentation, the Ministry responsible for Cohesion Policies will carry out an examination, including direct discussions with the proposing municipalities, to verify that the applications comply with the principles and criteria set out.

Figure 4 Map of Italian municipalities according to the classification into poles and areas with different degrees of peripherality



Source: Perchinunno et al, 2019, p. 1303.

In the evaluation process, the following conditions/criteria are examined for each candidate area:

a) the coherence of the applicant area with the map of internal areas for 2021-2027;
b) the morphological-geographical and historical-identity unity of the area, as well as its size and population;
c) demographic trends in the area;
d) basic services available in the area;
e) the willingness of local authorities to cooperate and form partnerships;

These criteria can be considered as the principles underlying the decision and are not assessed on the basis of a checklist. Their interpretation is largely based on the experiences gained during the implementation of the Programme between 2014 and 2020 (Presidenza del Consiglio dei Ministri, 2021).

The applicant areas are evaluated based on 161 indicators in a 9-dimensional indicator grid aligned with the above principles. This methodology has been criticised due to the large number of indicators and the limitations of data collection at the municipal level, and proposals have been made to simplify it (Rossitti et al., 2021).

Using the above methodology, 72 internal areas were selected for the 2014-2020 programming cycle. Overall, this group of beneficiaries comprised 1,060 municipalities with a population of approximately 2 million, covering an area of approximately 51,000 km2. This area covers 13.4% of all Italian municipalities, 26% of municipalities classified as internal areas, 3.4% of the national population and 15.5% of the population living in municipalities classified as internal areas. Its territory accounts for 17% of the country's total area and 28.4% of the total area of all Italian inland areas.

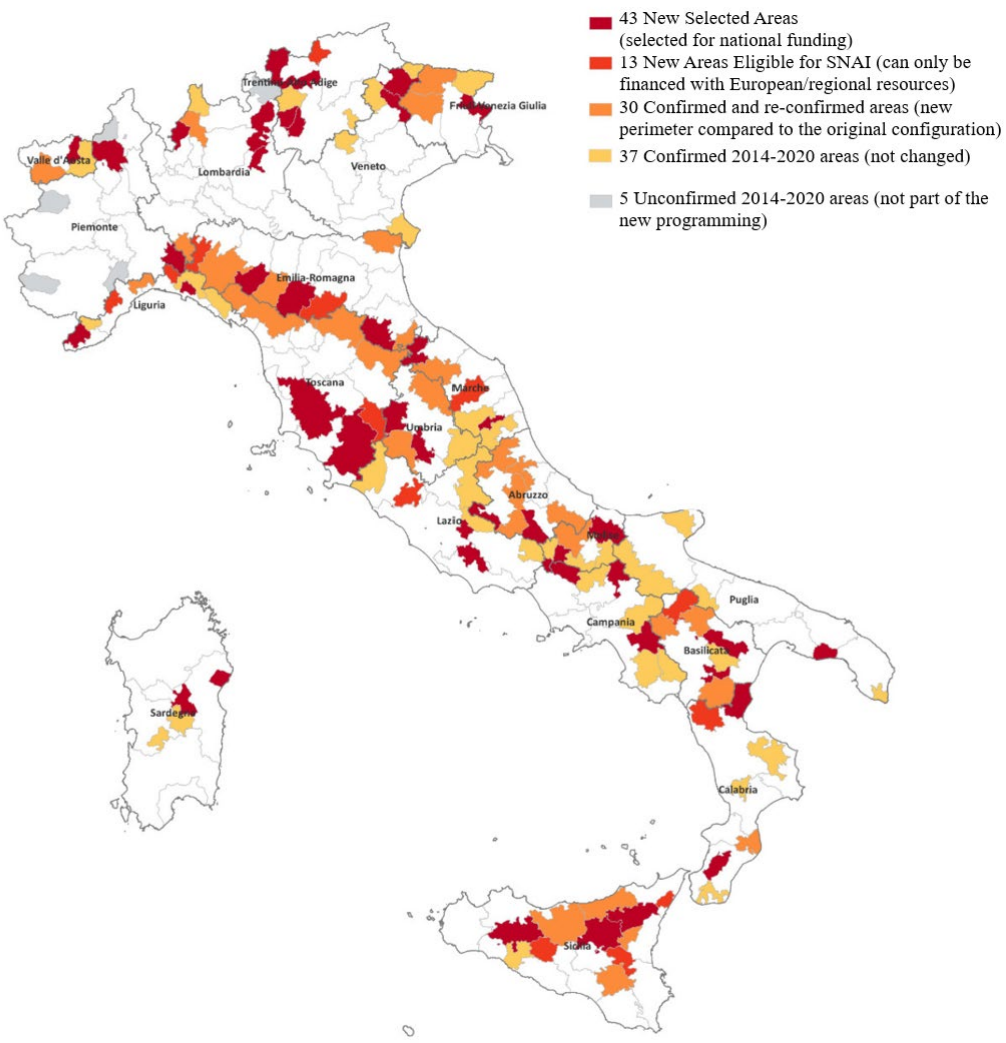
In the 2021-2027 programming cycle, in addition to the review of the target areas for the 2014-2020 period by the regions, new areas were designated and the number of project areas increased significantly. Overall, 124 project areas, 1,904 municipalities and 4,570,731 inhabitants will participate in the Programme in the 2021-27 period (Fig. 5).

The UK's regional selection system for development policy programmes based on a deprivation index

The regional inequality that characterizes Great Britain is a long-standing problem, not one that arose after Brexit (McCann, 2016). A wide range of programmes have been launched to help “futureless” and “left behind” areas catch up (2021 – Levelling Up Fund; 2022 – UK Shared Prosperity Fund; 2023 – Levelling Up Partnership). Support for the most deprived areas and a commitment to “levelling up” often become a key part of political programmes, with the current government in power sometimes merely changing the slogans and packaging (Fransham et al., 2023).

This aspiration has been further strengthened in the island nation after Brexit. The British governments have sought to replace programmes previously implemented under the European Regional Development Fund (ERDF), the European Structural Fund, the European Agricultural Fund for Rural Development, and the European Maritime and Fisheries Fund with national programmes. The latest such initiative is the “Plan for Neighbourhoods” programme, announced by the UK government on 4 March 2025, replacing the Conservative government's “Long Term Plan for Towns” programme, which was due to run until 2024.

Figure 5 Internal areas of Italy (2021-2027)



Source: Presidenza del Consiglio dei Ministri – Dipartimento per le Politiche di Coesione, 2025. p. 69.

Although a more detailed exploration of the motivations behind raising the programme targeting small towns to the neighbourhood level is undoubtedly an exciting topic for research, our study does not aim to provide a comparative analysis of the structural, political, settlement or spatial development aspects of these programmes, but rather to understand the theoretical background for the selection of intervention sites.

The programme, with a budget of approximately £1.5 billion, aims to bring the 75 most deprived areas of England, Wales, Scotland and Northern Ireland up to speed. According to official government communications, this financial allocation will be used over a period of 10 years to tackle the root causes of deprivation in three areas: thriving places, stronger communities, and taking back control (Department for Levelling Up, Housing and Communities (DLUHC), 2022).

The Plan for Neighbourhoods announces support for 75 locations in the country's most deprived areas through the evaluation of complex indicators in two stages (55 locations in October 2023 and then 20 more locations in March 2024).

As a first step, lower tier local authorities (LTLA) are ranked according to their 'levelling up need' based on the methodology set out in the Levelling Up White Paper published in 2022 (DLUHC, 2022).

The document identifies the most deprived local authorities separately for England, Wales, Scotland and Northern Ireland using a methodology based on a combined assessment of four performance indicators, in accordance with the initial methodology (later modified for Scotland, Wales and Northern Ireland). The indicators examined are: gross value added per hour worked, the proportion of people with vocational qualifications, median gross weekly pay and healthy life expectancy.

All local authorities in the United Kingdom are ranked according to the four indicators, and those in the bottom quartile are assigned a value of '1'. The number of occurrences in the bottom quartile for each local authority is summarised in the four rankings.

The priority list for local authorities in England, Wales, Scotland and Northern Ireland is drawn up separately for local authorities in the bottom quartile for three or more indicators (Fig. 6.).

In order to achieve a more even geographical distribution, regional caps have also been introduced within the nations of Great Britain. A maximum of 10 local authorities per ITL2 (NUTS2 equivalent) region in England, a maximum of 3 in Scotland and a maximum of 2 in Wales have been included in the shortlist.

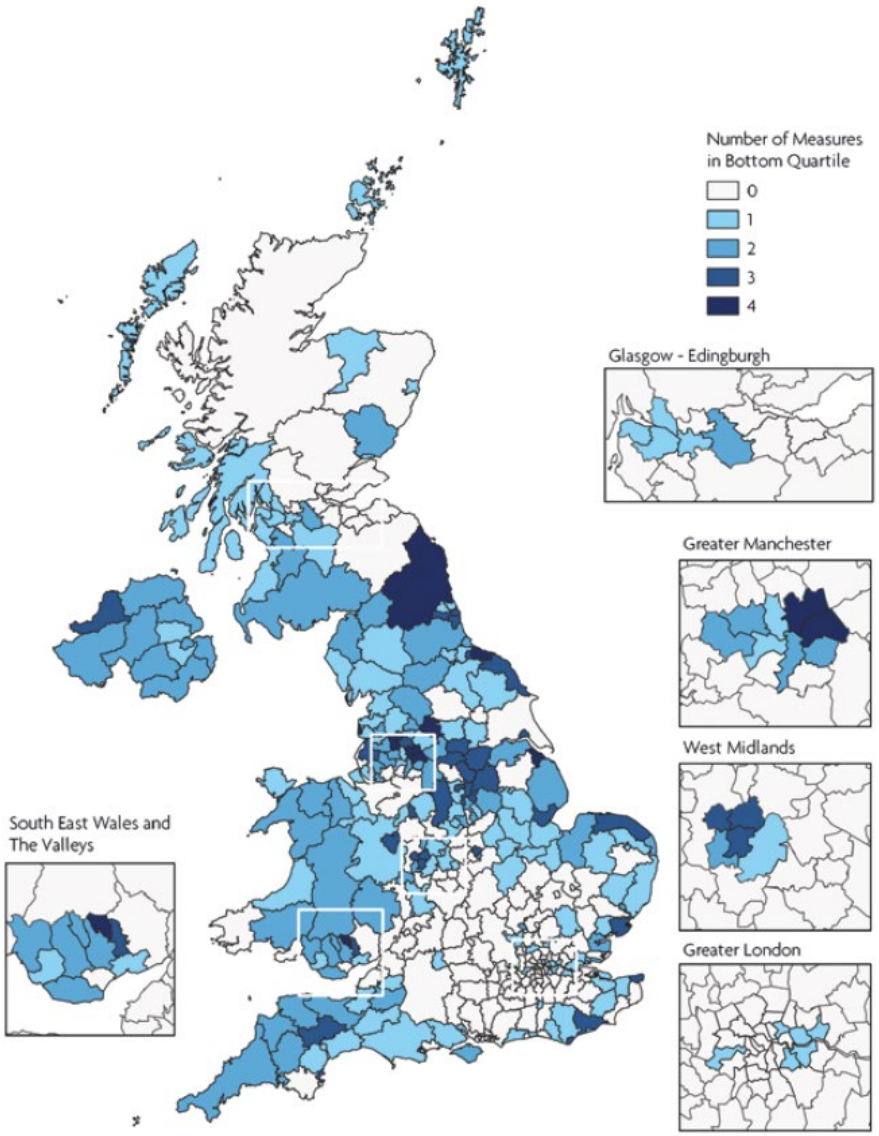
As a result, the first 58 local authorities in England, the first 10 in Scotland, the first 5 in Wales and the first 2 in Northern Ireland were selected based on their deprivation ranking.

The next step is to identify the most deprived built-up areas of local authorities (LTLA) using the Indices of Multiple Deprivation.

The Deprivation Index is a tool for measuring deprivation at a low territorial level in many countries (Republika Hrvatska, World Bank Group, 2017) and has a long history in the United Kingdom. As some of the national statistical methodologies in Great Britain differ in terms of the territorial level and timing of the production of several indicators, separate country indices are produced, but using the same methodology (Ministry of Housing, Communities & Local Government, 2019; Scottish Government, 2020; Welsh Government, 2025; Northern Ireland Statistics and Research Agency, 2017). These use a set of indicators organised into seven clusters (income, employment, education, health and disability, crime, housing and services,

and living conditions) at a low territorial level, the so-called Lower Super Output Areas, to describe territorial inequalities. The main criterion for delimiting these territorial units (32,844 in total), which form neighbourhood levels, was comparable population size. Accordingly, their average size is 1,500 inhabitants or 650 households.

Figure 6 The most left behind places in the UK, 2020



Source: Levelling Up the United Kingdom White Paper, 2022. p. 18.

After standardising and normalising the indicators within each indicator group and then weighting them using factor analysis, a score is produced for the given area. Based on the value of the deprivation index, the 32,844 LSOAs are ranked according to their level of development (where 1 is the least developed and 32,844 is the most developed).

The deprivation indices of LSAs can also be used to create development indicators at higher territorial levels. Among other things, this allows for the analysis of deprivation patterns at the level of local authorities (Local Authority Districts) and the assessment of built-up areas (BUAs). The latter provides the basis for identifying the places that will benefit from the Plan for Neighbourhoods programme. Within each BUA unit of the 75 selected local authorities, the LSOAs located within its boundaries are aggregated by simple addition. The final beneficiary of the programme is the town with the lowest aggregate score in each local authority.

The efforts of British regional development policy are certainly noteworthy as they seek to uncover regional inequalities through detailed regional analyses. However, the scientific basis of the Levelling Up White Paper's set of indicators and methodological principles has been criticized in recent years (Nurse & Skyes, 2023). Most of the criticism in the literature has focused on the details of the programme's implementation: schemes supporting job creation programmes that finance low productivity activities, as well as cultural and recreational urban regeneration interventions instead of real levelling-up interventions (Jones, 2024).

DISCUSSION AND CONCLUSION

Our article presents three distinct methodologies for identifying and selecting regions that are lagging behind and are considered to be key target areas for territorial cohesion. The approaches of the three European countries differ significantly in several respects, but in certain areas they provide useful experiences that can be transferred across countries.

Hungary has been using LAU1-level assessment since 2014, taking districts as administrative units as the lowest level in examining the country's development patterns. The assessment is made through the complex analysis of several social, economic, infrastructural, and environmental indicators. Although districts provide a good framework for the territorial organisation of public services that are accessible on an equal basis, in recent years, social and economic processes that occur independently of administrative boundaries and are becoming increasingly significant have been at the center of both scientific and policy discussions. Their effects and consequences raise the need for a more spatially sensitive, place-specific approach that allows for greater cooperation between central and local government and sectoral actors. In reviewing the current Hungarian regional benefit system, both the Italian and British models offer examples worth considering in this regard.

The Italian “Strategia Nazionale per le Aree Interne” programme focuses on the development of internal areas that are physically (based on road distance) separated from

metropolitan and highly urbanised areas, thus enabling a more targeted response to the problems of peripheral areas. In this approach, cooperation between central (government) and local (municipal, civil) actors plays an important role: decisions on projects receiving support are made jointly, thus creating a balance between local motivations and central mechanisms.

The British deprivation index model offers an alternative for more accurate territorial targeting, which is similar in many respects to the Hungarian district classification system: it measures relative deprivation, forms clusters from the indicators and carries out the assessment using thematic indicator groups. However, the strength of the British model lies in its use of a well-structured and regularly updated system of indicators to measure and monitor territorial disadvantages, which is able to respond flexibly to social and economic changes.

A common feature of the models used in the three European countries is that they have been subject to a series of critical comments regarding both the methodology used and the effects achieved in terms of regional convergence. A more in-depth analysis of the various practices and an exchange of experiences also provide a good opportunity to take European Union cohesion policy to the next level.

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CO-EXISTING SPATIAL CONCEPTS AROUND THE CARPATHIAN (PANNONIAN) BASIN

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Abstract

The Carpathian Basin (or Pannonian Basin) exhibits undeniable unity in physical geographical terms, such as topography, hydrography, and biogeography. This natural cohesion is universally acknowledged, even by representatives of differing ethnic and national backgrounds, but it is also true that social, economic, and urban spatial processes also spectacularly cross national borders in the region. However, this spatial unity does not extend to historical, cultural, political, social, or economic dimensions, where ethnic and national perspectives take precedence. For Hungarians, the Carpathian Basin represents a more integrated historical and spatial concept, while other state-forming nations in the region do not centre their territorial identities around it. Multilateral cooperation initiatives in Central and Eastern Europe – such as the Carpathian Convention, Carpathian Euroregion, EUSDR, EUSCR, V4, 3SI – do not prioritize the Carpathian Basin as a cohesive unit. Instead, their focus is often shaped by broader regional interests and the foreign policy agendas of powerful actors, particularly Poland, rather than by tailored strategies for the Carpathian area itself. Despite this, a distinct regional identity is observable among Austrians, Ukrainians, Romanians, Serbs, and Slovenians living in and around the Carpathian Basin. This identity, although not consciously rooted in the collective memory of the historical heritage of the Kingdom of Hungary, arises from certain regional characteristics, including the unique historical and cultural development of these peoples' communities located in the Carpathian Basin, which differs from the others. These phenomena are common large-scale regional features independent of national and ethnic borders, but they rather reflect contemporary Central and Eastern European and general regional dynamics than a direct distinct connection to the Carpathian Basin.

Keywords: territorial identity, spatial conceptualization, Carpathian Basin, Pannonian Basin, Central and Eastern Europe

INTRODUCTION

The Carpathian Basin is a geographical term that among other spatial organizations represents the traditional ethnic Hungarian settlement area1. According to the Hungarian collective consciousness this was the territory occupied by the conquering ancestors, and within which the Kingdom of Hungary existed for over a thousand years. According to the Hungarian perspective, the Carpathian Basin is thus a geographical unit – not only in terms of its special and distinct environmental structures (topography, hydrography), but also in the spatial

[1] Basically, the same area is also referred to as the Carpathian Region or Pannonian Basin/Region in many languages used in this region (Fejes, 2011).

organization of social and economic systems. Furthermore, it is also a space that contributes to Hungarian identity formation. This study aims to examine the other spatial concepts and identity-forming spaces related to the Carpathian Basin that can be identified among the peoples living alongside Hungarians in the region.

Our research question focuses on how certain countries located in the Carpathian Basin surrounding Hungary and their titular ethnic groups interpret their socio-economic spatial organizations, and whether there are differences between the spatial interpretations of the neighbouring peoples within and outside the Carpathian Basin. Furthermore, since the Carpathian Basin as a whole is influenced by the cooperation of the nation states of the European Union, the question also arises as to whether the Carpathian Basin, which spans national borders, can be interpreted in this supranational space.

This research draws on decades of Hungarian literature interpreting the Carpathian Basin, and occasionally even foreign authors have addressed this topic. This study aims to go beyond these precedents by attempting to synthesize the meanings conveyed by the Carpathian Basin, covering all the countries concerned, all the major ethnic communities, and even the European Union's spatial concepts. Based on this broad overview, it draws conclusions about the validity of the Carpathian Basin concept.

THEORETICAL BACKGROUND: THE TERM "CARPATHIAN BASIN" IN THE LITERATURE

Understanding the Carpathian Basin

The Carpathian Mountains, located in Central and Eastern Europe (CEE), are part of the Eurasian mountain range, covering an area of 190,000 km², and forming a chain of mountains stretching 1,500 km, enclosing the 325,000 km² area of the Carpathian Basin (Dövényi, 2016). In addition to its mountainous structure, the Carpathian Basin also forms a hydrographic unit, as it encompasses the watershed of the middle section of the Danube River. The Carpathian Basin is a closed unit from a geomorphological and physical geographical point of view, distinct from the Bohemian-Moravian Basin, the Polish Plain, the Ukrainian Plain, Wallachia, and Moldova. In the geomorphological literature, the Carpathian Basin is regarded as a unique phenomenon, although its name may vary depending on the era, country, academic discipline, and language – for instance, it may appear as the Pannonian Basin, the Hungarian Basin, or the Central Danube Basin (Hajdú, 2015b).

This natural geographic area has provided the framework for various social and political processes, and has been the target of geopolitical ambitions (Hajdú, 2015a). As part of the Austro–Hungarian Monarchy, the territory of the Hungarian state extended across most of the Carpathian Basin, including the historical Kingdom of Hungary and its annexed regions. However, following the Treaty of Trianon after the First World War in 1920, the territory of the Hungarian state was reduced to the central and lowland areas of the basin, and the sources of 90% of its watercourses now lie outside the national borders (Benyhe, 2018). In addition to Hungary, the successor states of the Austro–Hungarian Monarchy also became dominant powers within the Carpathian Basin (Hajdú, 2008), leading to the fragmentation of the traditional ethnic Hungarian settlement areas across the newly established states.

Between the two world wars, Hungarian geopolitical thinking was primarily focused on revisionist aims concerning the Carpathian Basin. While this led to temporary successes, the peace treaty concluding the Second World War restored the borders set by the Treaty of Trianon (also resulting in the loss of another three villages of the so-called Bratislava Bridgehead [*Pozsonyi Hídfő* in Hungarian]). At the same time, this period (until the end of the Second World War) marked the peak of scholarly exploration of the significance of the Carpathian Basin (Boda, 2021). Hungarian scholars such as Ferenc Fodor (1928), Gusztáv Kalmár (1942), and Pál Teleki (1931) aimed to substantiate the necessity of the region's political unity, emphasizing the dominant – though not exclusive – role of the Hungarian population. One of the main arguments of this perspective was the economic spatial structure of the Carpathian Basin, shaped by the division of labour between different regions of the area. Further changes in regional state power relations occurred with the dissolution of the Soviet Union and Yugoslavia in 1991, and the partition of Czechoslovakia in 1993.

As a result, the Carpathian Basin became even more politically fragmented, resulting in a highly mosaic geopolitical and geoeconomic pattern consisting of relatively small states (Tab. 1). Hungary and Slovakia can be considered countries whose entire territory lies within the Carpathian Basin, while other countries only partially belong to it: Austria, Ukraine, Romania, Serbia, Croatia, and Slovenia. Some areas with negligible size in Poland, the Czech Republic and Bosnia and Herzegovina can also be considered part of the Carpathian Basin. Thus, today, in this relatively small area, there are countries that are members or associate partners of various economic integration organisations (European Union and Eurasian Economic Union); countries that are committed to the NATO, the Atlantic military alliance and those that are not; countries with very different foreign policy orientations (for example, there are countries with excellent

relations and countries with strained relations with several world powers such as the USA, China and especially Russia).

Table 1 Main geopolitical and geoeconomic orientations in the Carpathian Basin

Membership in international organizations / Foreign policy orientations	Member Countries from the Carpathian Basin
NATO	
NATO member	Austria, Croatia, Hungary, Poland, Czech Republic, Romania, Slovenia
strong relations to NATO	Ukraine *(Comprehensive Assistance Package, NATO – Ukraine Council, weapons supply),* Bosnia and Herzegovina *(military presence)*
cool relations to NATO	Serbia *(historically determined: NATO bombing during Kosovo crisis)*
Militarily neutral	Austria
European Union (EU)	
EU member	Austria, Croatia, Hungary, Poland, Czech Republic, Romania, Slovenia
strong relations to EU	Bosnia and Herzegovina *(candidate member)*, Serbia *(candidate member)*, Ukraine *(candidate member)*
cool relations to EU	–
Eurasian Union (EAEU) relations	Serbia *(free trade agreement with the EAEU)*
Organization of Turkic States relations	Hungary *(observer)*
Relations better than CEE average to world powers such as:	
China (economic, political)	Hungary, Serbia
USA (military)	Croatia, Poland, Romania, Ukraine
Russia (economic, political)	Austria, Bosnia and Herzegovina (Republika Srpska), Hungary, Serbia
Relations worse than CEE average to world powers such as:	
China (economic, political)	–
USA (military)	Serbia, Bosnia and Herzegovina (Republika Srpska)
Russia (economic, political)	Bosnia and Herzegovina, Poland, Czech Republic (in a variable position), Romania, Ukraine

Source: author's own editing

Carpathian basin as a space of identity

The concept and significance of the Carpathian Basin as a Hungarian settlement area are self-evident for Hungarians, as is its geopolitical importance. Although the Carpathian Basin is clearly recognizable and well-defined as a geographical unit, it does not carry the same meaning and importance for the other peoples of the region.

Certain minority ethnic groups and communities living in the Carpathian Basin alongside the Hungarians can be mentioned as exceptions. These are primarily communities that have no kin-state of their own, or whose kin-state lies far from the Carpathian Basin, and who have lived alongside Hungarians for centuries, becoming integrated into Hungarian society. Examples include the Hungarian Armenians and Hungarian-speaking Roma communities, which once lived within the territory of the Kingdom of Hungary but now reside outside Hungary's borders, and may possess full or partial Carpathian Basin-based identity. It is important to note that their identity in this respect may significantly differ from members of their own ethnic group living in the same country (e.g. Hungarian Armenians in Transylvania [Romania] vs. Armenians in other parts of Romania, or Hungarian Roma vs. non-Hungarian Roma in Slovakia or especially in Transylvania [Romania]). The Hungarian Jewish community is in a similar position, although it is officially recognized as an ethnic minority only outside the borders of Hungary. Historically, parts of the ethnic Rusyn communities without a kin-state may have had similar considerations but this has probably changed significantly by now (see more details about the Rusyns and the Ukrainians later).

Among today's various ethnic minorities in Hungary, a Hungarian national identity and a weaker connection to their nation of origin or kin-state are also observable (Bindorffer, 2007). This may indicate that the Carpathian Basin also serves as a space and factor of identity formation for them. This phenomenon can be attributed to the survival of the so-called **Hungarus** consciousness, which prevailed in the former Kingdom of Hungary: despite linguistic and cultural differences, these communities considered themselves part of the Hungarian political nation. Most of the national minorities living in today's Hungary had little or no contact with the historic national movements and nation-building ideologies of their kin-states, which is why many of them have a Hungarian identity (notable examples include the German, Slovak, Rusyn, Romanian, and Croatian communities in Hungary). A similar Carpathian Basin-based perspective may also exist among Armenians and the Roma in Hungary as mentioned earlier.

As we will see in the following chapters, ethnic or ethnographic groups of the neighbouring peoples living outside Hungary but within the Carpathian Basin often possess distinct regional or communal identity patterns, differing from those of their ethnic kin. However, it remains questionable whether these identities primarily reflect the character of the Carpathian Basin, or rather the historical ties of the various ethnic communities to their former common state, the Kingdom of Hungary, or whether their main driving force is simply their attachment to the

given smaller regions inside the Carpathian Basin, or whether other factors play a key role in their formation.

A shared historical past can be a significant factor in identity formation for the members of a community or the residents of a region. The Kingdom of Hungary's thousand-year existence provides a common historical background for the population living in the Carpathian Basin. This, however, does not necessarily lead to the emergence of a unified collective identity today. Even Hungarian historiography acknowledges that some states surrounding the Carpathian Basin have historical roots reaching back at least to the time of the Hungarian conquest or the foundation of the Kingdom of Hungary – despite the fact that their statehood may not have been continuous (e.g. Croatia and Serbia). At the same time, the official historiographies of all surrounding states of Hungary trace their national statehood back to similarly long or even longer historical periods. For the purposes of our analysis, it is particularly relevant that in several of these countries (Slovakia, Ukraine, Romania), dominant historical narratives claim that their state-forming nations—and even the states they shaped—were already present in parts of the Carpathian Basin at the time of the Hungarian conquest.

Carpathian Basin as a space beyond the Hungarian understanding

The concept of the Carpathian Basin does not follow the usual customs of landscape demarcation and naming, as it only covers one side of a mountain range and the flatlands below. According to Fejes (2011), this alone suggests that the demarcation of this region presupposes an additional interpretation that, based on known historical facts, is only present among Hungarians: according to popular belief, the Carpathian Basin coincides with the territory of the thousand-year-old Hungarian state (which needs to be clarified in light of historical facts). This view is not obvious to other peoples and their countries.

Among the works that go beyond Hungarian approaches, Balogh's 2021 work is worth mentioning first, as it provides an excellent overview of the development of the Carpathian Basin as a geographical and geopolitical concept in the first half of the 20th century. Balogh (2021) found that geographical deterministic trends and ideas of spatial social and economic development determined by environmental structures played a major role in the development of the concept. This approach was shared by several influential 19th-century European geographers (especially in German-speaking countries), and during this period, historical Hungary was often cited in international literature as an example of organic state development within natural borders (between the Carpathian mountain ranges). The importance of the social and economic spatial organizing force arising from the natural unity of the Carpathian Basin

was a prevailing view among Hungarian geographers, and indeed remains so to this day, having only been sidelined during the socialist period. Balogh (2021) examined the work of geographical research groups in the countries that shared the Carpathian Basin (Romania, Yugoslavia, and Czechoslovakia) after World War I, when Hungary lost its territory in the Carpathian Basin. He showed that these authors did not consider the Carpathian Basin to be a factor in the spatial organization of their own countries, and in this they could rely on Western European (primarily French) geographical schools that were moving away from the geographical determinism of the time. Geographical works produced in countries neighbouring Hungary have built their spatial concepts around the historical and geographical contexts of their own states' formation (Scott & Hajdú, 2022).

Scott and Hajdú (2022) explore the role of the Carpathian Basin in the European Union's spatial interpretation in connection to the so-called Europeanization of spatial planning (Salamin, 2024). In the course of the 21st century in Europe, primarily in the European Union, a specific kind of territorial governance may emerge in larger spaces that transcend administrative and political boundaries (Salamin, 2021). Following this approach, the Carpathian Basin could also become a space for European regional cooperation. A so-called soft space, such as those currently prioritized by European territorial governance, which are defined not by their administrative boundaries but by the territoriality of functions (Salamin, 2023). The most widespread soft spaces are often defined at the European level (Salamin, 2024), yet the Carpathian Basin is not part of these. However, this logic offers opportunities for the creation of soft spaces at all levels. In this regard, prospects are opening up for the Carpathian Basin, as there are obvious functions that unite this space, or at least transcend the national borders of individual countries in the region: for example, environmental, water management, and landscape ecological structures (Fodor and Gálosi-Kovács, 2019), or socio-economic mobility (e.g., Megyesi & Péti, 2022; Hardi et al., 2009).

Several Hungarian government initiatives are attempting to transform the Carpathian Basin into a European soft space: this idea has appeared in Hungary's development planning documents (Péti, 2014; Péti & Mozga, 2023), development strategies have been drawn up for this area, an economic development institutional system has been established, and Hungarian government-supported economic development programs have been implemented (primarily to support Hungarian communities abroad). These Hungarian state initiatives mainly but not exclusively target ethnic Hungarians and do not really have a multilateral intergovernmental cooperation dimension. Analysing these Hungarian initiatives is not covered by this study, but it is worth mentioning that another political term has been introduced to describe and refer to

the Hungarian settlement area. This term, Carpathian homeland (Kárpát-haza in Hungarian), distinguishes between the Carpathian Basin as a geographical unit and the Hungarian communities living in the Carpathian Basin (Szász, 2016), as today's indigenous Hungarian settlement areas cover a significantly smaller area than the entire Carpathian Basin. The Carpathian Homeland Concept developed by the National Strategy Research Institute considers the Carpathian Basin to be a valid area even in terms of EU funds utilization (Horkay et al., 2015), an approach that was also reflected in the use of Hungarian Member State funds from the EU's cohesion policy, with certain human resource development initiatives gaining a Carpathian Basin perspective (Scott & Hajdú, 2024). With the support of the Hungarian government, cross-border organizations operating under the specific European Union legal system, known as European Grouping of Territorial Cooperation (EGTCs), have also spread along Hungary's borders in the Carpathian Basin (Ocskay, 2016). Furthermore, within the framework of the European Union's European territorial cooperation programs (cross-border and transnational programs), Hungarian communities living in different countries can implement joint initiatives at the Carpathian Basin level. However, according to some studies, bottom-up European Union-level cooperation between Hungarian communities in the Carpathian Basin has been less organized than it could be, and is sometimes hampered by administrative or theoretical obstacles (Péti & Hoffmann, 2016).

However, according to Scott and Hajdú (2022), due to differing interpretations of history, the Carpathian Basin region is burdened and therefore unable to fulfill its multilateral cooperation function: apart from actors with Hungarian ties, there are no real partners for this approach, as they may perceive it as reflecting Hungarian imperial ambitions, which is sometimes reinforced by statements made by Hungarian decision-makers. Moreover, the Hungarian names given to the large regions of the Carpathian Basin, which are divided into individual countries, are either incomprehensible or offensive to the non-Hungarian actors involved. The Carpathian Basin can thus only be interpreted in terms of Hungarian-Hungarian relations, as a neighbourhood viewed solely from the perspective of Hungary, where one of the most important directions of cross-border relationship building can be found between the Hungarian kin-state and the Hungarian minority communities in the surrounding countries. In addition, the Carpathian Basin is also linked to a Hungarian-inspired political interpretation that emerged after the change of regime, according to which the Carpathian Basin is diverse, and this diversity is also provided by Hungarian minority communities outside Hungary, and thus state structures based on the territorial or cultural autonomy of minorities could also be

established here. However, the latter idea was not supported by the countries neighbouring Hungary that had implemented a unified nation-state system.

In the following, we will review the national and ethnic-based spatial concepts of the countries and peoples of the Carpathian Basin, which generally differ from the Hungarian Carpathian Basin-centric interpretations. Before doing so, however, we assess the spatial concepts affecting the Carpathian Basin generated by international cooperation in the narrower international environment of the Carpathian Basin, in Central and Eastern Europe (CEE).

DATA AND METHODS

The methodology of this study is based on the processing of secondary sources and analyzes certain historical and contemporary interpretations of space affecting the Carpathian Basin within the framework of a literature review. This study attempts to synthesize the literature on the subject, drawing on a broader geographical and thematic scope than previous works, and thus to produce new results, which are presented in tabular and map form where appropriate.

When selecting the literature, it was important to ensure that it covers the identity formation of all countries neighbouring Hungary in the Carpathian Basin. The study also strives to reference both Hungarian and non-Hungarian authors. Due to the examination of European Union spatial concepts, the study also had to take into account literature dealing with spatial planning and international development policy initiatives based on a territorial logic.

RESULTS: THE CARPATHIAN BASIN IN MULTILATERAL INITIATIVES OF CENTRAL- AND EASTERN EUROPE

Before we look at the spatial concepts of individual countries and peoples, it is worth reviewing the extent to which this multi-country space is alive in international cooperation. There are numerous transnational cooperation initiatives whose geographical scope covers all or part of the Carpathian Basin (Tab. 2), but there is no multilateral cooperation focusing specifically on this area.

Some international cooperation initiatives that are related geographically also to the Carpathian Basin even include the term “Carpathian” in their names, but apart from the aforementioned Hungarian state initiatives, none of the cooperation initiatives include the term “Carpathian Basin” in their names. According to Scott and Hajdú (2022), the term

"Carpathians" used in certain European international cooperation initiatives does not refer to the Carpathian Basin, but rather to a smaller area that excludes the Hungarian Great Plain.

Table 2 Central- and Eastern European multilateral international initiatives and their member states from the Carpathian Basin

CEE initiated international cooperation	**Member Countries from the Carpathian Basin**	**Member Countries outside the Carpathian Basin**	**Non-Members from the Carpathian Basin**
	Countries of the Carpathian Basin: Austria, Hungary, Romania, Serbia, Slovakia, Slovenia		
Carpathian Convention	Hungary, Romania, Serbia, Slovakia, Ukraine	Czech Republic, Poland	Austria, Croatia, Slovenia
Carpathian Euroregion	*only some regions from:* Hungary, Romania, Slovakia, Ukraine	*only some regions from:* Poland	Austria, Croatia, Serbia, Slovenia
European Union Strategy for the Carpathian Region (EUSCR) *(only a proposal)*	Hungary, Romania, Serbia, Slovakia, Ukraine	Czech Republic, Austria, Poland	Croatia, Slovenia
European Union Strategy for the Danube Region (EUSDR)	Austria, Croatia, Hungary, Romania, Serbia, Slovakia, Slovenia, Ukraine *(partly)*	Bosnia and Herzegovina, Bulgaria, Czech Republic, Germany *(partly),* Moldova, Montenegro	–
Visegrad group (V4)	Hungary, Slovakia	Czech Republic, Poland	Austria, Romania, Serbia, Slovakia, Slovenia
The Three Seas Initiative (3SI)	Austria, Croatia, Hungary, Romania, Slovakia, Slovenia, Ukraine *(partner-participant)*	Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Poland, Greece Moldova *(partner-participant)*, Albania *(partner-participant)*, Montenegro *(partner-participant)*	–

Source: author's own editing.

The first example of cooperation involving the term "Carpathians" is the Framework Convention on the Protection and Sustainable Development of the Carpathians (Carpathian Convention), which has a UN cooperation background that started in 2003. According to Mitrofanenko et al. (2020), the Carpathian Convention promotes dialogue between multiple stakeholders and the joint development of strategies, policies, and projects in a number of thematic and cross-cutting areas; and as such, the Convention can be seen as a mechanism for mutual learning and negotiation in the Carpathians with regard to sustainable development and, consequently, the implementation of the UN 2030 Agenda. Its main objective was to promote cross-border cooperation and develop a multidisciplinary eco-regional approach to facilitate the protection, conservation, and sustainable development of this mountainous region (Pantic, 2022). The geographical scope of the Carpathian Convention covers the Carpathian Basin more comprehensively than other international cooperation initiatives. This is not surprising, considering that the main focus of this initiative is related to environmental structures, dealing with the unique landscapes and natural heritage of the Carpathian mountain region. These natural geographical features are the characteristics that most consensually constitute a unique geographical space along the Carpathians, unlike social, economic, historical, cultural, and political features.

Another international initiative using the word "Carpathians" in its name, the Carpathian Euroregion, was established more than 30 years ago as the second Euroregion in Central and Eastern Europe (Pantic et al., 2022). Once located far from the European Union (despite the fact that the Euroregion is one of the EU's instruments), it now lies on its eastern border. It covers only the northeastern part of the Carpathian Basin, but its territory extends further to the northeast. Its membership consists of some administrative regions of five countries. It provides a framework for looser institutional, consultative, and planning cooperation between administrative and other actors, covering topics such as social, economic, and environmental structures. Among their priorities there are some specific ones: supporting Ukraine's Euro-Atlantic integration; improving the accessibility and development of the public transport system in the region; development in the field of environmental protection and nature conservation, tourism, health, social and cultural environment, preparation for the reception of European Union support (Zochowska, 2013; Khusainov et al., 2023).

The most recent ambitious but as yet unrealized strongly Carpathian-focused initiative is linked to Polish governments. Since the mid-2010, Poland has made attemps to promote an EU policy on the Carpathian region, known as the European Union Strategy for the Carpathian Region (EUSCR). This initiative would follow the tradition of the so-called EU macro-regional

strategies. These strategies were introduced as a new model of EU regional policy designed to foster the integration of regions by reducing national border barriers, promoting cooperation based on complementary strengths, and creating new opportunities for cross-border areas (Maslov, 2019). These ambitions are realised in the frame of macro-regional strategies without creating new rules, institutions, and financing sources, this new macro-regional dimension of EU Cohesion Policy is considered therefore as a new added value (Turșie, 2015), and it necessarily reflects a spatial conceptualization. To date, four macro-regions have been created – the Baltic Sea Region (2009), the Danube Region (2010), the Adriatic and Ionian Region (2014) and the Alpine Region (2015) –, making the initiative focusing on the Carpathians the fifth. This initiative would cover the entire Carpathian Basin, and the geographical boundaries of the macro-region coincide with those of the Carpathian Basin. This is due to the macro-regional strategic cooperation's geographical focus on the central part of Central and Eastern Europe, which encompasses the Carpathian Basin. Hence, it can be seen as a genuine Central and Eastern European initiative coming from Poland (Stańczuk-Olejnik & Szacawa, 2024), the largest regional player. Moreover, it represents a type of Europeanization distinct from other CEE cooperation initiatives, such as the Visegrad Cooperation and the Three Seas Initiative. Besides these CEE-focused considerations, the initiative also mentions the characteristic development needs and opportunities related to the mountainous areas of the Carpathians (Stańczuk-Olejnik & Szacawa, 2024). According to critical voices, the geographical scope of initiatives targeting the Carpathian region largely overlaps with the area of another existing macro-regional strategy, the European Union's strategy for the Danube Region (Stańczuk-Olejnik & Szacawa, 2024). However, whereas the Danube Region stretching from west to east includes not only the Central and Eastern European states but also some Western European core areas, and divides Central and Eastern Europe into two parts (e.g., by excluding Poland), the Carpathian region could constitute a purely Central and Eastern European formation, covering exclusively the new eastern Member States and the accession countries, while bringing together all of the major CEE countries. This EUSCR approach does not refer predominantly to an understanding of the Carpathian Region (and definitely not the Carpathian Basin), but rather expresses Central and Eastern European and Polish interests in the political arena of the European Union. Such a CEE experiment is particularly promising given that European spatial development, strategy, and spatial conceptualization capabilities have generally been dominated by influential actors from Western Europe (Salamin, 2024; Péti et al., 2024). It may still take years for the EUSCR to be adopted, as the initiative has not yet received unanimous support from the governments of the respective countries of the Carpathian region, and the level

of support varies (Stańczuk-Olejnik & Szacawa, 2024) as a result of the coexistence of a plethora of parallel and conflicting spatial concepts concerning the Carpathian Basin (as discussed in the following chapters). The still peripheral position of Central and Eastern Europe prompts these countries to orient themselves toward the core areas of Europe rather than each other. Nevertheless, this Polish initiative could provide a significant impetus to embedding the Hungarian Carpathian Basin concept in an international framework. The aforementioned Danube region – which already has a macro-regional strategy and transnational program in the EU – encompasses the entire Carpathian Basin and other countries, as it covers the entire Danube river basin. This could potentially be an area of cooperation tailored to Hungary, as it may refer to one of the pre-war Hungarian interpretations of the Carpathian Basin, the concept of the Middle Danube Basin (Hajdú, 2004). In addition, the EU institution managing the EU-funded Danube Programme is based in Budapest. Nevertheless, as mentioned above, the programme activities linked to the various Hungarian actors in the programme area (both within and outside Hungary) do not clearly express a Carpathian Basin or Hungarian mission.

Other international initiatives not directly related to the Carpathians or the Carpathian region can also strengthen Central and Eastern European cooperation, and therefore their geographical scope extends to the Carpathian Basin. The Visegrad Group or V4 (including the Czech Republic, Hungary, Poland, and Slovakia) is a multilateral international cooperation with a significant history established within this macro-region. The members of the V4 have coordinated their intentions and measures in the field of Euro-Atlantic integration (Nagy, 1998). The historically changing borders of its member states were consolidated after World War II, yet the multi-ethnic and multi-religious nature of the regions ignited persistent regional disputes (Usiak, 2020). However, as the V4 area only partially covers the Carpathian Basin, the different spatial concepts of the various states or peoples of the Carpathian Basin cannot be studied properly within the framework of the V4 where only the Hungarian-Slovak context is represented. The V4+2 spatial planning cooperation, created as a thematic extension of the V4, also involves Romania and Bulgaria in the V4 circle and covers the Carpathian Basin more extensively. In 2014, this cooperation even published a Common Spatial Development Strategy, signed by the ministers of all of the countries concerned (V4+2, 2014). Although the initial idea was to promote north-south infrastructure connections in this part of Europe (emphasizing their importance alongside the dominant east-west connections), the strategy identified common socio-economic characteristics that are highly relevant in the context of the Carpathian Basin (heritage linked to colourful cultural patterns, sensitive and interrelated natural features).

The Three Seas Initiative (3SI) is a relatively new international cooperation in Central and Eastern Europe, established on the initiative of Poland. The initiative is based on a cooperation model typical to Central Europe, which provides a certain degree of stability and repetition but it has no permanent structure or administrative background (Orzelska-Stączek, 2024). Its main objectives are the development of energy, transport, and digital infrastructure within the geographical scope of the initiative, and security, which has become increasingly important since the outbreak of the Russian-Ukrainian conflict (Lewkowicz, 2024; Dumitrescu, 2024). The broad geographical scope of the Three Seas Initiative encompasses the entire Carpathian Basin. Although this initiative does not interpret the concept of the Carpathian Basin either, the differing foreign policy orientations of its member states and the initiative's strong security focus may trigger interesting debates that also reflect different spatial concepts related to the Carpathian Basin.

RESULTS: SPATIAL CONCEPTS AROUND HUNGARY

The Slovak "counter" spatial concept

At present, alongside Hungary, the entire territory of Slovakia also lies within the Carpathian Basin. The Hungarian term "Felvidék" refers to a historical Hungarian region covering the same area as Slovakia itself (Fig. 1). Small Slovak communities are also present in every other country of the Carpathian Basin. Nevertheless, the Carpathian Basin is not a prominent category in defining Slovak spatial identity. In fact, due to its similarity to the geographical extent of the Kingdom of Hungary, the use of the concept of the Carpathian Basin may carry a pejorative connotation among the Slovak public, interpreted as a denial of Slovak statehood. Slovakia's separate geographical position is more closely tied to its 20th-century independence, having previously played a subordinate role in larger state formations – first as part of the Kingdom of Hungary, then of Czechoslovakia (Ištok & Plavčanová, 2015).

According to Slovak historiography and national narratives, the first independent political entity of the ancient Slovak settlement area was the Great Moravian Empire (Kollai, 2005). (There is no consensus among Hungarian or other historians regarding this theory of Slovak origin.) This empire, whose downfall was partly due to the arrival of the Hungarians in the Carpathian Basin, was not confined within the boundaries of the Carpathian Basin – it extended westward into its western parts and beyond.

The second largest Hungarian minority in the Carpathian Basin lives in Slovakia, numbering 0,5 million people. In southern Slovakia today, where several areas have an ethnic Hungarian majority, there is also a significant Roma community. However, a large portion of this Roma population identifies with Hungarian identity.

Figure 1 Historical-political territorial units and other geographical features that shape national identity in the Carpathian Basin, including the regions inhabited by ethnic Hungarians outside of Hungary.

Legend: *grey bands:* border of the Carpathian Basin on mountain ranges*; bright red lines:* state borders; *pale red lines:* historical border of the Hungarian Kingdom; *captions with black letters:* Hungarian names of regions/landscapes; *captions with red letters:* the equivalent of the Hungarian name in another language and its mirror translation into Hungarian if relevant; *captions with green letters:* names of countries in Hungarian.
Source: author's own editing.

The Romanian "counter" spatial concept

Nearly half of Romania's territory and a quarter of its population are located within the Carpathian Basin. Nevertheless, the Carpathian Basin is not considered a fundamental structural element in the Romanian spatial perspective. In fact, the classic models of Romanian settlement geography approach this concept in the opposite way (Conea, 1941; Mehedinți, 1943; Mihăilescu, 1936; Valsan, 1937, cited in Tóth, 2009). These models place the mountainous regions (namely the Eastern and Southern Carpathians) at the centre of Romanian spatial structure. The mountain ranges are not viewed as natural boundaries, but rather as unifying elements that connect the surrounding plains – including sometimes Hungary's entire Transtisia

(Tiszántúl) region, the region beyond the Tisia river [Tisza river in Hungarian, Tisa river in Romanian], it basically coincides with the Romanian Crisana region, the region along the Cris river [Körös river in Hungarian] – due to their permeability. This broader concept of Greater Romania bordered by three rivers (Tisia from the west, Danube from the south, and Dniester from the east) as an ancient Romanian settlement area already appeared in geography textbooks in the second half of the 19th century (Vlădescu, 1868). (It is interesting to note that the use of such textbooks was restricted by the Hungarian educational authorities as early as the 1870s, as these books defined an almost two millennia old ancient Romanian settlement area with a certain statehood within the territory of the much later founded Hungarian State [Tóth, 2009]. There has been no consensus among Hungarian or other historians regarding this Romanian origin theory.)

The Romanian regions located in the Carpathian Basin are collectively referred to as Transylvania (Erdély in Hungarian, Ardeul or Transilvania in Romanian) (Fig. 1). Transylvania is still a widely used term in Romania today, though primarily in a geographical sense, without administrative content. For centuries, Transylvania developed in ways that significantly differed from the rest of Romania: it was more ethnically diverse and more socially and economically advanced. Due to this shared historical background, the historical region of Transylvania (the Transylvanian Region) includes also Partium and the Banat, which form the eastern edge of the Pannonian Plain (the Great Hungarian Plain in Hungarian). All of these areas were once part of the Kingdom of Hungary, covering its territories that now belong to Romania. The aforementioned Partium and Banat used to be even more integral parts of this Kingdom, as the rest of Transylvania (the core, the historical Transylvania) enjoyed a certain degree of autonomy within Hungary during certain historical periods. Transylvania in the narrower sense refers only to historical Transylvania, the Transylvanian Basin. Transylvania, this internationally well-known term means “beyond the forest” and conveys an approach similar to viewing this region from the centre of historical Hungary, with Transylvania lying beyond the forests of the mountains bordering the Transylvania Basin to the west.

Nevertheless, regional identities with a Carpathian Basin-based character – such as Transylvanian or Partium identity – have not become major political factors in 20th-century Romania. Demographic processes have played a major role in this. The economic development of the 20th century triggered large-scale internal migration within Romania, with many people moving to Transylvania. At the same time, the proportion of ethnic groups who regarded Transylvania as their homeland significantly decreased. The once significant Transylvanian Saxon ethnic minority has almost completely disappeared. In Romanian political culture,

regionalism may be accused of undermining national territorial unity, and among other reasons this can result in that a Transylvanist movement – advocating for the distinct status and protection of Transylvanian interests – is today mostly limited to the Hungarian community of Transylvania (K. Lengyel, 2017).

The largest Hungarian minority in the Carpathian Basin lives in Transylvania, numbering over 1 million people. The Hungarian ethnic minority still constitutes a local/regional majority among the Romanian majority on Romania's western border, in Partium, and in the eastern part of Transylvania, in Székelyföld, and scattered elsewhere in other parts of Transylvania. There is also a significant Roma community in Transylvania with a largely Hungarian identity.

The Croatian neighbouring spatial concept

A significant portion of Croatia also lies within the Carpathian Basin – in fact, its central regions and capital city are located there. However, the Carpathian Basin does not play a defining role in Croatian spatial perspectives. This is due to the dual structure of the original Croatian settlement area: in addition to the regions within the Carpathian Basin, it also includes coastal areas along the shores of the Adriatic Sea whose historical development and culture were long separated from the continental Croatian territories inside the Carpathian Basin. The once independent Croatia became part of the "Lands of the Holy Crown" (the crown, which originates from Saint Stephen, the first king of Hungary) from the 11th century onward. This status meant a relationship with the Hungarian head of state at the time, but at the same time it also meant a high degree of autonomy for Croatia, separate from Hungarian territories, which was last regulated by the Croatian-Hungarian Compromise of 1868 (Andrási, 2020). The Croatian-Hungarian border has been in place for centuries. So this border region truly separates the two central areas of the two countries, and only a slow development of the cross border processes can be observed even after Croatia followed Hungary in joining the EU (in 2013) and later the Schengen area (in 2023) (Rácz, 2017; Horeczki & Szilágyi, 2025).

In Croatian historical memory, the evaluation of Hungarian statehood is not necessarily negative. However, the most recent shared episode of statehood – the Croatian–Hungarian Compromise – is strongly criticized in Croatian historiography and education, partly because it prevented the unification of Croatian territories (first of all the costal and the continental ones). This unification had been a goal of the Croatian national movements that emerged in the 19th century, but after the Compromise, the coastal territories outside the Carpathian Basin remained separate from the reformed Croatian political entity (Bende, 2013).

The southern border of the Carpathian Basin is uncertain, including in relation to Croatia. Geographically, the Carpathian Basin extends to the Dinaric Mountains, including the lowland Croatian regions south of the Drava River, such as Slavonia (Szlavónia in Hungarian) and Syrmia (Srijem in Croatian, Szerémség in Hungarian) (Fig. 1). However, the main northern boundary of Croatian settlement has almost always coincided with the Drava River (Dráva river in Hungarian) due to Croatia's considerable autonomy, effectively making it a southern political boundary for Hungarians living within the Carpathian Basin – just as it is today. In this sense, it can even be interpreted as a "thousand-year-old" border.

At the same time, it should be noted that the northeastern corner of present-day Croatian Slavonia, which lies north of the Drava River (Drávaszög region in Hungarian, Baranja region in Croatian), was part of Hungary proper until the end of World War I and did not come under Croatian autonomous rule (Fig. 1). This small region is home to the majority of the indigenous Hungarian communities living in Croatia. (The number of the Hungarians living in Croatia is one of the smallest in the Carpathian Basin between 10 and 20 thousand.) This small region has a distinctive regional identity, but this is not primarily characteristic of the titular ethnic group (Croatian), but rather of the Serbs, who live here in significant numbers for historical reasons (due to the UN peacekeeping program, which lasted until the end of the 1990s, the Serbs living here were not exposed to the same extent of mass emigration and refugee crisis as other Serbs in Croatia in the mid-1990s). This area is also home to two other ethnic groups, the Bunjevci and the Sokci. For considerations regarding their identity and space-shaping characteristics, see the chapter on Serbian concepts.

Nevertheless, on both the historical Croatian territories and on those that once belonged directly to Hungary but now form part of Croatia, there are still indigenous Hungarian settlements (where Hungarians live not only with Croats but also with other nationalities – today primarily with Serbs).

The Austrian extension of the Carpathian Basin spatial concept

Certain regions of Austria, Slovenia, Serbia, and Ukraine also form part of the Carpathian Basin. However, only a smaller portion of these countries once belonged to the core territory of the Kingdom of Hungary. For this reason, the concept of the Carpathian Basin understandably does not hold central significance for them and is connected only to regional identities in specific parts of the area.

After World War I, the western borderlands of the Kingdom of Hungary (Őrvidék in Hungarian, Burgenland in German) were annexed by Austria (Fig. 1). At the time of annexation,

these areas were predominantly inhabited by Germans who represented the easternmost extension of the German-speaking regions of neighbouring Austrian provinces. It is likely that a significant portion of the German-speaking population had settled here as early as or even prior to the Hungarian conquest. The annexed territories were organized into a separate province in Austria named Burgenland. This region is one of Austria's smallest and economically less developed provinces, located on the country's periphery.

A strong regional identity exists in this area, although it has been significantly shaped by the development of Austrian statehood and provincial identity after World War I (Palkó, 2009). This region never formed a political or administrative unit within the Kingdom of Hungary. The identity of Burgenland does not rely on the legacy of the Carpathian Basin or the Kingdom of Hungary. Its state symbols (flags, coat of arms) intentionally avoid references to the Hungarian Kingdom (Palkó, 2009). This process of regional identity-building was interrupted when the province briefly became part of the German Reich after Austria was incorporated by Nazi Germany in 1938. During this period, the territory was divided among neighbouring Austrian provinces.

Today, small Hungarian and slightly larger Croatian ethnic communities live in the region among the titular ethnic group. (Hungarians in Austria constitute the smallest indigenous Hungarian minority community in the Carpathian Basin with only several thousand members.) In their respective kin-states they are recognized as distinct linguistic and ethnographic groups. There are also small Roma communities here, some of which have also a Hungarian identity.

The Slovenian extension of the Carpathian Basin spatial concept

The north-western part of Slovenia, known as the Mura region, covers approximately 1,000 square kilometres and was once part of the political Carpathian Basin – that is, the Kingdom of Hungary. Prekmurje, the Slovenian name for the region, refers to the areas beyond the Mura River and suggests a perspective as if we were viewing the region from the south-western regions outside the Carpathian Basin (from Slovenia proper) (Fig. 1). Meanwhile, the Hungarian name, Muravidék, which refers to the area along the Mura River, does not carry such a meaning. (From a physical geographical perspective, however, the boundary of the Carpathian Basin does not end at the Mura River, but extends as far as the foreland of the Alps.) Interestingly, there is academic consensus that the Slavic population living in this area was already present well before the Hungarian conquest, possibly as early as the 6th century – making them perhaps one of the oldest autochthonous nations among the currently existing ones of the Carpathian Basin.

As a former part of the Kingdom of Hungary, the Mura region differs historically and culturally from other Slovenian regions (Göncz, 2020). This may explain its linguistic distinctiveness, as the inhabitants speak a special Slovenian dialect known as the "Vend" language (Lukács, 1996). The regional and linguistic identity of the Slovenian population in this area has persisted to the present day (Gasparics, 2014; Stankovicsné Szendi, 2020), although it is not closely tied to the concept of the Carpathian Basin (or to the memory of the Kingdom of Hungary), and a process of Slovenian homogenization is underway. Hungarians in Slovenia constitute one of the smallest indigenous Hungarian minority community in the Carpathian Basin with only around ten thousand members. In addition to Slovenian and Hungarian communities, the region is also home to a sizable Roma population.

The Serbian extension of the Carpathian Basin spatial concept

The current territory of Serbia diverges both from the political concept of the Carpathian Basin as related to the Kingdom of Hungary and from the physical geographical interpretation of the region. The former southern border of the Kingdom of Hungary – which until the end of World War I followed the lines of the Sava and Danube Rivers – now runs through Serbia. From a physical geographical perspective, however, the Carpathian Basin – whether referred to simply as the Carpathian Basin or, following Pál Teleki, as the Central Danube Basin (Teleki, 1931; Prinz & Teleki, 1937) – still extends southward, reaching the Morava watershed. This led the noted Hungarian geographer Jenő Cholnoky (1914), already before World War I, to propose a southern expansion of the sphere of interest of the Kingdom of Hungary in order to fully utilize the economic development potential offered by natural borders. In the decades that followed, historical developments unfolded in direct opposition to this idea, resulting in the near-complete dissolution of the political unity of the Carpathian Basin.

Serbia's Autonomous Province of Vojvodina (Vajdaság in Hungarian), which lies entirely within the territory of the former political Carpathian Basin (Fig. 1) – that is, within the Kingdom of Hungary – understandably has different historical roots, developmental paths, and identity than other parts of the country, which only gained independence from the Ottoman Empire in the 19th century after centuries of a foreign rule that represented a cultural and administrative environment very different from the rest of Europe. The Serbian territories south of Vojvodina – and thus also south of the Carpathian Basin and Kingdom of Hungary at that time – were the core area of the medieval Serbian state before the Ottoman occupation in the 14th and 15th centuries, with Nis as their capital (Rácz, 2023). It is therefore no coincidence that this northern province of Serbia has traditionally enjoyed a certain degree of autonomy

since it was incorporated into the later Serbian state (after World War I), although this status has been suspended at times in recent decades. The ethnic composition of the region also reflects this unique status. Besides its Serbian majority, Vojvodina is an important area inhabited by Hungarians (the number of Hungarians in Vojvodina is slightly less than 200,000, their settlements are concentrated in the northern part of the province), but it is ethnically more diverse due to resettlements following the Turkish occupation in the 18th century (that happened much earlier than in other parts of Serbia). Many of the indigenous ethnic communities of the Carpathian Basin are represented here: Serbs, Hungarians, Slovaks, Croats, Romanians, Rusyns, and Roma communities live here in populations of tens of thousands. (In recent years, also tens of thousands of Russian and fewer Ukrainian emigrants have settled here as a result of the Russo-Ukrainian war.) Nowadays, however – partly due to the decreasing diversity of the region resulting from internal Serbian migration and the resettlement of Serbian refugees from the Yugoslav Wars – the Vojvodinian identity, which still indirectly reflects the idea of the Carpathian Basin, may gradually fade away within the Serbian majority society.

It is worth mentioning that there are two other indigenous ethnic groups in Vojvodina whose homeland are almost exclusively related to the Carpathian Basin: Bunjevci and Sokci (Bunyevác and Sokác in Hungarian). They live primarily in Vojvodina with smaller communities in Croatia, and in Hungary (along its southern border). They live in the regions of Backa (Bácska in Hungarian) that is divided between Vojvodina and Hungary, in Baranya (Barana in Croatian) that is divided between Croatia and Hungary, and in Slavonia. They are officially recognized as distinct ethnic minorities in Vojvodina and Serbia with own representations, whereas in Croatia and Hungary they are classified as Croatian ethnographic groups. Their recognition in Serbia is viewed in the Croatian perspective as a political effort to divide Croats. In Hungary, there have also been proposals among the Bunjevci to be recognized as a separate ethnic minority distinct from Croats, but this was not supported by the rest of Hungarian Croatian community without a Bunjevci background and finally nor by the Hungarian authorities (Obádovics, 2018). This issue continues to be a subject of debate among the affected communities.

The Ukrainian extension of the Carpathian Basin spatial concept

The northeastern part of the Carpathian Basin is today Ukraine's Transcarpathian region. Zakarpatszka, the Ukrainian name for the region (Fig. 1), similar to its international name (Transcarpathia), refers to the areas beyond the Carpathian mountain range and suggests a perspective that views the region from areas east of the Carpathian Basin. Meanwhile, the

Hungarian name, Kárpátalja, which means "foothills of the Carpathians", approaches the region from within the Carpathian Basin. It is worth mentioning that several Russian and Ukrainian historians assume that during the first decades or centuries of the Hungarian Kingdom, this part of the Carpathian Basin, together with its Slavic population, the later Rusyns, belonged to the Principality of Halych (Font, 2020). This principality is considered one of the earliest Russian or Ukrainian state formations, whose core territory was located outside the Carpathian Basin, to the northeast of it. However, there is no consensus on these theses among Hungarian or even other historians.

The Rusyns once lived in the northeastern part of the Carpathian Basin, in what is today Ukraine's Transcarpathian region and beyond. Since the time of the Rákóczi War of Independence in the early 18th century (when Hungarian troops fought with the Austrian Habsburg empire), Rusyns have been regarded as an ethnic group loyal to the Hungarian nation, while still preserving their own traditions. During the national awakenings of the 19th century, the Rusyns also came under the influence of Pan-Slavic ideas. However, compared to the neighbouring Slovak national formation, they were at a disadvantage, as their region was less developed and linguistically less unified. The modernization of the Rusyn language was attempted by three competing linguistic models (Russian, Ukrainian, and a movement for an independent Rusyn language) (Csernicskó & Fedinec, 2019). The settlement area of the traditionally Hungary-loyal Rusyn population – though not exclusively – lies predominantly within the Carpathian Basin, and a significant portion of the Carpathian mountain range marks its border. Thus, it can be said that the idea of the Carpathian Basin, as well as the memory of the Kingdom of Hungary, may still be present in their collective memory.

When the region was briefly reattached to Hungary in 1938 (until the end of World War II), a declaration was made to guarantee the autonomy of the Rusyns. Although extensive preparations were made, the plan was ultimately not implemented, primarily due to military and security considerations (Fedinec, 2009). This initiative was motivated not only by the memory of Rusyn loyalty to the Kingdom of Hungary but also by Hungary's geopolitical ambitions (Vasas, 2000). In addition, Hungarian Prime Minister Pál Teleki's geo-economic considerations regarding geographical factors also played a role (Ablonczy, 2004). It is worth noting that Transcarpathia was the only territory returned to Hungary shortly before and during World War II where the Hungarian population was significantly in the minority. Therefore, this region could have served as a model for Hungary's new concept of nationhood and nationalities policy, and autonomy could have played a key role in this (Fedinec, 2009).

The Rusyns' attachment and loyalty to the Carpathian Basin is a complex issue. In the early 20th century, Rusyn and Ukrainian national ideas emerged, which viewed the Rusyns as part of the Ukrainian nation, and interpreted the territory inhabited by them as an extension of Ukrainian settlements beyond the Carpathians. These ideas also took political form in the region (Csernicskó & Fedinec, 2019). Unsurprisingly, Rusyns are not officially recognized as a national minority in Ukraine, nor is the Rusyn language recognized as an official minority language (unlike in Hungary and Slovakia). In addition to the Hungarian minority, smaller Slovak and Swabian communities also live in the area, and since World War II, a Russian-speaking community has also formed due to migration from the former Soviet Union.

The Transcarpathian region has developed significantly differently from the rest of Ukraine and is often seen from the capital's (Kiev) perspective as a remote periphery. This geographical and political distance contributes to a strong regional identity among the population, which is significant not only among Hungarians but also among other ethnic communities. However, this identity is increasingly losing its linguistic and ethnic dimensions. The indigenous Rusyn population (which likely still forms the majority in the region) and the Russian-speaking population settled after World War II have gradually assimilated since Ukraine's independence, especially since the 2010s when Ukrainian nation-building efforts intensified. (These efforts have manifested in the regulation and restriction of minority language use, including in public education [Fejes & Miklós, 2019].)

The Russian–Ukrainian war that broke out in 2022 may lead to a significant demographic shift in the population of Transcarpathia. It has caused a massive influx of refugees and internal migration, with Transcarpathia being one of the main destinations, while locals also fled abroad in large numbers. As a result, the strong regional identity that once characterized this area is likely to weaken further.

CONCLUSION AND DISCUSSION

In certain aspects of spatial organization, the Carpathian Basin undeniably constitutes a unity, and even opinion leaders of differing ethnic affiliations do not claim otherwise. This unity can be experienced in terms of topography, hydrography, and biogeography. However, in historical, cultural, political, social, and economic dimensions, this unquestionable unity no longer holds, and ethnic considerations become significant. From this angle, the Carpathian Basin primarily forms a unity only for Hungarians. The native territorial spatial concepts of other state-forming nations living in the region are not centred around the unity of the Carpathian Basin.

It is unclear in which direction the significance of the Carpathian Basin spatial concept is changing. Hungarian Carpathian Basin concepts are rooted in geographical science schools that follow geographical determinism (Balogh, 2021). This deterministic approach is less valid today, and except for certain Hungarian and German schools, it has lost much of its significance since the 1920s, as greater emphasis has been placed on other factors of social and economic spatial organization. This could also mean that the significance of the Carpathian Basin is declining. At the same time, it must also be acknowledged that it is precisely in the territorial interpretation of environmental structures (which is the basis of geographical determinism) that the Carpathian Basin forms a geographical unit that transcends the Hungarian interpretation. Today, the importance of these environmental structures is growing (Fodor & Gálosi-Kovács, 2019). The challenges posed by climate change are intensifying the environmental challenges and intervention needs of the Carpathian Basin across national borders (see water management, flood protection, agriculture and forestry, environmental pollution, and the spread of invasive species). The cohesion of the Carpathian Basin is further enhanced by the spread of cross-border functional urban areas (Hardi et al., 2009) and labour market cooperation (Megyesi & Péti, 2022), for which the unifying European Union offers an excellent platform. However, this growing mutual dependence and cohesion within the Carpathian Basin and certain border regions of the Carpathian Basin does not mean that the Carpathian Basin as a whole is becoming increasingly recognized beyond Hungarian circles.

Multilateral cooperation initiations originating from CEE (e.g. Carpathian Convention, Carpathian Euroregion, European Union Strategy for the Carpathian Region, European Union Strategy for the Danube Region, Visegrad group, The Three Seas Initiative) do not interpret the Carpathian Basin but, they deal with issues and areas that are related to the Carpathians and the Carpathian Region, among others. The term “Carpathians” which is used by some of these initiatives, often does not cover the lowland areas of the Carpathian Basin, only its mountainous parts. However, even their possible focus on the Carpathians mostly reflects the foreign policy intentions originating from Central and Eastern Europe and somewhat the ambitions of the strongest regional partner, Poland. Their priorities are not solely on strategic developments tailored to the specific needs and opportunities of the Carpathians or the Carpathian Region, and understandably, the development of the Carpathian Basin as a whole region is not evident in them.

At the same time, within the settlement areas of neighbouring peoples that extend into and beyond the Carpathian Basin (Austrians, Ukrainians, Romanians, Serbs, Slovenians), a distinctive regional identity can be identified – one that is tied to Carpathian Basin spaces.

Although this identity is based on the different historical developments of regions outside the Carpathian Basin (which did not belong to the Kingdom of Hungary), it was probably not shaped by a conscious awareness of historical heritage, but rather by general regional characteristics that are not closely or directly related to the Carpathian Basin or the heritage of the Kingdom of Hungary, or if they are, they are not definitely expressed.

Our findings can be summarized as follows: regarding the territory of the Carpathian Basin, we can identify numerous parallel and sometimes conflicting spatial concepts belonging to ethnic communities or states, which model the historical development and current situation of the spatial organization of socio-economic and environmental structures. However, apart from the approaches belonging to the Hungarian people and the Hungarian state, none of these captures the Carpathian Basin as a unified spatial organizational unit. At the same time, it can be assumed that the common characteristics of the Carpathian Basin (e.g., changing environmental conditions and processes due to climate change, such as cross-border pollution and water management challenges, or the increasing value of natural resources) have gained significance, and interrelationships within the region have also emerged (see, for example, labour markets or functional urban areas crossing borders).

All this suggests that it is worthwhile for the peoples living in the Carpathian Basin to learn as much as possible about each other, so that they can plan and implement developments that are either common or show synergy, or at least do not undermine each other's positive effects. This could also advance the recognition and articulation of the broader region's – Central and Eastern Europe's – own common interests at the European level.

In order to recognize these common interests, manage environmental or urban interdependencies, and thereby develop a common territorial concept for the region, all communities must participate in the process. However, studies show that approaches based on the Carpathian Basin have not taken root among actors outside the Hungarian community, which may indicate that this historically determined conceptual framework does not really correspond to the ideas of the peoples living alongside the Hungarians (Scott & Hajdú, 2024; Balogh, 2021). Rejecting the Carpathian Basin, on the other hand, may pose a threat to the recognition and appreciation of Hungarian values, especially in the case of ethnic Hungarian minority communities, while in today's European geopolitical context, the protection of indigenous ethnic minorities has become a particularly sensitive issue. Developing cultural, scientific, and political approaches that lead to a genuine common understanding of the region will therefore be an important and difficult task for our region in the future.

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FROM BARRIERS TO OPPORTUNITIES: THE ROAD TO THE ADOPTION OF THE BRIDGEforEU REGULATION IN THE EU

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Abstract

In its 9th Cohesion Report, the European Commission emphasised the importance of border regions and cross-border cooperation, as well as the substantial progress that has been made in reducing economic, social, and territorial disparities within the European Union. Although border regions have a high innovation potential and contribute to cooperation that benefits all, they often represent barriers to harmonious development, symbolising a less unified Europe.
Cross-border cooperation has become an integral part of EU Cohesion Policy, serving as a vital tool for developing border regions and fostering European territorial cohesion. While progress has been made in recent years to facilitate cross-border interactions, many border obstacles remain.
This study addresses two research questions. Firstly, it focuses on increasing awareness of and recognition for cross-border cooperation within EU Cohesion Policy, particularly with regard to the future of Interreg. Secondly, it examines how legal and institutional barriers that hinder the everyday lives of people living in border regions can be eliminated, alongside EU efforts, such as Interreg (funding) and the European Grouping of Territorial Cooperation, EGTC (legal-institutional instrument). The main methods employed in this study were historical analysis of the legal and institutional processes of cross-border cooperation, assessment of empirical data from EU policy papers and evaluation of EU legal documents. After providing an overview of the legal and institutional evolution of cross-border cooperation, the paper focuses on the European Union's attempts to establish an effective regulatory and governance framework for such cooperation. Finally, the study analyses the recently adopted BRIDGEforEU Regulation, which could provide a new governance mechanism for eliminating border obstacles. It summarises the Regulation's potential benefits and relevance for cross-border cooperation within the EU.

Keywords: cross-border cooperation, EU Cohesion Policy, Interreg, European Grouping of Territorial Cooperation (EGTC), B-solutions, BRIDGEforEU

INTRODUCTION

On 27 March 2024, the European Commission published the 9th Cohesion Report, presenting an assessment of the state of cohesion in the European Union and highlighting the significant progress made in narrowing economic, social and territorial disparities across the EU. According to the report, border regions account for "more than 40% of the EU's landmass, 30% of its GDP and 30% of its population, some 150 million people. Almost 2 million people live in one country in the Schengen area and work in another, and some 3.5 million people cross one of the 38 internal borders of the EU every day" (European Commission, 2024, p. 105).

At the same time, the Treaty on the Functioning of the European Union (TFEU, Art. 174) refers to the challenges faced by cross-border regions and states that the Union should pay particular attention to these regions when developing and implementing actions to strengthen the EU's economic, social and territorial cohesion.

Although border regions have a high innovation potential and can contribute to cooperation that benefits all, across and beyond borders, they often represent barriers to harmonious development, symbolising a less unified Europe. Many border regions are peripheral and distant from metropolitan centres, with limited access to essential services. In addition, border regions face the specific challenge of multiple crises, such as the migration crisis in 2015, the Covid-19 pandemic, Brexit in 2020 and Russia's war with Ukraine in 2022. These crises have resulted in the rediscovery of borders (Hajdú & Rácz, 2020; Hardi et al., 2023), which have been further exacerbated by disparities in governance, administrative systems and legal systems.

The year 2025 is fundamental for the implementation of the 2021-2027 Cohesion Policy programmes and for preparing for the next programming period. For over 35 years, Interreg has been instrumental in promoting solidarity, reconciliation, trust-building and strategic cooperation, particularly in cross-border regions. It has played a vital role in mitigating the divisive effects of borders and stimulating the local economies of border regions. However, measures beyond European funding are required to address the ongoing difficulties, which cannot be solved through financing alone. The European Commission also emphasises the need to provide legal and institutional tools to eliminate cross-border obstacles.

This study addresses two research questions. Firstly, it focuses on increasing awareness of and recognition for cross-border cooperation within EU Cohesion Policy, particularly with regard to the future of Interreg. Secondly, it examines how legal and institutional barriers that hinder the everyday lives of people living in border regions can be eliminated, alongside EU efforts, such as Interreg (funding) and the European Grouping of Territorial Cooperation, EGTC (legal-institutional instrument).

After providing an overview of the legal and institutional evolution of cross-border cooperation, the paper addresses the European Union's efforts to establish an effective regulatory and governance framework for such cooperation. It builds on the premise that legal and administrative barriers and discrepancies arise at the internal borders of the EU and are difficult for individual Member States to address alone. Consequently, a clear, comprehensive and effective regulatory and governance framework should be piloted at the EU level to facilitate cross-border cooperation and coordination between Member States. Finally, the study analyses the recently adopted BRIDGEforEU Regulation, which could serve as a new

governance mechanism for eliminating border obstacles. The paper summarises the Regulation's potential benefits for cross-border cooperation within the EU.

DATA AND METHODS

In order to achieve the objectives of the study, the author analysed official EU documents, including primary and secondary sources of EU law, as well as EU policy papers and strategies relating to European territorial cohesion and cross-border cooperation.

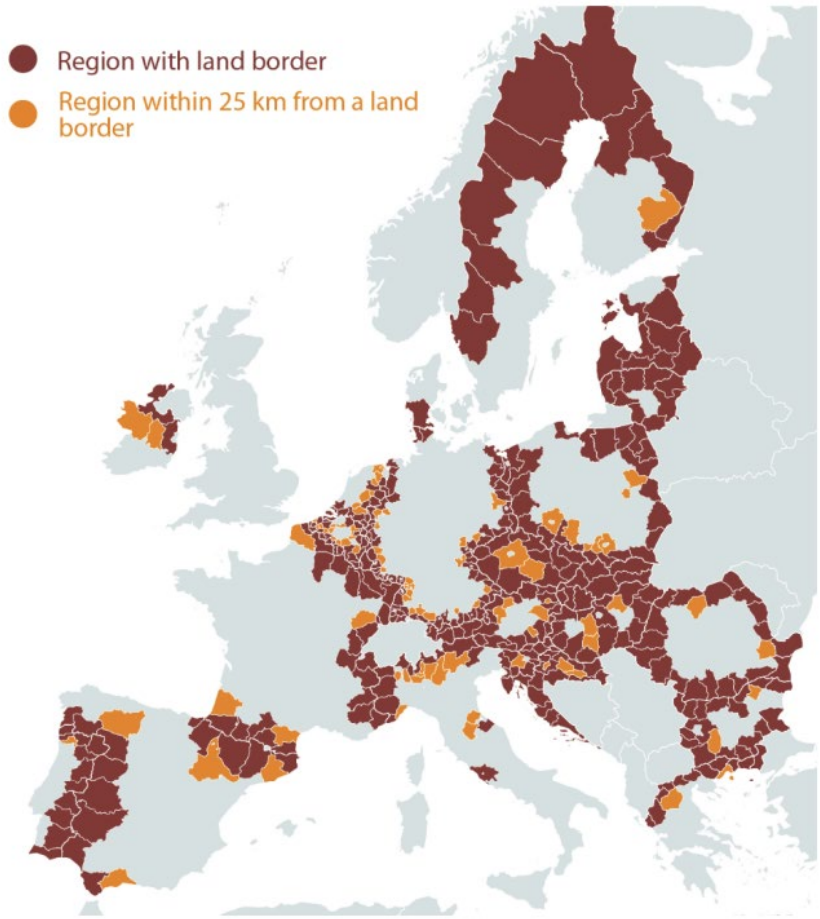
The main method employed in this study was historical analysis of the legal and institutional processes of cross-border cooperation within the context of EU Cohesion Policy. The paper examines the evolution of the European approach to cross-border cooperation and the changes to its institutional structure. Additionally, it assesses empirical data from EU policy papers and evaluates EU legal documents, focusing on alternative mechanisms to enhance the regulatory and governance framework for cross-border cooperation. Beyond legal analysis, the author takes a practical approach to investigating the legal institutions most relevant to everyday legal practice.

The study adopts the definition of a border region as defined in the EU's 9th Cohesion Report. According to this definition, a border region is a NUTS 3 statistical region that shares an international land border or a region in which more than half of the population lives within 25 km of such a border (Fig. 1). The report distinguishes two categories (see Tab. 1):

- "external border regions – those sharing a border with countries that are not in the EU, which are mostly located along its eastern border and the border with the western Balkans;
- internal border regions – those sharing a border with other EU Member States or the four members of EFTA, Iceland, Liechtenstein, Norway and Switzerland" (European Commission, 2024, p. 109).

As one of the main components of EU cohesion policy, Interreg provides a framework for joint actions and policy exchanges between adjacent NUTS 3 border regions in at least two EU Member States, with the aim of promoting harmonious economic, social and territorial development across the EU. Interreg is based on three types of cooperation: cross-border (Interreg A), transnational (Interreg B) and interregional (Interreg C) (European Commission, 2020, p. 8). The present study focuses on cross-border cooperation (Interreg A) in the following.

Figure 1 NUTS3 regions with land border



Source: 2023. Jancova et al, 2023, p.3.

Table 1 Main characteristics of regions with specific territorial characteristics, 2021

	No of NUTS 3 regions (% EU-27)	Population, million (% EU-27)	GDP million EUR (% EU-27)	GDP/head EUR PPS (% EU-27)
EU-27	1166 (100)	446,5 (100)	14 524 809 (100)	32 524 (100)
Border regions	384 (33.0)	124,6 (27.9)	3 412 107 (23.5)	27 923 (85.9)
Internal border	332 (28.5)	108,7 (24.3)	3 147 885 (21.7)	28 998 (89.2)
External border	81 (7.0)	25 (5.6)	392 579 (2.7)	20 059 (61.7)

Source: European Commission, 2024, p. 110.

THEORETICAL BACKGROUND

Institutionalisation process of cross-border cooperation in the EU

Since its foundation, the European Union has had a considerable impact on the internal and external borders of its Member States, based on the four freedoms. The Treaty of Rome aimed to "reduce the differences between the various regions and the backwardness of the less favoured regions", helping to mitigate the disadvantages of state borders and overcome the peripheral status of border regions within countries, thereby improving the living conditions of their populations.

Due to the process of European integration, internal border regions have transformed from peripheral areas into areas of growth and opportunity, demonstrating the importance of their impact on physical, mental, and narrative spaces. The process of (de)bordering and the development of different forms of cross-border cooperation have strengthened the ideals of solidarity and democratisation, as well as the economic and social cohesion of Europe (Rácz, 2017). This process has gradually replaced the earlier divisive nature of borders with an increasingly unifying role (Nárai & Rechnitzer, 1999). Thus, borders and border regions have become "privileged areas of study for European integration mechanisms", in which "the European project is constructed" (Durand & Decoville, 2018, p. 230). As Scott highlights, "cooperation across the borders did not come from the European Union but from the grassroots, from local level initiatives, basically from the battlefields of World War II. Since then, the European Union has gradually and systematically incorporated CBC into its own repertoire of integration policies" (Scott, 2019, pp. 51-52). This process has led to two parallel phenomena: supranational integration and European territorial cohesion (Fejes, 2023).

The establishment of DG XVI for Regional Policy within the European Commission in 1968 and the launch of the European Regional Development Fund in 1975 marked the first steps towards the institutionalisation of Regional Policy within the European Community (Fejes & Ocskay, 2023, pp. 48-49). The European Union's rhetorical practice related to regions, especially the idea of the 'Europe of regions', the use of the NUTS classification in governance and the support to these regions in the form of Structural Funds led to the further strengthening of EU regional policy (Paasi, 2019, p. 84). Within the Structural Funds, Interreg was developed in 1990 with the aim of ensuring that borders are not barriers, bringing Europeans closer together by helping them to tackle common challenges and create permanent links and networks of cooperation across borders. At the same time, cross-border development programmes differ from 'mainstream' programmes in that they must also comply with the cross-border factor.

Besides justifying the possibility of cooperation in the selected priority areas, the added value of cooperation must also be demonstrated. Thus, in order to make proper strategic choices that take the cross-border factor into consideration, the intensity of cooperation must be addressed in certain development areas or types of projects (Pámer, 2021, p. 129).

In 2007, the Interreg Community Initiative was replaced by the third, and, in 2013 by the second objective of Cohesion Policy, called European Territorial Cooperation. This enabled local and regional actors to design joint visions for their shared future, exploit untapped growth potential in border areas and enhance cooperation for the harmonious development of the European Union (Guillermo-Ramirez, 2018). Cross-border cooperation has gradually become an integral part of the EU Cohesion Policy, fostering territorial cohesion processes across the borders. Nevertheless, its impact varies significantly across the different border areas (see Brucker & Finta, 2023), depending on factors such as "policy design and implementation efficiency, as well as the broader socio-economic context" (Medeiros et al., 2024, p. 3).

At the same time, Fogarasi emphasises the importance of moving beyond "funding-driven cooperation to establish genuinely collaborative frameworks based on shared regional goals" (Fogarasi, 2024, p. 139). However, for cross-border cooperation – both local and regional, as well as international – to fulfil its real role, there must be a common institutionalised form capable of harmonising the different legal structures and competencies of neighbouring countries (Peyrony, 2020, pp. 219-240).

For a long time, no uniform rules existed for governing the institutionalisation of cross-border cooperation. Initially, cooperation beyond borders took place within different informal and formal institutions (see Perkmann, 2003), due to differences in legal and administrative environments, competencies, and resources. Furthermore, institutional diversity has led to various operational difficulties in cross-border cooperation. This study will examine the evolution of cross-border cooperation from a legal and governance perspective, addressing institutionalised cross-border cooperation (EGTCs) as a "legal solution" tool (Krzymuski, 2020).

Legal framework for institutionalised cross-border cooperation in the EU

In 1980, the Council of Europe was the first organisation to play a significant role in dismantling barriers to regional and international cooperation, as well as strengthening cross-border cooperation, by adopting the European Outline Convention on Trans-frontier Cooperation between Territorial Communities or Authorities (Madrid Convention, 1980) and its Additional Protocols (1995, 1998 and 2009). The Convention aspired to establish a comprehensive legal

framework and defined the concept of trans-frontier cooperation, offering patterns and proposals to facilitate cooperation between neighbouring countries, regions and settlements for the Contracting Parties. The purpose of the Convention was to promote cross-border agreements between subnational authorities; however, cooperation has taken place within the limited powers of territorial communities or authorities as defined in domestic law (Madrid Convention, 1980, Art. 2).

For a long time, the legal framework of cross-border cooperation was mainly defined by the Council of Europe, while the European Union interpreted cross-border cooperation in the context of Structural Funds implementation. After creating the financial framework (Interreg), a legal tool was required to provide an institutionalised framework for cross-border cooperation under EU law.

More than 25 years after the Council of Europe passed the Madrid Convention, the European Union adopted Regulation (EC) No 1082/2006 of the European Parliament and the Council on European Groupings of Territorial Cooperation (EGTC Regulation). This Regulation was intended to respond to the lack of legal and institutional instruments, ensuring cooperation facilities across the borders for local and regional authorities and Member States under EU law. There are three forms of EGTC [Regulation (EC) No 1082/2006, Art.1(2)]:

1) cross-border cooperation between adjacent border regions in neighbouring countries;
2) transnational cooperation between groups of countries and regions; and
3) inter-regional cooperation between regions or cities in various countries.

As a general rule, EGTCs have members in at least two Member States, although special rules apply when neighbouring and overseas countries and territories (OCTs) are involved. The applicable law is that of the country in which the EGTC's registered office is located [Regulation (EC) No 1082/2006, Art.1(5) and Art.2(1)]. The EGTC demonstrates that the initial intention was to create a stable legal solution applicable in every Member State, including those that have not signed the Madrid Convention and its Additional Protocols, or special bilateral or multilateral agreements (Krzymuski, 2020; Spinaci & Vara-Arribas, 2009). Consequently, it can supplement existing initiatives and forms of cooperation built on years of experience with Euroregional cooperation (Medve-Bálint & Svensson, 2013).

EGTCs are a unique and successful form of cooperation between regional and local authorities, allowing them to establish a legal entity and deliver joint services. EGTCs have specific budgets and the capacity to employ staff without interfering with the division of competences between state and regional levels (Durand & Decoville, 2020; Evrard, 2016). By

providing European borderlands with the legal capacity to act in their own interest, EGTC represents a "paradigm shift in European regional policy" (Evrard, 2020, p. 246).

The EGTC Regulation facilitates the participation of EGTCs in various European territorial cooperation programmes and projects, as well as in the implementation of other cohesion policy programmes. An EGTC can implement programmes co-financed by the EU, as part of any other cross-border cooperation project, with or without EU funding. EGTCs and other associations have served as instruments of EU policy, sharing roles (not always equally) with regional and national governments in channelling cohesion funds into border regions. Consequently, "within EU-linked and funded policy realms, multilevel governance reflects processes of Europeanisation" (Scott, 2020, p. 75).

The horizontal dimension of the EGTC facilitates interaction between actors at the same level, thus creating a European network whose operating principle is autonomy based on vertical and horizontal partnerships in accordance with multilevel governance (Evrard, 2016; Medeiros, 2020; Noferini et al., 2019; Peyrony, 2019). EGTCs are "new governance 'contracts' of multilevel cross-border cooperation" that can stimulate local development and deeper European integration (Spinaci & Vara-Arribas, 2009, p. 2). In other words, a shift from an economic EU approach through territorial cooperation to a legal and governance-based approach can be observed through the EGTC tool (Ocskay, 2020, p. 54). EGTCs therefore represent a novel approach to establishing bonds and mechanisms for enhanced cross-border governance, thereby stimulating development in ways that are not seen elsewhere. However, they may "also pose a challenge to the traditional perception of territoriality and sovereignty" (Janczak, 2016, p. 64).

Despite the EGTC's positive developments and revolutionary nature, the EGTC regulation was revised and amended in 2013 to clarify, simplify and improve the establishment and functioning of cross-border cooperation. Following the revision, however, it became clear that there was room for improvement, as the potential of EGTCs was not being fully exploited. This may be partly due to a reluctance among regional and local authorities to cooperate with each other, and partly to a fear of transferring competences and a lack of awareness of their respective competences (Perony & Svensson, 2020). Furthermore, the EGTC does not appear to be a sufficient tool for overcoming all of the existing legal obstacles to cross-border cooperation and ensuring that border citizens can fully exploit the opportunities available on both sides of the border. Neither European territorial cooperation funding, which is provided in particular in the context of 'Interreg' programmes, nor institutional support for cooperation from EGTCs is

sufficient to resolve some of the administrative and legal obstacles that hinder effective cooperation (European Commission, 2018b; European Parliament, 2018).

RESULTS – FROM BARRIERS TO OPPORTUNITIES

The European Commission's survey on cross-border cooperation in the EU

In 2015, the European Commission launched a survey to improve the understanding of trust and cooperation issues in border regions and their potential impact on Interreg programmes. In 2020, the Directorate-General for Regional and Urban Policy (DG REGIO) requested a follow-up survey, which was conducted by the Gallup International network in the border regions of the 27 European Union Member States, Andorra, Liechtenstein, the United Kingdom, Norway and Switzerland. The survey explored a range of topics (European Commission, 2020, pp. 8-9): awareness of cross-border cooperation programmes; cross-border mobility; general trust in others; attitudes towards citizens of neighbouring countries in certain social categories or situations (e.g. work, family or neighbours); and obstacles to cross-border cooperation between border regions. The analysis covered 54 Interreg A programmes and considered 41,091 respondents from different social and demographic groups (European Commission, 2020, pp. 10-11).

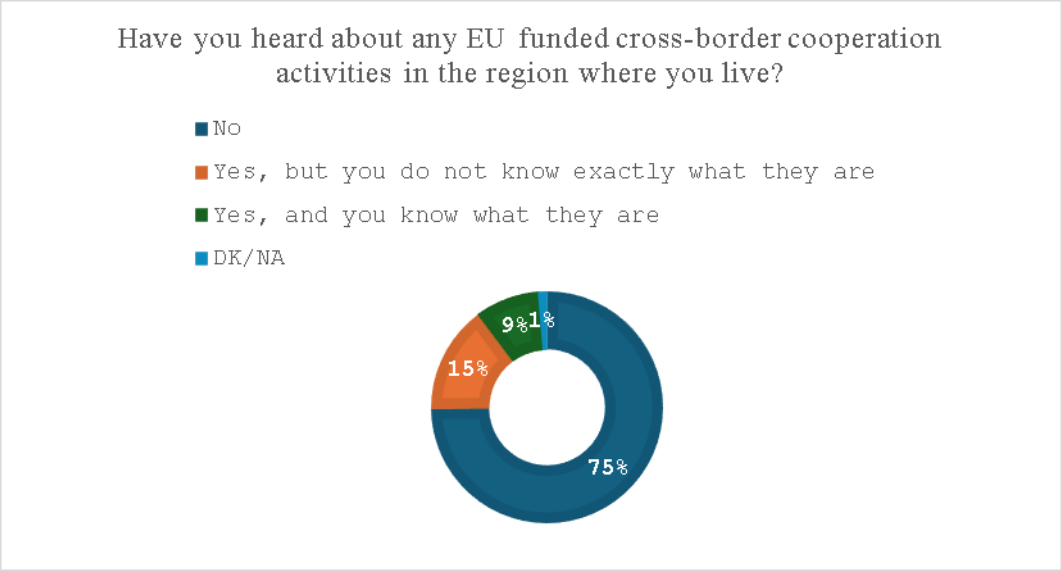
Awareness of cross-border cooperation programmes

From the point of view of the future of cross-border cooperation, two important findings from the European Commission's 2020 survey should be highlighted.

Regarding this study, the first relevant question asked from respondents residing in border regions covered by Interreg cross-border cooperation programmes was whether they had heard of any EU-funded cross-border cooperation activities in their area.

Remarkably, only 24% of respondents had heard of any such activities. Of these, 9% said they knew what the activities involved, while 15% were unsure. Overall, three-quarters (75%) of respondents were unaware of EU-funded cross-border activities in their region (Fig. 2). Furthermore, awareness decreased by seven percentage points since the previous survey in 2015 (European Commission, 2020, p. 15).

Figure 2 Awareness of EU regional policy-funded cross-border cooperation activities



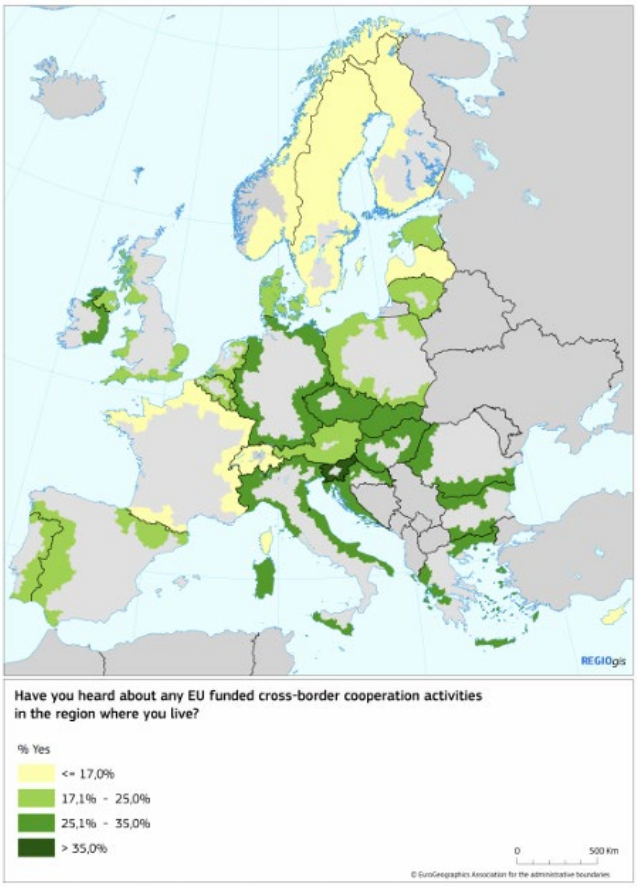
Source: European Commission, 2020, p. 15.

The average across all 54 programmes covered by the survey masks significant disparities at the national level (Fig. 3). Awareness is comparatively higher among residents of border regions in the Central and Eastern European countries: 49% in Slovenia, 35% in Hungary, 34% in Bulgaria, and 33% in Croatia and Slovakia. By contrast, in the 'old' EU Member States and the Nordic countries, less than one in six respondents have heard of such activities: 19% in Denmark and Belgium, 14% in France, and 16% in Finland and Sweden (European Commission, 2020, p. 16). The survey clearly shows that Interreg is much better known in countries that joined the EU more recently than in long-standing Member States. But even in these countries, there is still not much awareness about Interreg and how the EU actively supports cross-border local and regional projects. As a result, "much of the knowledge generated by CBC activities – and hence the diffusion of a 'European message' is often restricted to direct beneficiaries and actors involved" (Scott, 2020, p. 75).

In addition, Central and Eastern European countries show significant territorial disparities and more support is needed for border areas (Lados et al., 2024). However, Interreg has strengthened cross-border cooperation only where the decentralisation process has already been implemented, and where consistent, competent management has been established through existing programmes (see Pámer et al., 2025; Suchaček & Urminský, 2024). While "cross-border cooperation in Europe has gradually created stable and formal institutions achieving a high level of autonomy from governmental institutions, accompanied by legitimacy in cross-border developments; in parallel, these structures have lost their social basis, the strength of

informality and spontaneity. Consequently, EGTCs can represent the cross-border territory covered by their members – but not the people living there (Ocskay, 2020, p. 57).

Figure 3 Map on awareness of EU regional policy-funded cross-border cooperation activities



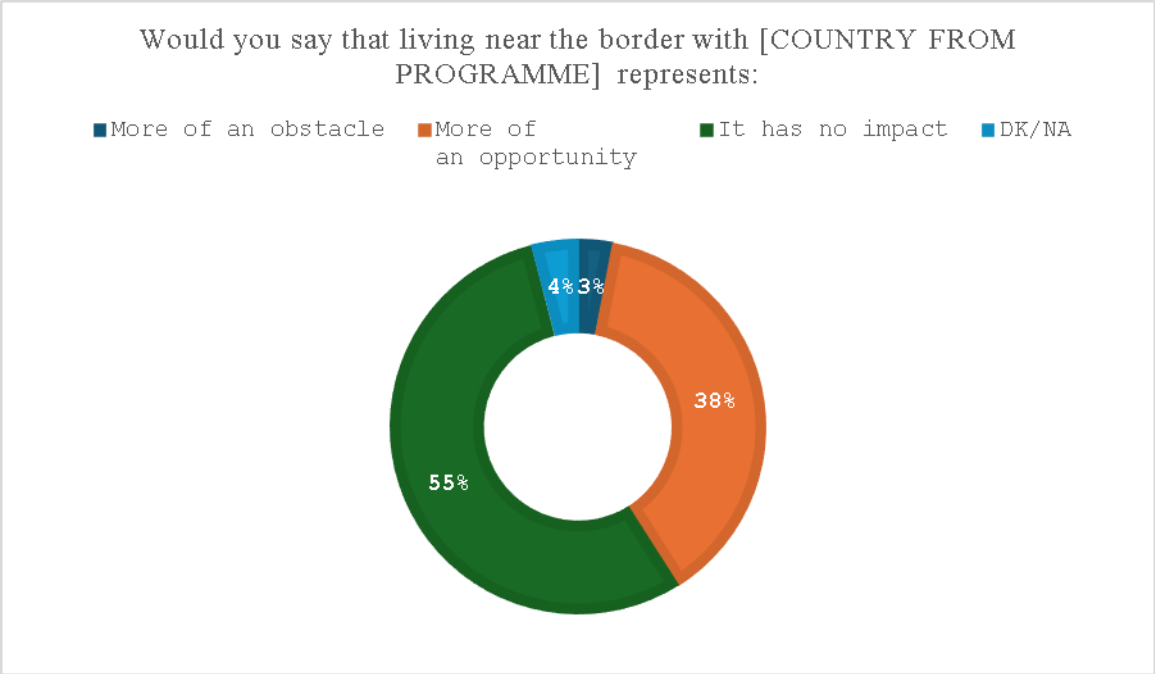
Source: European Commission, 2020, p. 17.

The bottom-up nature of Interreg programmes and the support they provide for cross-border initiatives, partnerships, long-standing consortia and cross-border structures has remarkably enhanced the democratic spirit at local and regional levels (Pámer et al., 2024). In these areas, Interreg programmes have made a positive contribution to common goals. Nevertheless, it should undoubtedly become more place- and people-based, with meaningful simplification and a viable budget (TEIN, 2024, pp. 4-9).

Obstacles to cross-border cooperation between border regions

The other relevant questions of the survey addresses the obstacles to cross-border cooperation between border regions. It is a promising result that respondents are more likely to consider living in a border region as an opportunity (38%) than an obstacle (3%), however, according to 55% of the respondents, borders have no impact (Fig. 4).

Figure 4 Living in a border region as an opportunity or an obstacle



Source: European Commission, 2020, p. 53.

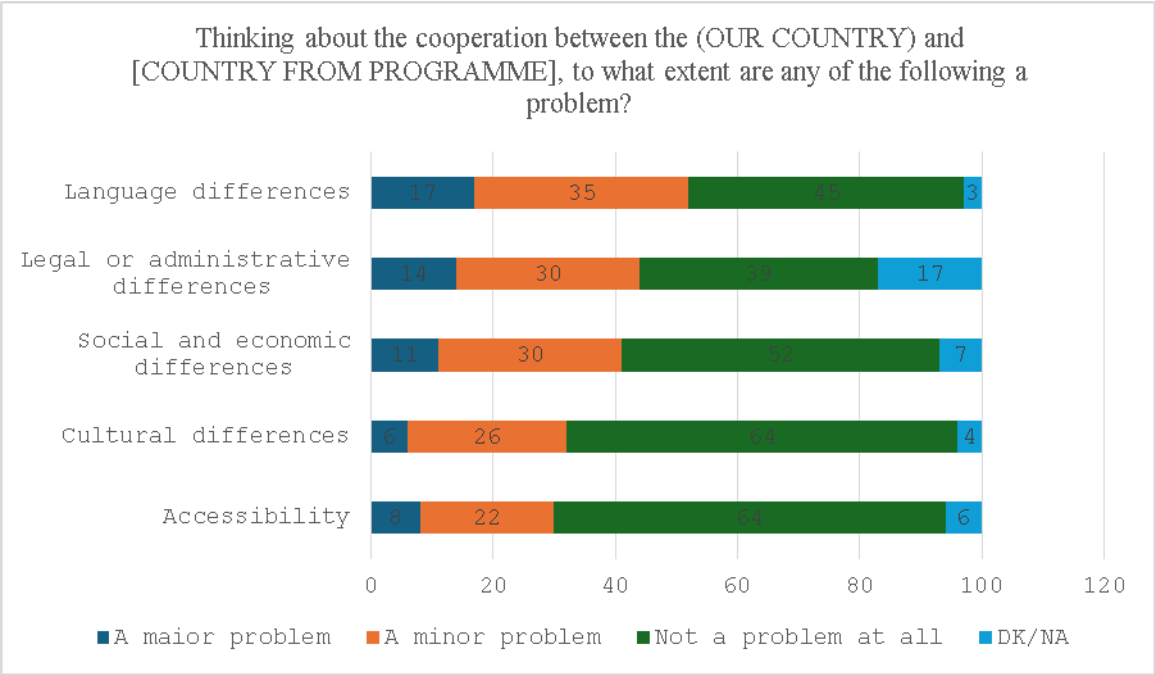
In addition, respondents were asked whether they perceive a range of factors (legal or administrative differences, accessibility, language differences, social and economic differences and cultural differences) as problems affecting cooperation between their country and partner countries. In general, one in six respondents (17%) consider none of the suggested factors as a problem for cooperation between their country and its partner country or countries. On the other hand, the majority (83%) perceive at least one of them as a problem (European Commission, 2020, p. 59).

Of the six potential obstacles tested, languages differences (52%) and legal and administrative differences (44%) remain the most frequently mentioned obstacles to cross-border cooperation. This indicates that more than four respondents in ten (44%) consider legal or administrative differences to be a major (14%) or minor (30%) problem for cooperation between their country and its partner country or countries (Fig. 5). Furthermore, according to 41% of respondents, social and economic differences represent a problem for cooperation, while 32% mentioned the cultural differences, and for 30% accessibility represents a problem for cooperation between their country and its partner country or countries (European Commission, 2020, p. 61).

Despite the obstacles to cross-border cooperation, such as linguistic, cultural, legal, institutional, economic and social differences, border regions tend to show reluctance or even fear toward accelerating cross-border integration in line with the possibilities offered by legal

instruments (Durand & Decoville, 2018). However, experience shows that, while Member States have undertaken individual, bilateral or multilateral initiatives to overcome cross-border obstacles, effective tools are not available in all Member States or for all their borders. Over the past few decades, several initiatives have been taken in Europe with a view to eliminating the remaining legal and administrative barriers between European countries. Many EU reports and documents have explored existing approaches to creating a flexible legal cross-border mechanism to complement the EU's legal toolbox. This could be achieved by piloting a clear and comprehensive EU-level framework that would encourage Member States to cooperate and coordinate their efforts, by establishing a "Europe of crossborder regions" (Ulrich, 2024, p. 93).

Figure 5 Perceived obstacles to cross-border cooperation



Source: European Commission, 2020, p. 61.

EU proposals for a better regulatory framework for eliminating cross-border obstacles

Based on the survey mentioned above, the European Commission launched the 'Cross-Border Review' project between 2015 and 2017. The project aimed to collect evidence on the legal and administrative obstacles that still persist in border regions despite more than 30 years of funding through the Interreg programme and the EGTC legal tool. The Cross-Border Review consisted of three elements: 1) a study entitled Easing Legal and Administrative Obstacles in EU Border Regions, which inventoried 239 legislative and administrative obstacles and analysed three general categories of border obstacles emerging from local, regional, national or EU legislation,

as well as different administrative practices (Pucher et al., 2017); 2) a public consultation; and 3) four workshops with key stakeholders.

In 2017 the European Commission adopted its Communication 'Boosting Growth and Cohesion in EU Border Regions', which also highlighted the legal and other obstacles that persist in border regions. More than 90% of these obstacles were considered to be related to the labour market, education, social security and health, transport and mobility, industry and trade, and the planning and provision of public services (Jančová et al., 2023, p. 5). The document outlines how the EU and its Member States can simplify, shorten and reduce the costs of cross-border interactions, and encourage the sharing of services across internal borders. It considers what improvements are needed to enable border citizens to take full advantage of the opportunities offered on both sides of the border (European Commission, 2017, p. 4).

Despite the significant impact of border obstacles on European cross-border regions, there is no uniform EU-level procedure to resolve such barriers. In 2018, the European Commission explored how borders could be transformed from barriers into opportunities, proposing a Regulation on a European Cross-border Mechanism (ECBM) as part of the Cohesion Policy package for 2021-2027. Engl and Evrard (2019) documented how the Commission, the Committee of the Regions, and cross-border associations jointly promoted the ECBM to mitigate legal and administrative asymmetries. The ECBM sought to establish a procedure by which one member state could temporarily apply the legal framework of its neighbour for a specific cross-border project.

The ECBM would allow legal provisions to be applied in another Member State in order to overcome legislative conflicts when delivering joint cross-border projects. In other words, the ECBM regulation would enable a member state to apply the law of a neighbouring state to facilitate cross-border projects. However, this results in that the proposal was ultimately blocked by the Member States due to concerns about its compatibility with the principles of subsidiarity and proportionality, its legal basis, and the competences of the EU and the constitutional law of the Member States (Sivonen et al., 2024, p. 4).

Based on the Commission's ECBM proposal, the European Parliament Resolution in 2023, entitled 'Amending the proposed mechanism to resolve legal and administrative obstacles in a cross-border context', examined existing legal instruments and practical tools related to eliminating cross-border obstacles, as well as their implementation and application in practice. Drawing on available evidence and best practices in Member States, the analysis emphasises two significant obstacles:

- diverging national rules and standards, and legal competences at national or regional level;
- divergent transposition of EU laws by Member States, which contributes to barriers and obstacles in cross-border situations.

As cross-border obstacles are of a similar nature across the EU, they can be most effectively tackled at the EU level. The study compares three options, assesses their potential impact, and identifies the added value of regulatory action at the European level: 1) the status quo; 2) a set of soft-law tools to address administrative obstacles; and 3) adoption of a streamlined ECBM proposal combining legislative and non-legislative tools with the highest potential to address a wide range of obstacles and contexts in border regions.

Based on data from 2014 to 2019, the study highlights the substantial advantages of eliminating obstacles for border regions and the EU economy as a whole. Eliminating all legal and administrative barriers would therefore generate an estimated gross value added (GVA) benefit of around EUR 457 billion annually, equivalent to 3.8% of the EU's total GVA in 2019 (Jančová et al., 2023, pp. I-III). However, this corresponds to an ideal scenario that does not appear achievable in the short term, with some existing barriers likely to persist. A more realistic 10-year scenario involving the removal of 20% of cross-border obstacles across all border regions could generate €123 billion in economic benefits per year. This would represent around 1% of the EU's total GVA in 2019 and create over 1 million new jobs, accounting for around 0.5% of total EU employment (Jančová et al., 2023, pp. I-III; 47-50) (Tab. 2). This confirms the significant economic potential of removing the remaining legal and administrative barriers. EU action is therefore justified in overcoming obstacles where other instruments are not suitable. Furthermore, a positive impact on social rights, including fundamental rights, is anticipated due to greater equality of opportunity (Jančová et al., 2023, pp. 50-51).

At the same time, DG REGIO established the 'Border Focal Point' to assist local actors in sharing expertise relating to obstacles. A platform for exchanges of best practices was also opened on the EU's 'Futurium' portal, and the 'b-solutions' initiative was also launched.

In 2021, the European Commission adopted a report describing border regions as "living labs of European integration" and demonstrating the positive effects of resolving cross-border obstacles on cross-border regions and the European Union as a whole (European Commission, 2021). The report highlights the success of b-solutions, which are promoted by DG REGIO and managed by the Association of European Border Regions, AEBR (https://www.b-solutionsproject.com/library). Through the b-solutions initiative, to date, a total of 165 distinct border obstacles have been collated and are elaborated in several publications. The purpose of

these documents is to provide stakeholders, policymakers, and other relevant actors at various levels with information regarding the daily challenges faced by citizens and local authorities in border regions. As emphasised by Themis Christophidou, Director-General for Regional and Urban Policy at the European Commission: "These stories are not just anecdotes; they contribute to overcoming border blindness by spotlighting various cross-border experiences in the European Union. As such, they serve as unique sources of data and knowledge for better policies and for EU integration, working seamlessly across the borders" (AEBR & European Commission, 2024, p. 4).

Table 2 Overview of policy options and their impacts on border obstacles

	Policy option 1: Status quo	**Policy option 2: Soft-law measures**	**Policy option 3: Soft law measures + Adoption of ECBM 2.0**
Quantitative assessment	Lost potential benefits amounting to €457 billion per year and 4 million potential jobs	Potential benefits of addressing administrative obstacles of €41 billion per year	Potential benefits of addressing both administrative and legal obstacles could reach €123 billion per year and more than 1 million jobs
Qualitative assessment	Existing legal instruments are sector-specific, while obstacles in other areas remain largely unaddressed Limited potential to address existing and new obstacles Existing government agreements, e.g. Nordic Council, also show shortcomings	Potential reduction in administrative obstacles, but legal obstacles continue to hamper cross-border cooperation Addressing fewer than half of the existing obstacles	Could help to unleash the potential of single market, with greater opportunities for businesses in border regions Streamlining of procedures in cross-border cooperation and capacity building
Impact for citizens and businesses	Negative economic and social impact, for example in form of discrimination in access to healthcare in border regions	Potential to lower negative impact via more efficient cooperation between public administration bodies and higher awareness of existing provisions or possible solutions at administrative level	Highest possible impact due to the potential to address both administrative and legal obstacles Removal of obstacles would help facilitate access for citizens and businesses to public services in border regions Potential to better channel cohesion instruments to border regions Increased attractiveness of border regions: more incentives for businesses to attract and retain talent Increased attractiveness of border regions: more incentives for businesses and attracting and retaining talent

Source: Jančová, 2023, p. 47.

Moreover, the accepted b-solution projects have the potential to contribute positively to legislation and regulations related to mitigating cross-border barriers (Medeiros, 2024). Although b-solutions address obstacles in various European policy areas related to cross-border interaction, active subsidiarity and citizens' rights have not yet been equally realised and implemented across this broad spectrum of policy areas, including "transport, health, and energy where subsidiarity is particularly challenging to achieve" (Zillmer, 2024, p. 103).

In response, the European Parliament adopted a resolution, calling and encouraging the European Commission to compile an amended proposal on the ECBM tool (European Parliament, 2023). This resulted in an amended proposal for a Regulation on Facilitating Cross-Border Solutions (FCBS), adopted by the Commission in December 2023. A final agreement was subsequently reached on the BRIDGEforEU Regulation [Regulation (EU) No 2025/925] at the end of 2024.

BRIDGEforEU: **A new governance mechanism to eliminate border obstacles**

Following more than ten years of negotiations between the Commission, the Parliament and Member States, the Regulation on the Border Regions' instrument for development and growth (BRIDGEforEU) was adopted on 6 May 2025 and entered into force on 8 June 2025. The BRIDGEforEU Regulation establishes a new instrument to facilitate identifying and resolving cross-border obstacles [Regulation (EU) No 2025/925, Art.1].

The Regulation differs from other tools, such as Interreg (funding) and EGTC (institutions), introducing a governance-based tool, which aims to empower border stakeholders to propose and negotiate solutions to legal or administrative barriers, fostering a more integrated approach to European territorial governance. It enables Member States to complement their existing tools by providing an additional governance-based framework established by EU law. The new Regulation is unique in that it enables a process to be developed that will have a concrete impact on border regions without creating unnecessary burdens for national and regional administrations, and without directly affecting state sovereignty.

One of the Regulation's most significant institutional innovations is the establishment of Cross-Border Coordination Points (CBCPs)**.** Under the Regulation, Member States are encouraged to establish Cross-Border Coordination Points (CBCPs) to assess local stakeholder requests regarding potential obstacles and relay them to the relevant national authorities [Regulation (EU) No 2025/925, Art. 4-6]. These are designed as single national entry points responsible for receiving notifications of cross-border obstacles, coordinating with relevant authorities, and, where appropriate, applying the Cross-Border Facilitation Tool (ARL, 2025,

pp. 4-6). According to this mechanism, local actors submit obstacles to the newly created CBCPs, which then assess them and coordinate with the relevant authorities to find legal solutions. CBCPs are voluntary entities: each Member State may decide whether to set them up and how to integrate them into its national administrative system, while retaining control over their structure and scope. A CBCP can cover the whole country or specific regions and can be managed by national authorities or incorporated into existing cross-border organisations, such as Euroregions.

Once an obstacle has been assessed, Member States and regions can use the Cross-Border Facilitation Tool, a voluntary standard procedure designed to resolve administrative and legal obstacles. While each request must be addressed, the decision on whether to resolve an obstacle remains at the discretion of the competent national authorities [Regulation (EU) No 2025/925, Art. 11-12], which retain full control over the decision to address or solve any specific obstacle (ITEM, 2025).

The key benefit of the Regulation is its ability to establish a coordination point that collects and analyses administrative and legal cross-border obstacles for the first time, alongside a governance framework for addressing these obstacles. This mechanism is expected to generate real impact "especially in border regions where coordination infrastructures were previously weak or non-existent" (Sivonen et al., 2024). Sivonen et al. (2024) identifies European border regions where these structures already exist and demonstrates how the Regulation can enhance cohesion and improve the quality of cooperation. This is achieved by legitimising the functions of existing institutional frameworks and providing them with a more permanent basis, as exemplified by the Schakelpunt. "A 'Schakelpunt' in this sense refers to the place where one can switch from one system to another: between knowledge and policy, between governance levels and across borders. That is briefly also the essense of a joint initiative at the Dutch-Belgian border" (Unfried & Mertens, 2024, p. 107). Although the Schakelpunt initiative emerged from the bottom up, driven by decades of cross-border cooperation and the desire to address border obstacles more effectively, it shares many similarities with the Facilitation Tool proposal and its cross-border coordination points (ITEM, 2025).

From a spatial-planning perspective, the Regulation resonates with contemporary research that highlights the need to coordinate planning frameworks across functional border regions. The case of Galicia-Northern Portugal highlighted that "cross-border spatial planning cannot be effective without legal and administrative coordination" (Vila-Lage et al., 2025, p. 542). This confirms the Regulation's potential relevance beyond administrative governance, extending to spatial, infrastructural, and social cohesion policies.

However, the ARL Position Paper also highlights the Regulation's limitations, pointing out the voluntary nature of participation as a major weakness, that the Regulation lacks a binding obligation to establish a Coordination Point, which may create disparities among border regions depending on their institutional capacities (ARL 2025, pp. 7-8). Furthermore, the scope of eligible cross-border obstacles remains vague: the Regulation does not clearly define which types of infrastructures or public services fall under its remit. The same document warns that the effective functioning of CBCPs depends on sufficient human and financial resources-conditions that are not automatically guaranteed in every Member State (ARL, 2025, p. 7).

CONCLUSIONS

In summary, the Treaty of Lisbon officially recognised European territorial cohesion as a purpose of the European Union. Cross-border cooperation has significantly contributed to the development of EU Cohesion Policy and a more cooperative and integrated future of the European project. Furthermore, cross-border cooperation is vital for a variety of other EU policy agendas. This study highlights that efficient cross-border cooperation is shaped by Europeanisation and decentralisation processes from two directions: EU-funded regional development programmes and effective legal and institutional frameworks.

European Territorial Cooperation (Interreg) has become the most effective tool for preserving the key values and achievements of European integration; however, its full potential has not yet been fully unlocked. Interreg programmes "have spent a remarkable share of their total budget so far (30 billion euros since 1989) on inter-institutional and inter-personal cooperation", (TEIN, 2024, p. 3) and on strengthening the principle of subsidiarity and the development of European multi-level governance and local democracy by promoting long-standing, institutionalised cross-border cooperation, and by involving Euroregions and European Groupings of Territorial Cooperation (EGTCs) in the management of cross-border programmes (TEIN, 2024, pp. 1-4). In order to maintain open borders, cooperation and mutual trust are required, and the newly adopted BRIDGEforEU can be a powerful legal tool to sew together borders in Europe, promoting the development of these laboratories of European integration.

Although the European Union has created financial programmes (Interreg) and a legal-institutional framework (EGTC), as well as tools for removing legal obstacles (ECBM and BRIDGEforEU), administrative barriers still undermine the effectiveness of cross-border cooperation. Although cross-border regions play a significant role in EU territorial cohesion,

their residents often encounter administrative obstacles when commuting, working or accessing public services across the border.

1. The first critical insight is the need for greater awareness of Interreg in cross-border areas, as well as greater recognition within EU cohesion policy.

Despite the Interreg programme's success over the past 35 years, a 2020 EU survey highlights the low level of public awareness of Interreg. Only 24% of respondents were aware of any EU-funded cross-border cooperation activities in their area. This can be explained by the fact that institutionalised cross-border cooperation often loses its social basis and the informality and spontaneity that characterise it. Such cooperation only represents the cross-border territory covered by its members rather than the people living there. Consequently, knowledge gained through cross-border activities, and thus the dissemination of the 'European message', is often limited to direct beneficiaries and participating actors.

Interreg represents "no more than 2.5% of the Cohesion Policy budget. However, its impacts on European economic, social and territorial cohesion are much larger" (TEIN, 2024, p. 5). By the end of 2024, nearly 90 EGTCs had been established in the EU and authorised to realise cross-border projects and establish and manage cross-border institutions.

Nevertheless, from the perspective of the Member States, Interreg has never played a significant role in defining the multi-annual financial framework due to its small budget and peripheral nature. Due to the multiple crises facing the EU today, the priorities of EU policies are changing, while Member States show no willingness to increase their financial contributions to joint border projects. However, without Interreg funding, it is almost impossible to ensure the realisation of cross-border developments, as mainstream operational programmes are bound to national jurisdictions and rules. Cross-border cooperation structures can guarantee the sustainable cross-border nature of projects that reach beyond national borders, paving the way for innovative regional cooperation models and facilitating the realisation of the European multi-level governance project (TEIN, 2024, pp. 2-4).

The main question to be answered is whether the lack of knowledge and underutilisation of institutionalised cross-border cooperation indicate that "behind the cooperation difficulties often stated by the actors of border territories, the most important factor remains the lack of political will" (Durand & Decoville, 2020, p. 119).

2. Secondly, the study identifies the legal and administrative obstacles that already exist and affect the 150 million citizens living near borders. Although several legal tools exist at the intergovernmental, national, regional and local levels to resolve cross-border issues, they do not cover all border regions in the EU. Furthermore, they do not necessarily address issues

related to the development and strengthening of territorial cohesion in a consistent manner [Regulation (EU) No 2025/925 (8)].

These challenges and problems have been identified by the European Union in reports published over the last 10 years. Eventually, in May 2025, the EU adopted the BRIDGEforEU Regulation, designed to address border obstacles via a common governance structure in the specific form of Cross-border Coordination Points (CBCPs).

The BRIDGEforEU Regulation represents a qualitative step forward in European cross-border governance. It establishes a legal platform through which local and regional actors can communicate directly with national administrations to address border obstacles. However, the instrument's effectiveness still relies heavily on political commitment and administrative cooperation. Given that the implementation of CBCPs and the resolution of border obstacles are voluntary, the success of the new Regulation will likely vary significantly across the EU, depending on the political will, financial resources and institutional capacity of the Member States (ITEM, 2025). In the national context, however, the success of the new Regulation will depend heavily on Member States' willingness to establish these coordination points. At the same time, the EU's role in sharing solutions, creating a database of obstacles and ensuring accountability is essential. Without strong multi-level governance and genuine engagement from the Member States, the Regulation risks remaining a procedural rather than transformative mechanism.

According to Sivonen et al. (2024), several cross-border regions may already be familiar with similar practices for addressing and solving border obstacles. However, there are differences in existing tools and structures which may only apply to certain land borders and not to all of a given Member State's borders. Regarding the BRIDGEforEU Regulation, therefore, several questions arise:

- what impact will the new regulation have on different cross-border regions;
- what will it add to existing practices; and
- how will it bring more favourable outcomes for some regions than others? (Sivonen et al., 2024, p. 5).

In summary, BRIDGEforEU embodies a new generation of European cross-border governance**,** moving from project-based cooperation towards structural, legal facilitation. Its success, however, will depend on the willingness and capacity of Member States to operationalise the CBCPs, invest resources, and maintain sustained dialogue with regional actors. Transparent governance, adequate resourcing, and cooperative mindsets at all levels constitute the decisive factors of success.

In conclusion, the history of the European project has been defined by cohesion and solidarity. The success of the European project depends on the EU's border policy: how can funding (Interreg), institutionalised cooperation (EGTC) and the elimination of border obstacles (BRIDGEforEU) be ensured in parallel? This will be a challenge for the future.

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THE POTENTIAL EFFECTS OF SCHENGEN ENLARGEMENT ON THE CROATIAN-HUNGARIAN AND HUNGARIAN-ROMANIAN BORDER

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Abstract

The paper investigates the economic, social, and spatial structural implications of newly opened borders. The Schengen borders of Hungary, opened between January 1, 2023, and January 1, 2025, display heterogenous geographical, social, and economic features. The objective of the study is to examine the possible integration of these factors and the future development directions of cross-border cooperation. According to our preliminary hypothesis, the specific assets of the border regions significantly shape their bridging and regional integration function. The comparative analysis of the Croatian-Hungarian and Hungarian-Romanian border sections sheds light on these particular social, economic, and physical geographical features.

Keywords: border, integration, territorial disparities, transition, development, Europeanisation

INTRODUCTION: FOURTY YEARS OF THE SCHENGEN AREA

The Schengen Agreement is uncontestedly among the most significant achievements of the European Union, having guaranteed – for over fourty years – the free movement of persons, labour, goods, and businesses within the Schengen Zone for the member states of the continuously expanding European Union (EU) (Schengen Agreement 1995). For 29 European countries this implies the removal of internal borders, 25 of which are EU member states, and a further four are members of the European Free Trade Association. This is faciliated by common external border protection using an automated, centralised electronic border registration system (Regulation 2017/2226) and close cooperation in the field of law enforcement and justice [Directive 2013/40/EU of the European Parliament and of the Council, Regulation (EU) 2018/1862 and (EU) 2024/982]. Since a wealth of studies have addressed the issue of regulated and non-regulated entries from non-Schengen countries (Dócza et al., 2025; Szép, 2024), this issue remains outside the scope of the present enquiry. Within the EU, some 3.5 million people make daily border crossings to work, study, visit family or friends, for

shopping or tourism purposes (European Council. 2025). The openness of internal borders has increased alongside fears of uncontrolled population and labour movement. However, against the backdrop of the prevailing socio-economic trends in Eastern Europe, these fears appear unjustified. The region's population is experiencing a steady decline due to falling productivity rates and an aging population (Eurostat, 2024). The regional dynamics largely reflect EU trends, with population decline most severely affecting the external border regions of Croatia and Bulgaria.

The abolition of internal borders, however, does not go hand in hand with an altered perceptions of borders; border controls can be restored for shorter periods, e.g., in crisis situations such as mass migration or the Covid-19 pandemic [EP 2020/2616(RSP); EU 2025]. Eurobarometer surveys (2015, 2018, 2024) reveal that the borderland situation is incorporated into the local identity of residents, shaping their spatial representations, and, depending on which part of the border they inhabit, their perception of the border as a barrier or an opportunity. The surveys reveal that western border areas are generally associated with positive attributes, such as better life chances, enhanced job opportunities, particularly in the case of Hungarian cross-border areas (Horeczki, Lados & Nagy, 2024). Historical heritage and the frequency of border changes represent factors of uncertainty in Central Europe, given older generations' (particularly persons above 65) perception of the border as a strictly bounded area, imposing multiple restrictions. The presence of open borders in the CEE region have been highly advantageous for Hungary, facilitating daily mobility for both educational and work-related border crossings (Kovács & Sipos, 2020); the repatriation of Hungarian minorities living in the Carpathian Basin (Megyesi & Péti, 2022), and intensified cooperation among the inhabitants of cross-border and rural areas (Kézai & Zsibók, 2024).

That said, no comparative studies have been published to date on the opening-up of border regions. This study therefore aims is to investigate the economic, social, and spatial changes in Hungarian cross-border areas triggered by Croatia's (January 1, 2023) and Romania's (January 1, 2025) recent Schengen accession.

THE CHALLENGES AND OPPORTUNITIES OF SCHENGEN ENLARGEMENT

Eastern Europe is characterised by the diversity of its border regions, ranging from highly advanced, cooperating urban and traditional rural areas to peripheral regions struggling with socio-economic problems (Pénzes, 2018). The analysis focuses on two of Hungary's seven

border sections, which, until recently, have also formed part of the external border of the Schengen Area.

Border permeability, the characteristics of state borders

The analysed two are constituted by the second (453 km) and fourth (355 km) longest border sections. The demarcation of the Romanian-Hungarian border was mostly arbitrary; natural barriers are rare. The Maros River represents the border along 21.3 kilometers in Csongrád County, while the Fekete-Körös along 4.3 kilometers between Békés and Bihar in Romania, respectively. These two river sections together account for a mere 5.7% of the total length of the border. While not a strictly „linear" natural unit, in the first half of the 20th century, the former Ecsedi marshland also formed a natural dividing zone. Due to the absence of topographical barriers in the area, in the 20th century, forest belts were planted for military defence, while on the Romanian side, ditch systems (so-called „Tankárok") were established in some places for water management and protection purposes. Historically, the Maros River border section used to be an administrative boundary between Csanád County and the Banat (Torontál County). Such shorter border sections separated the counties of Csanád and Arad (three sections totaling 27.4 km), Arad and Békés (20.1 km), Békés and Bihor (6.3 km), Szabolcs and Bihor (11.8 km), and Szabolcs and Satu Mare (7 km), which were attached to Romania. The length of these sections is 93.9 km or 20.7% of the entire borderline. In these areas, due to the coincidence of the distinct frontiers – natural and historical-administrative – the Hungarian-Romanian border divides the same geographical and administrative spatial units along cca. 80% of its length. With the demarcation of the border, in addition to the dissolution of historical counties, urban cores and their surrounding settlements sometimes ended up on different sides of the border (e.g., Nădlac – Nagylak, Salonta – Újszalonta) as a direct impact of the redrawing of state borders on the settlement network (Szilágyi, 2013a).

The Croatian-Hungarian state border can be seen as a counterpoint to the Romania-Hungary border, where the demarcation line along the Mura and its continuation, the Drava, is mostly natural, although the riverbed does not always coincide with the effective border. Where the border deviates from the riverbed – for instance, in the cca. 34 km-area of the Croatian Gola region – it functions as a historical-administrative border. The only exception is a 76-km-long section in the area of Baranya, 72 km of which belongs to Baranya County and the rest to Bács-Kiskun County. The character of the border here shows similar features to that of the Partium region separating Hungary and Romania.

The border region under scrutiny forms a single entity in terms of physical geography, forming the central part of the Mura-Dráva basin, and as such, represented a coherent space at various times in history. From a constitutional law perspective, the evolution of the Hungarian-Croatian border can be divided into different historical periods (Rácz, 2017): 1) the initial phase, with autonomous countries forming in the 10th and 11th centuries; 2) the period of Personal Union from 1102 to 1918 (including the Kingdom of Hungary, the Habsburg Monarchy, and from 1868 Austria-Hungary and the Croatian-Hungarian Compromise); 3) 1918-1991, the period of the South Slavic State (including the first Yugoslavia until 1941, then the Independent State of Croatia, and from 1945, the second Yugoslavia); 4) the contemporary period, with autonomous Croatia since 1991. This most recent period can also be divided into distinct phases for the sake of greater clarity. The first phase (1991-1999) constitutes the first decade of autonomous Croatia. Croatia's independence ushered the beginning of a new era, characterised by a certain inward orientation. It was a period of state-building, nation-building, or, from another perspective, a period of war, marked by specific border region movements. The second phase (2000-2013) began with a shift in orientation at the turn of the millennium. This was the beginning of Euro-Atlantic integration in Croatia and simultaneously, its most intensive period in Hungary. Both countries were focusing on their Western relations. Bilateral relations were gradually strengthened. The third phase (2013-) started with Croatia's EU membership; henceforth, we can speak of cooperation between two EU member states. Importantly, with regard to state borders, Croatia has border disputes with all its neighbours apart from Hungary.

With over half of the 355 km-long Hungarian-Croatian border being riverine (135 km along the Drava, 45 km along the Mura, 1.8 km along the Kerka stream), the immediate border area is relatively sparsely populated and has seen modest development over the past century, highlighting the outstanding natural value of the area (Danube-Drava National Park, Mura-Drava Regional Park, Kopácsi Meadow Nature Park). The seclusion of the border has favoured environmental utilisation and simultaneously created opportunities for tourism. The region has a very significant untapped potential. Throughout history, the water-dominated region with its extensive catchment areas has always prompted cooperation between states to various extents, despite their frequently conflicting positions on water use and water management.

In the 1990s, Croatians emphasised the energy and economic utilisation of the Drava, while the Hungarian Government terminated its agreement with Yugoslavia, shifting the focus to nature conservation. Nevertheless, successful water and environmental cooperation initiatives were also implemented in the framework of cross-border projects. One such highly successful

collaboration is the Mura-Drava-Danube Transboundary UNESCO Biosphere Reserve, covering the territory of five countries and launched by a Croatian-Hungarian initiative.

Overall, cca. 77.5% of the Hungarian-Croatian border constitutes an effective demarcation line, with 68% of the entire border being a physical geographical divide, as opposed to the 10.5% share of the Romanian-Hungarian border section. The Border Population Concentration Index (BPCI) helps to identify population hubs by county within a 20 km zone along different border sections. The border population concentration index = border population (persons)/border length (km), which allowed us to process the spatial and population data from the grid_1km_surf.gpkg and LAU – NUTS 2021, EU-27 and EFTA databases during the data extraction process. The distance between the nodes of the cells was measured in a 20 km zone along the Hungarian state border (hu.kml), and the 2021 population was aggregated based on NUTS3 codes using Python.

The Hungarian side of the Croatian-Hungarian border is more densely populated, while the Croatian zone is more sparsely populated; similarly to the Romanian-Hungarian border, where the population is also highly concentrated on the Hungarian side, and the Romanian zone is somewhat less densely populated. Drawing on BPCI values, we scored the border sections of individual counties on a scale of 0 to 10, averaging the obtained county scores for each border region. Overall, the highest average value (3.4 points) was detected on the Hungarian side of the Hungary-Croatia border due to lower population numbers, while the minimum value (2.2 points) was found on the Croatian side of the same border section.

Spatial reintegration or rethinking historical regions

Romania's accession to Schengen is a major step towards the integration of the border region. It allows different spatial units with a shared territorial and historical identity to „rediscover" each other (e.g., along the Romanian border: Satu Mare, Bihor, Arad, and Csongrád region, along the Croatian border: Baranya-Baranja and the Zala-Međimurje region) and to reconnect through closer interactions also involving everyday routines. The state border used to be a physical barrier, but now there is a realistic chance to see the emergence of a border region with economic and social interoperability. Various cross-border cooperation initiatives have facilitated such interactions, but the elimination of border control might intensify and simplify these relations.

Uncontestedly, the examined border regions differ in terms of the depth of reintegration. This is most likely due to border specificities, the presence or absence of large cities in the given border area, the presence of some degree of shared regional identity, linguistic/cultural/religious

cleavages strengthening or weakening the border, or even developments of national spatial significance. On the Hungarian-Croatian border, the dominant natural dividing lines have always coincided with administrative frontiers, and the state border also represents cultural boundaries. The actual demarcation lines on the Hungarian-Romanian border, by contrast, account for only 20%, and ethnocultural cleavages can also underplay or blur previously rigid borderlines.

Cooperation and competition between cross-border twin settlements is becoming an increasingly defining trend. Apparently, the main factor considered in the demarcation of the Hungarian-Romanian border was not the linguistic divide, but Romania's access to the strategic Timișoara-Arad-Oradea-Satu Mare (railway) line. As a result, the main centres of this former trade route detached from Hungarian territory lay in the proximity of the state border (Szilágyi, 2013a). Their integration into the Romanian economic and state power system necessitated strict state borders with minimal permeability. The Hungarian-Romanian border area and the sister cities shaping the border region was already examined in 2013 in the framework of a different project (Szilágyi, 2013b), under fundamentally different physical/infrastructural conditions. The past decade has witnessed the opening of two motorway crossings, and with Romania joining the Schengen Zone, ten former temporary crossing points have been upgraded to permanent border passes, influencing border permeability.

The proportion of Hungarians living in Croatia (cca. 3 per thousand) largely mirrors that of Croats in Hungary. When examining cross-border relations, it is important to consider the interaction between ethnic patterns and state borders as well as the location of settlement areas. Historically, bilateral minority policies have always formed an important part of inter-state relations, and the legal situation of Hungarians in Croatia and Croats in Hungary can be considered satisfactory. A specific type of cross-border relations is formalised intermunicipal cooperation. The Hungarian-Croatian border area has currently cca. 70 Hungarian and a similar number of Croatian municipalities with twin settlements on the other side of the border. The majority of these twinning relations can be considered active and operational. Mohács and Pélmonostor and Pécs and Eszék boast the longest-standing partnerships, with twinning contracts signed in 1970 and 1973, respectively. In the autonomous state of Croatia, the number of twinning agreements increased in the aftermath of the South Slavic war (e.g., welcoming refugee families), as a result of the foreign diaspora and the process of Europeanisation. According to research conducted in the border region, municipal leaders in both countries identify similar areas of potential and significant cooperation: infrastructure, tourism, education, and culture.

Croatia has a very complicated spatial structure and settlement network owing to its differentiated natural geographical structures. It is highly fragmented in a horizontal sense, and has a total land border of 2,374.9 km, including riverine borders, and a coastline length of 6,278 km, of which 4,398 km are island borders. The shape of the country is highly disadvantageous for organising domestic transport. The route-based transport axes connecting the eastern and southern parts of the country run through Bosnia and Herzegovina.

Despite its historically highly centralised state organisation, Croatia has a polycentric urban network, due primarily to its heterogeneous and uniquely shaped state territory. Croatia has no settlements with a distance of over 60 km from the state border. The shape of the state „predicts" the spatial position of the larger cities. Zagreb's nodal position in the spatial structure relies on its ability to connect the country's geographical macro-regions via economic and transport linkages. As the center of Slavonia, Osijek has played a key role in the eastern part of the Danube-Drava-Sava region since the birth of independent Croatia. To the west, its macro-regional influence is counteracted by that of Zagreb. According to most Croatian research, Zagreb's catchment area extends as far as Virovitica. The two major Adriatic cities of Split and Rijeka serve as gateways to numerous regions of the world, while Osijek provides a link to the Pannonian Basin and Central Europe. At the macro-regional level, there has been a partial shift of focus in the development of Croatia, with the coastal areas and the capital region (Central Croatia) showing significant progress, and the eastern part of the country, Slavonia, emerging as the definite loser of regional processes.

The area of the Croatian-Hungarian border is generally underdeveloped in both European and national terms (throughout the 20th century, developments were blocked for security policy reasons). The demographic trends are even more unfavourable than the national average (only the data for Međimurje show a positive deviation from this trend), with significant population loss and a persistent trend of natural decline, emigration, and an aging population on both sides of the border. The labour market situation is also bleak, characterised by high rates of inactivity and unemployment. A defining feature of the spatial structure is a co-existence of the two countries' peripheral regions – characterised by low level of urbanisation, a predominance of rural settlements and a sparse settlement network – aggravated by the presence of a divisive riverine border on the major part of the border section.

The peripheral position of the region is a historical heritage, compounded by weak economic performance. Cross-border cooperation only occurs in two areas: Barcs–Virovitica and the Slovenian-Croatian-Hungarian triple border. All this reinforces the dominance of cooperation between relatively distant hubs, the large cities of the cross-border axes. In addition,

cooperation is shaped by the small size of the countries in European terms, their centralised state systems and capital city-centricity.

An important factor shaping cross-border relations is border permeability. Despite the explicit intent of bilateral declarations to expand cross-border transport links, there is a relative scarcity of border crossings on the land border. Crossing points are even more limited on the Drava. Of Hungary's border sections, the Croatian section has the lowest density even after the completion of the planned developments.

The sphere of influence of large cities in the proximity of the border will be assessed using a simplified gravity model. The analysis covers the seats of NUTS3-level territorial units along the state border. Eight such units were identified along the Hungarian-Romanian border: Szabolcs-Szatmár-Bereg, Hajdú-Bihar, Békés, and Csongrád-Csanád counties, and the Romanian counties of Satu Mare, Bihor, Arad, and Timiș. Likewise, eight administrative units were identified along the Hungarian-Croatian border: Zala, Somogy, Baranya, and Bács-Kiskun counties on the Hungarian side, and Međimurje, Koprivnica-Križevci, Virovitica-Podravina, and Osijek-Baranja counties. These represent the same administrative level in the European NUTS system, but for the sake of comparability, it should be noted that significant disparities were detected both in the size of the territorial units (area, population) and their central settlements. Drawing on data for 2021/22, the population of the four Romanian county seats ranged from 91,000 to 251,000, while that of the eight county seats in Hungary ranged from 55,000 to 200,000, and population numbers of the four county seats in Croatia ranged from only 19,000 to 97,000, even including lower tier administrative units. It is also worth noting that, unlike Hungary, where each historical settlement forms an independent municipality, an average of 3-4 settlements make up a commune in Romania, while in Croatia a municipality is typically comprised of 15-16 settlements. In addition to population size, distance is another factor to be considered in the gravity model. In this case, instead of the physical distance to the nearest border crossing, we considered travel time to the fastest accessible crossing point, measured in minutes. The three countries also revealed significant disparities in this respect, with three of the four major Romanian cities positioned effectively within an isochrone of 20-minutes, just like the Hungarian county seat of Békéscsaba, while several other county seats are located within an isochrone of one hour (e.g., Kaposvár) or beyond (Kecskemét). Three modifications were performed to optimize the model in the case of Hungarian centres: county-level cities (with a historical role as county seats) along the border were included in the analysis instead of remote county seats, Zalaegerszeg was thus replaced by Nagykanizsa and Kecskemét

by Baja. In the case of Békéscsaba, where another member of the conurbation, Gyula occupies the space between the county seat and the border, the combined population of the two cities was taken into account. In each case, our analysis relied on 2021/22 census data for the population living within the administrative border.

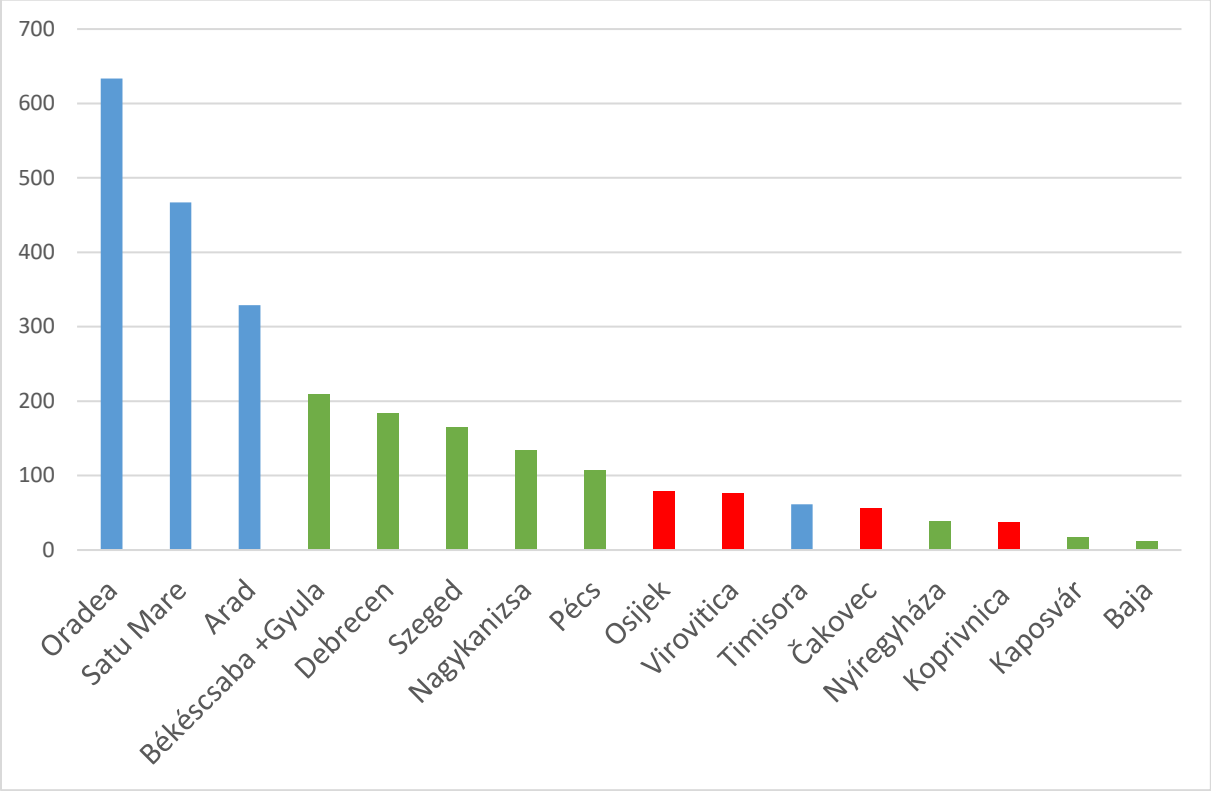
Figure 1 Newton's law of gravity formula

$$F = G\frac{m_1 m_2}{r^2}$$

Source: own editing.

Our analysis drew on Newton's law of gravity, where m1 is the population of a given city and m2 represents the border crossing point, with each point associated with a value of 1. G is the gravitational constant used for weighting in similar studies, assigned a value of 1 in this study. Finally, r is the distance between the city and the border crossing point, calculated in minutes of travel time.

Figure 2 Gravity coefficient values for border towns



Source: own evaluation (blue: cities in Romania, green: cities in Hungary, red: cities in Croatia).

According to the gravitational model, Oradea, Satu Mare, and Arad have a profound impact on the border region, with a potential to generate significant economic and social interactions in the future (figure 2). Due to their lower gravitational potential, no significant integration effect was found in the case of Hungarian-Croatian border towns (Pécs, Osijek, Virovitica), which is primarily explained by their lower population numbers and greater distance from the border. The examined gravitational coefficients allow us to conclude that, due to the combined effect of the metropolitan potential of the Hungarian-Romanian border region and its much higher permeability, more intense integration dynamics can be anticipated in the near future. Our presumption during the assessment of the gravitational weight of the leading cities of the examined spatial units was that significantly higher values might be obtained for cities along the Hungarian border not in our analysis (e.g., Bratislava, Vienna, Sopron, Győr, etc.), we therefore adjusted the scoring on a scale of 0-10 to a maximum gravitational coefficient of 820, obtaining values between 0.13 (Baja) and 7.71 (Nagyvárad) for the cities under study. Hence, the scaling prioritised compatibility with future, geographically extended analyses using similar methodologies. This phase also included calculating averages from county (city) values for each border section.

Main characteristics of the ethnocultural dimension

From the perspective of regional integration, the ethnocultural dimension deserves special emphasis, as communities with a shared or similar cultural background and language can significantly contribute to strengthening cross-border economic, social, and cultural linkages. The presence of minorities is particularly relevant in the case of the Hungarian-Romanian and Hungarian-Croatian border regions, as ethnic communities can create a social milieu that is particularly conducive to cross-border relations development. Our analysis relied on 2021 Census data for Romania and Croatia and 2022 Census data for Hungary. During the data processing phase, percentages were calculated without taking into account the population of unknown ethnicity and linguistic origins in order to obtain a more realistic picture of the actual proportion of ethnic minorities.

Nearly 5% of the over 5.6 million inhabitants of the border region belong to ethnic groups that represent the majority nation of the neighbouring country. The figure is slightly higher for native language (5.15%) compared to ethnic origin (5.0%), which underlines the persistence of language use despite the weakening of identity.

The northern part of the Hungarian-Romanian border section hosts mostly Hungarian-majority municipalities on both sides of the border, in addition, bilingual minorities are also

present in many settlements. The opening of the border could strengthen cooperation and trigger an expansion of cultural and economic relations. The shared ethnic and linguistic basis can contribute to successful cross-border projects and initiatives.

The role of Hungarian-majority regions along the Hungarian-Romanian border and their potential for cultural cooperation is significant. Important Hungarian communities are found in Bihar and Satu Mare counties (RO), forming cohesive entitites in terms of ethnicity and language, and accounting for 22.35% and 31.38% of the population of known ethnicity, and their proportion is even higher in terms of native language (24.30% and 36.94%, respectively). Arad County is also home to a significant, albeit smaller Hungarian minority group (ethnicity: 6.98%, native language: 6.91%). Timiș County on the other hand has a diaspora (cca. 4%), albeit of strategic importance due to its presence in a large city (Timișoara). In the Hungarian zone, the Romanian minority is more modest, with the highest representation in Békés County (ethnicity 1.71%, native language: 0.91%). In the meantime, in border towns such as Ártánd, Battonya, and Csenger, the strengthening of Romanian enclaves has been detected, largely as a consequence of cross-border suburbanisation.

Despite our failure to obtain ethnocultural data of the 2021 Croatian census in a regional breakdown, the potential in this respect is considerably less important along the Hungarian-Croatian border. On the Hungarian side (table 1), the number and proportion of the Croatian minority is low, particularly compared to the Hungarian minority in Romania. The highest shares were recorded in Baranya County (ethnicity: 1.75%, linguistic origin: 0.76%), while lower values were typically found in Zala, Bács-Kiskun, and Somogy counties. On the Croatian side, Osijek-Baranya County has the most significant Hungarian minority (cca. 2%), whereas in other border counties (Međimurje, Koprivnica-Križevci, Virovitica-Podravina), the Hungarian presence is rather negligible (diasporic). Notwithstanding the low population, a well-developed minority institutional network is functioning on both sides of the border, with a potential to strengthen cross-border relations, however, it is difficult to objectively measure this effect.

Cultural and educational institutions are key stakeholders in the border region. Both countries provide opportunities for studying in the language of the majority nation from kindergarten to university (native language, bilingual, or supplementary). Two secondary schools offer education in Croatian, both serving as educational centres, in Budapest and Pécs, respectively (Miroslav Krleža Croatian Kindergarten, Primary School, Secondary School, and Boarding School). The University of Zagreb has operated a Department of Hungarian Studies since 1994, and the Josip Juraj Strossmayer University in Osijek has hosted a Department of

Hungarian Language and Literature since 2007. In Hungary, Croatian language and literature courses are offered in three locations: Budapest (ELTE BTK Department of Slavic Philology), Pécs (PTE BTK Department of Croatian), and Szombathely (ELTE SEK Department of Slavic Studies). It is worth noting that the Croatian Theatre in Pécs, maintained by the municipality with state support, is the only Croatian-language theatre outside Croatia, highlighting its role as an identity and cultural centre.

Table 1 Ethnic and linguistic characteristics of neighboring counties in Romania and Croatia

NUTS3	Total population	Neighbouring ethnic group, %	Neighbouring native speakers, %
Arad	410,143	6.98	6.91
Bihor	551,297	22.35	24.30
Satu Mare	330,668	31.38	36.94
Timiș	650,533	3.94	3.68
Békés	315,222	1.71	0.91
Csongrád-Csanád	391,184	0.46	0.23
Hajdú-Bihar	519,141	0.52	0.14
Szabolcs-Szatmár-Bereg	529,381	0.22	0.07
Bács-Kiskun	495,318	0.54	0.14
Baranya	354,022	1.75	0.76
Somogy	293,470	0.48	0.16
Zala	260,800	1.14	0.50
Osijek-Baranja	258,026	national data: 10,315	national data: 7218
Koprivnica-Križevci	101,221		
Međimurje	105,250		
Virovitica-Podravina	70,368		
Total	**5,636,000**	**5**	**5.15**

Source: Census data from the three countries.

The data and factors analysed underline the potential of the ethnocultural dimension to support integration in the Hungarian-Romanian border region. The significant Hungarian communities on the Romanian side create a cultural milieu that is particularly conducive to enhanced border permeability, thereby intensifying economic, social, and cultural integration. Although this potential is more limited and only of local significance on the Hungarian-Croatian border, the presence of the institutional network in both countries can facilitate the development of further integration initiatives.

When examining the sense of comfort on both sides of the border, two components stand out as important benchmarks (table 2): „A” represents the ratio of nationalities/native languages, substituted by the relative proportion of the population speaking the neighbouring

country's language. Percentage value were represented with point values as follows: scored from 0 to 5: 0=0-1%, 1=1-3%, 2=3-10%, 3=10-20%, 4=20-30%, 5= 30% and above. The other component („B") refers to the development of the institutional network, also assigned with values between 0 and 5 points. Regarding the institutional network, the factors examined were: availability of minority local government, minority religious community, minority kindergarten and elementary school, minority secondary school and higher education.

Table 2 Benchmarking values for the ethnocultural dimension on both sides of the border

NUTS3	Ethnic ratio %	A.	B.	A + B	Average
Arad	6.98	2	4	6	7.5
Bihor	22.35	4	5	9	
Satu Mare	31.38	5	5	10	
Timiș	3.94	2	3	5	
Békés	1.71	1	5	5	2.5
Csongrád-Csanád	0.46	0	3	3	
Hajdú-Bihar	0.52	0	2	2	
Szabolcs-Szatmár-Bereg	0.22	0	0	0	
Bács-Kiskun	0.54	0	3	3	3.75
Baranya	1.75	1	5	6	
Somogy	0.48	0	2	2	
Zala	1.14	1	3	4	
Osijek-Baranja	4.00	2	4	6	1.5
Koprivnica-Križevci	0.00	0	0	0	
Međimurje	0.00	0	0	0	
Virovitica-Podravina	0.00	0	0	0	

Source: own calculations based on sources indicated in other references.

Note: when examining the "sense of comfort on the other side," travelers to the given region were invariably considered to be part of the majority group in the home country. On the other hand, a significant proportion of the population living on the Romanian territory of Partium are Hungarian, who would not bemoan the absence of Romanian speakers in Szabolcs-Szatmár-Bereg or Hajdú-Bihar, for instance. Hence, the low benchmarking values for these counties can be misleading as their Hungarian character can greatly facilitate the assimilation or integration of the population living across the border into the local education system or labour market. The majority of ethnic Hungarians in Partium live in close proximity to the border and constitute the most mobile segment of the local population, which explains their disproportionate share in „international" interactions.

INFRASTRUCTURAL CHANGES AS THE KEY CHALLENGES ON THE ROMANIAN-HUNGARIAN BORDER

The 20th century saw the dramatic decline of road and rail connections (Baranyi, 1999). The state border area has 60 municipalities/settlements on both sides. During the demarcation of the border, cca. 80 roads and 12 railway lines crossed the border. The majority of these were closed or destroyed in the 20th century due to political decisions: roads were closed or construction works halted, and railway lines were dismantled in some cases: both railroads were destroyed in Satu Mare, two out of three in Oradea, one of two in Arad, as well as the only direct railway link to Timișoara. Connections to neighbouring regional centres were the first to be terminated, while those that bypassed the neighbouring large cities (Debrecen, Szeged, Nyíregyháza) survived (e.g., Arad-Lökösháza; Nagyvárad-Püspökladány). Moreover, the number of road connections was reduced to five during the most severe decades of oppression (the artificial restriction of road access was necessary for Romania to ensure the integration of the new state territories: while it had no natural dividing lines to the west, there were several to the east). The post-regime change period saw a gradual easing of restrictions and development, with a gradual increase in the number of border crossings, showing a twofold increase by Romania's EU accession, and reaching 12 with the construction of two additional motorway crossings. Although the two new motorway crossings (Nagylak 2, Nagykereki) generated significant interregional traffic, local connections were limited. Post-millennial infrastructural developments targeted these expressways. In addition to the completion of two new motorways, the inauguration of two high-capacity border crossing points is anticipated in the near future (Csengersima – Satu Mare and Sarkad-Méhkerék-Nagyszalonta). However, ahead of these, due to the much anticipated enlargement of the Schengen Area, ten new border crossings (Transinfo.ro) have been opened, starting January 1, 2025. These crossing points mostly faciliate local traffic and represent the highest value for local border communities. With the addition of two new motorway crossings, the currently functioning 22 border crossing points on public roads will be expanded to 28 lanes in each direction. This will lead to a notable increase in the throughput of crossing points compared to the 80 predominantly local roads in operation at the time of the demarcation of borders.

The control of infrastructure hubs and the development of strategic transport routes are significant challenges connected to integration to the Schengen Zone. A key priority is the development of main routes ensuring control over junctions. Hungary has constructed four major corridors in a west-east direction towards Partium/Banat and Transylvania (M43, M44,

M4, M49). Romania is about to begin the construction of a south-north expressway connecting Timișoara and Satu Mare, as part of the Via Carpatica, a trade route of European significance stretching between the Mediterranean and the Baltic Sea. The new main route will intersect with the four main roads listed above and the junctions will be located on Romanian soil. The significance of nodality is paramount and gaining control over transport hubs is necessary for economic and geopolitical reasons (Németh, 2009). The construction and potential extension of the prospective southern (M9) motorway is therefore of national strategic significance. It is important to ensure its extension to Berettyóújfalu and its connection to the M35 to create a national outer ring expressway. This would extend the benefits of nodality to Hungary as well. A similar phenomenon can be witnessed in the reorganisation of railroad infrastructure: the rehabilitation of connections along former routes does not serve Hungary's interest. New hubs should be created on the Hungarian side; between Debrecen and Nagyvárad, the newly built Derecske-Berettyóújfalu railway line restores direct connections – all the while maintaining the hub on Hungarian territory and preventing unilateral external restrictions, such as the dismantling of the Romanian section of the direct Debrecen-Nagyvárad railway line. In assessing the infrastructure, 2 points were assigned to cross-border railway lines and express lanes and 1 point to non-express road lanes. As a result, the Romanian-Hungarian border section received 10 points and the Croatian-Hungarian border section received 5 points.

In addition to the infrastructural approach, the statistical analysis of border crossings can provide an useful method for investigating cross-border integration. Data from the Hungarian Central Statistical Office (CSO Table 27.1.1.4; CSO Table 27.2.1.8) reveal that in 2024 the number of short-term (less than 24 hours) journeys from Croatia to Hungary was 982,000, 922,000 from Hungary to Croatia, 8,159,000 from Romania to Hungary, and 1,307,000 from Hungary to Romania. When assigning 1 point on a scale of 0–10 for every million border crossing, the scores are as follows: HR→HU 1 point, HU→HR 0.9 points, RO→HU 8.1 points, HU→RO 1.3 points. The results reveal remarkably high values in the case of Romania→Hungary crossings. This method therefore allows for a finer distinction of border sections compared to the infrastructure score-based assessment.

CONCLUSIONS

This study undertook an analysis of the challenges of opening Schengen borders and the associated new opportunities on both sides of the border along five main dimensions. On the basis of contemporary data, the four border regions offer the highest benefits on the Romanian

side in terms of infrastructure, border traffic, and ethnocultural aspects. Compared to the Croatian border section, the cities along the Romanian-Hungarian border show a higher capacity for cooperation, with the gravitational pull between cities exceeding six-fold the Croatian values. Likewise, the ethnocultural dimension can yield more significant development opportunities for the country – due to the existence of significant Hungarian minorities on the Romanian side of the border – compared to the Croatian section. Due partly to the absence of natural borders and partly to existing economic and labour market relations, the effects of the opening of the Romanian border are much more palpable.

The Schengen enlargement could catalyse social and economic processes favouring integration, with positive effects for Hungary. The changing symmetry triggered by the opening of the Romania-Hungary border is one such factor. It could promote the extension and upgrading of the Hungarian border by extending the eastern periphery of the EU, similar to the Romanian borderland as the western periphery of the country, by creating a more favourable context for investments and strengthening cross-border relations. Further benefits include the revitalisation of Oradea, Arad, and Timișoara, with the expansion of job opportunities for those living in the Romanian-Hungarian peripheral cross-border area and stimulating labour mobility within the Hungarian community. The catchment areas of Debrecen and Szeged already exert a notable impact on the situation of the Hungarian community living in Partium, counting around 350,000 people. The new industrial parks and large companies are seeking bilingual Hungarian-speaking workers. The inhabitants of these borderland areas can constitute important reserves or potential replacements for the local workforce. The borderland community serves as a virtual „gold reserve" for the mother country in terms of human resources and economic development by softening the state border and acting as a buffer zone for Hungarian companies and businesses. However, the trend is different nowadays as investments in Hungary tend to attract the native Hungarian and Hungarian-speaking workforce to the mother country who may settle in the long term.

Due to historical precedents, the border used to serve as a so-called social „iron curtain" by fragmenting the previously homogeneous socio-economic space, turning settlements into dead-end villages and triggering the decline of institutions and the population. With the concentration of agricultural activity, land ceased to provide the unique source of livelihood, leading to massive population outflow and declining property values in the borderland. As a result of the new waves of settlement linked to seasonal agricultural work in the second half of the 20th century, the proportion of the Roma population showed a significant rise in various border settlements, reshaping socio-economic processes and altering the socio-economic profile of the

affected communities. These processes reinforced peripheralisation, contributing to the outmigration of young people and the aging of the population in the region. Despite the growing „virtualisation" of the border as a result of the Schengen enlargement, social disparities continue to represent rigid boundaries and social „reintegration" is only partially conceivable.

The European Union has emerged as an important actor in the region's network of relations, partially as a result of the opening up of new funding opportunities. Potential cross-border relations have been explored, and the expansion of relations has been documented in several areas. However, the period of European integration has not triggered a permanent deepening and significant intensification of cross-border relations in the case of the Croatian-Hungarian border region. Several factors have hindered the emergence of an integrated Croatian-Hungarian transborder area. To begin with, both countries prioritised their Western relations and integration into the European core region, significantly reinforcing their capital city-centricity. In addition, the borderland areas are among the poorest regions of their respective countries, and their spatial structure, economic potential and ethnic composition created unfavourable conditions for cooperation. Furthermore, a number of factors are necessary to catalyse such relationships, as demonstrated by the case of the more developed Austrian-Hungarian-Slovak border region.

Interesting changes were detected in the real estate market on the Romanian-Hungarian border, which were not visible on the Croatian-Hungarian section in the period of the opening of the Schengen border. Romanian citizens, similar to Croatians, have a high degree of mobility on the labour market, with nearly 5-6 million Romanian workers (and Moldovans) migrating to Western, Southern, and Central Europe. Some of them consider returning to their home countries and purchase property in Romania. However, typically they do not purchase property in their country of origin but in the west. The most attractive areas for settlement on the western border periphery are those those with well-organised towns, a regional airport, and access to a motorway. For this reason, property prices on the Romanian side of the border are significantly higher compared to the Hungarian section (indicating asymmetrical peripherality): selling property in the Oradea agglomeration and settling in a Hungarian municipality in the proximity of Oreadea with high-level public services and good infrastructure has become an attractive option. This leads to a rising number of commuters to dormitory towns in the region, a phenomenon already visible in the Hungarian-Austrian borderland. The borderland settlements of Ártánd, Biharkeresztes, Bedő, Létavértes, Csenger, Battonya, and Gyula (as well as Rajka and Tornyosnémeti) may witness a significant inflow of foreign residents (belonging to the Hungarian minority) using these villages as dormitory towns. While these commuters will live,

work, and study in Oredea, they might, for instance, return to Biharkeresztes to sleep, hence the origins of the legend of workers commuting from Hungary to Romania. Most settlers have dual citizenship, and from this perspective, they are Hungarians employed in Romania, but in reality, they are foreign-born dual citizens who have never settled completely. Actual international commuting is more likely to occur in the opposite direction, for instance, a significant number of workers commute to Debrecen from the settlements of Székelyhíd, Érmihályfalva, Margitta, and Nagykároly in Partium.

From the perspective of development policy measures, the positive effects of the family policy instruments introduced by the Hungarian government, which are unique in Europe, might create a vacuum effect in the border region, as many young people will find it worthwhile to move to Hungary and found a family there. The Romanian support system is less robust, potentially leading to a rise in mobility toward the Hungarian border.

As regards education, there is a growing tendency for Hungarian-speaking young people from the border region to pursue their studies in Hungary (in Debrecen, Szeged, Nyíregyháza, Békéscsaba-Gyula), triggering internal migration on the Romanian and rising student numbers on the Hungarian side of the border.

In addition, further factors may emerge as challenges, such as environmental and sustainability issues (e.g., river pollution); health and social care (an issue for commuters); tourism (exploitation of common resources); the role of local governments (grant systems – partnerships, twinning arrangements, networking); digital infrastructure, etc.

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DISCRIMINATION AND ACCESSIBILITY IN TOURISM – EXPLORING BARRIERS BY DISABLED TRAVELERS IN HUNGARY

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Abstract

Accessible tourism has historically been an under-researched area within tourism studies. However, over the past decade, growing recognition of its importance and the diverse range of stakeholders involved has led to a significant shift. As a result, an increasing number of international researchers have begun exploring this field. The Erasmus "Accessible" project has contributed to this momentum by conducting international research across four countries, aiming to better understand the current state and development potential of accessible tourism. A survey conducted among individuals with disabilities yielded several new insights into the travel habits of this target group. The study also examined how inclusive the social environment is and whether people with disabilities face discrimination while traveling. These negative experiences may affect their motivation and travel behaviours. By analysing awareness and the types of discrimination encountered, this research can help identify best practices and promote greater social inclusion.

Keywords: accessible tourism, discrimination, people with disabilities, social inclusion

INTRODUCTION

The population of persons with impairments cannot be precisely determined. The World Health Organization reports that more than 16% of the world population, almost one in six individuals, has some type of disability (WHO, 2023). In prosperous nations with elevated living standards, those with disabilities continue to be one of the most marginalized groups in society. They often display inferior health, less educational attainment, and obstacles to work (Bernát et al., 2022; Jarjabka et al., 2024). Moreover, they are more prone to experience poverty, victimization from harassment, assault, and crime, and are less likely to get sufficient legal protection. Numerous individuals also live inside constrained legal frameworks (WHO, 2023).

This research, as part of a comprehensive examination into accessible tourism, aims to determine if persons in Hungary with disabilities encounter prejudice when traveling, and if so, to what degree and in what manifestations. Based on our prior study and current literature, we offer the following three hypotheses:

- H1: Due to insufficient social inclusion, the majority of people with disabilities experience some form of discrimination while traveling.
- H2: Individuals with higher levels of education and women are more likely to perceive discrimination in tourism.
- H3: The severity of the disability correlates with a heightened perception of discrimination in tourism.

We contend that empirical investigations into the lived experiences of prejudice merit particular focus within the realm of accessible tourism. Nevertheless, an examination of the existing literature indicates that this field remains underexplored.

This research starts with a concise overview of the literature and the characteristics of its target demographic. We subsequently delineate the approach used in the empirical investigation carried out from 2023 to 2024. The results of this investigation will be presented to validate or disprove the aforementioned theories.

LITERATURE REVIEW

The tourism sector is evolving to be more inclusive and accessible, focusing on meeting the needs of individuals with disabilities (Darcy & Buhalis, 2011). This reflects a broader cultural shift that recognizes the economic and social impact of this demographic group, alongside their right to dignified travel experiences. By adopting accessible tourism practices, the industry highlights its commitment to a market segment with significant economic potential while promoting sustainable and responsible tourism (Darcy et al., 2020; Sipos et al., 2021; Rácz & Egyed, 2023).

The financial influence of individuals with disabilities, often termed the “purple pound” or “disability dollar,” underscores the economic potential for businesses that prioritize accessibility (Darcy & Dickson, 2009). The growing number of tourists with disabilities reflects both societal acknowledgment of their economic importance and an ethical duty to provide equitable tourism opportunities. This shift not only drives business success but also helps organizations stand out in a crowded market, offering a competitive edge.

Tourists with disabilities are increasingly seeking experiences tailored to their specific needs, going beyond basic legal accessibility requirements for more seamless and engaging travel (Poria et al., 2011). The industry's efforts to cater to this group not only enhance the quality of tourism products but also make destinations more attractive to a broader audience. Comprehensive accessibility includes physical access, clear information, and personalized

services, fostering an inclusive environment that benefits all travellers (Burnett & Bender Baker, 2001).

Emphasizing accessibility offers businesses a unique position in a competitive market, appealing to both individuals with disabilities and those who value diversity and corporate social responsibility. Accessible tourism also aligns with global goals for sustainable and ethical tourism by promoting social inclusion and equitable access (McCabe et al., 2010).

However, barriers remain, such as the need for universal accessibility standards and better staff training in disability awareness (Ray & Ryder, 2003). Overcoming these challenges presents opportunities for innovation, collaboration, and leadership in promoting inclusion. Ultimately, embracing accessible tourism benefits not only travellers with disabilities but also enriches the experience for all, advancing a more inclusive and sustainable tourism industry.

Prejudices against people with disabilities are deeply embedded in broader societal contexts, including political, economic, cultural, and socio-political systems. While there is a robust tradition of studying general public attitudes toward disability (Bernát et al., 2022; Bálint et al., 2024; Bálint, 2025), research specifically addressing attitudes within the tourism sector remains scarce. In particular, the perspectives of tourism industry personnel – such as those working in catering, accommodation, attractions, transportation, retail, as well as fellow travellers – can significantly affect the tourism experiences of people with disabilities. Their acceptance or rejection of individuals with disabilities may create obstacles as significant as the presence or absence of legislation or specialized services (Barnes, 1995; Vila et al., 2015). From a broader perspective, accessibility can be defined as the uninterrupted pursuit of human activities and the continuous search for comfort (Farkas et al., 2022).

Accessible tourism, in this context, is an ongoing effort to ensure that all destinations, tourism products, and services are available to all individuals, regardless of their physical limitations, disabilities, or age (Farkas & Raffay, 2022). This issue is particularly pressing given the demographic shifts associated with aging populations. While accessibility needs are most prevalent among older individuals, various life circumstances, such as post-accident rehabilitation or traveling with young children, also necessitate attention to such requirements (Darcy & Dickson, 2009).

Throughout history, humanity has made efforts to promote accessibility, but it only became widely recognized as a social issue in the latter half of the 20th century. Today, the idea that everyone – regardless of disability – should be able to enjoy travel and leisure is broadly accepted, as it aligns with the belief that the right to fully experience life is universal (Végh, 2005). Furthermore, it is now understood that facilitating travel for individuals with disabilities

and providing the necessary physical accommodations is not only a moral, ethical, and legal obligation but also a sound economic strategy (Raffay-Danyi & Ernszt, 2021). Despite this recognition, the tourism sector still largely underutilizes the potential of accessible tourism, though recent reports indicate several promising developments (Buhalis et al., 2012). It is important to recognize that this untapped market segment should not be viewed as a homogeneous group. Instead, individuals with disabilities have diverse service needs depending on the type and severity of their disability (Zajadacz & Lubarska, 2019; Miskolczi et al., 2020; Berkes et al., 2025).

While certain barriers impact all travellers, others disproportionately affect a smaller segment of the population (Shaw & Coles, 2004; Zajadacz & Lubarska, 2020). Some destinations have made special provisions for people with disabilities, while others have recognized accessibility as a core market advantage (Lőrincz et al., 2019). Achieving true accessible tourism requires more than just physical access. An accessible destination must provide an experience that ensures independence, equality, and human dignity for all travellers.

METHODOLOGY

Data collection took place in the autumn of 2023 as part of an international Erasmus project involving four countries. A non-probability, purposive sampling approach was adopted, combined with convenience recruitment. Participation was open to individuals who self-identified as persons living with a disability and reported engaging in travel, either for leisure or other purposes. Apart from these inclusion criteria, no quotas, stratification, or random procedures were applied. Participation was entirely voluntary. Altogether, 1,171 questionnaires were completed across the four participating countries, of which 320 responses were provided by Hungarian respondents. The present paper focuses exclusively on the Hungarian subsample. Owing to the non-probability design, the findings cannot be considered statistically generalizable to the entire population of people with disabilities in Hungary, rather, they reflect the experiences and perspectives of those who met the inclusion criteria and chose to participate. The aim of the data collection was to obtain a comprehensive picture of the current situation of accessible tourism and the tourism habits of the target population. The survey of people with disabilities has been complemented by a questionnaire survey of the whole population in early 2024. The sample of 1,000 was representative of gender (475 men, 525 women) and age groups. The key demographic characteristics of the sample is shown in Tab. 1. Item development during our research followed a deductive, hypothesis-driven approach,

whereby each hypothesis (H1-H3) was linked to one or more underlying constructs that were subsequently operationalised into measurable survey items. All items were created by the research team, drawing on their subject-matter expertise and on relevant literature in accessible tourism and disability studies.

Below, we present the results of the questions about whether and in what form respondents experienced discrimination when travelling. Responses to the open-ended items of the survey were divided into ten groups, which was the basis of a frequency analysis. In addition, several nominal variables from the questionnaire were utilised to describe the sample and to provide contextual insight into the distribution of the coded responses. The results are presented in terms of absolute and relative frequencies. In preparation for the testing of our hypotheses, re-coding was done to create a new binary variable: it took the value 1 if the respondents had experienced any discrimination in their travels and 0 if they had not. By applying this variable for testing each hypothesis, to determine significant differences in the answers of the different groups defined by the hypotheses (according to education, gender, and severity of disability), Chi-square tests were used, where statistical significance was determined at $p < 0.05$. Before conducting the analyses, the dataset was thoroughly screened for data entry errors and inconsistencies, including out-of-range values, duplicate cases, and missing responses. For each cross-tabulation, the assumptions underlying Pearson's chi-square test, namely the independence of observations and the adequacy of expected cell counts were carefully examined.

Table 1 The key demographic characteristics of the sample

Age	No. of persons	%	Education level	No. of persons	%	Residence	No. of persons	%
18-35	256	25,6	PhD, doctoral degree	41	4,1	Capital	97	9,7
36-50	278	27,8	University Master's degree	167	16,7	City	351	35,1
51-65	232	23,2	University Bachelor's degree	311	31,1	Town	363	36,3
more than 65	234	23,4	Higher education vocational training	17	1,7	Village	189	18,9
			Secondary school	364	36,4			
			Vocational training school	50	5			
			Primary school at most	50	5			

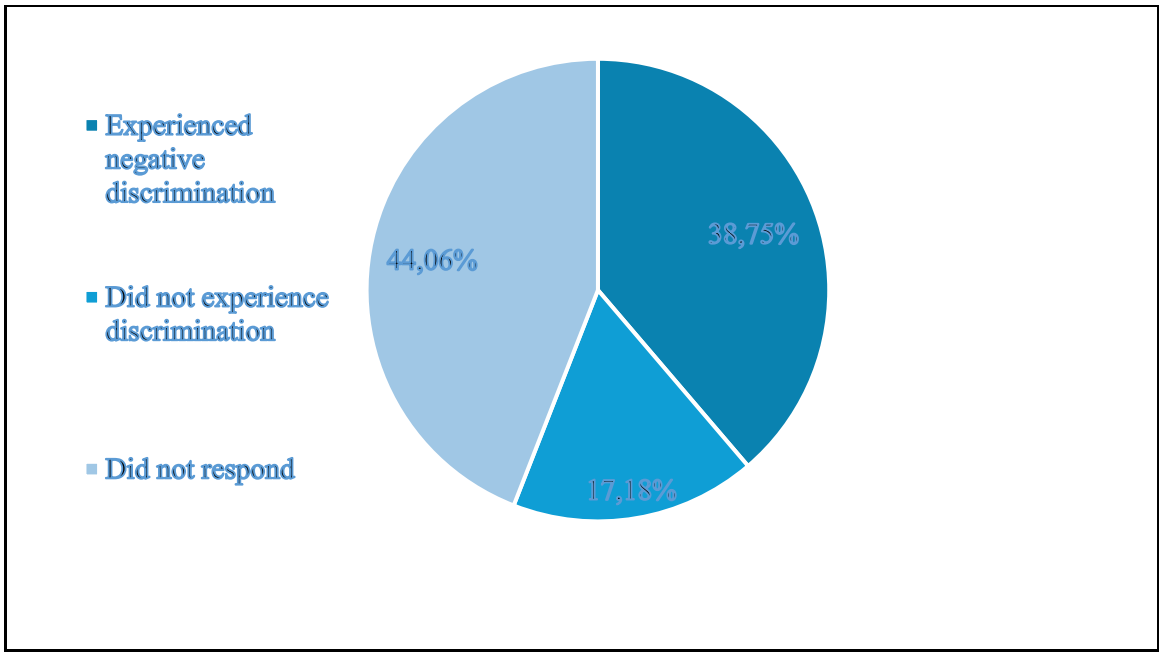
Source: authors' data.

RESULTS

The inquiry was structured to allow those who had not encountered prejudice throughout their travels to opt out of responding, resulting in 44% of participants (141 individuals) abstaining from answering this question (Fig. 1). The remaining participants, 56% of respondents (179 people) answered the question. More than two-thirds of them (69%) had personally experienced discrimination during their travels, with 31% (55) of respondents indicating that they had not (Fig. 1). Adding to this the number of people who did not complete the questionnaire, 196 (61%) of the 320 people surveyed did not report any discrimination during their travels. Based on this result, our H1 hypothesis is rejected.

Of those who had personally experienced some form of discrimination, the majority had done so primarily in terms of human attitudes (56.4%, 70 people). They mainly reported lack of understanding and helpfulness, as well as negative attitudes, inconsiderate and impatient behaviour, and, unfortunately, there were also more serious cases (Tab. 2). Some respondents were refused help outright and even shamed, with several people mentioning that they had been ostracised and disrespected. A number of people with autism also said that they were not welcome anywhere because the behavioural difficulties resulting from their condition were seen as an intellectual deficit. Another fairly sizeable group was of those with negative experiences of public transport (18.5%, 23 people).

Figure 1 Frequency distribution of responses to the question: *If you have ever experienced discrimination because of disability when travelling, what was it?* (n=320)



Source: authors' data.

Table 2 Frequency distribution of responses to the question: *If you have experienced discrimination because of disability during your travels, what was it?* by type of discrimination (n=124)

Type of discrimination	Respondents reporting	Rate (%)
Human attitude	70	56.4
Public transport	23	18.5
General lack of accessibility	15	12
Accommodation not accessible	4	3.2
Tourist attraction not accessible	4	3.2
Event not accessible	2	1.6
No. of accessible parking	2	1.6
Lack of accessible toilets	2	1.6
Restaurant not accessible	2	1.6
	124	100

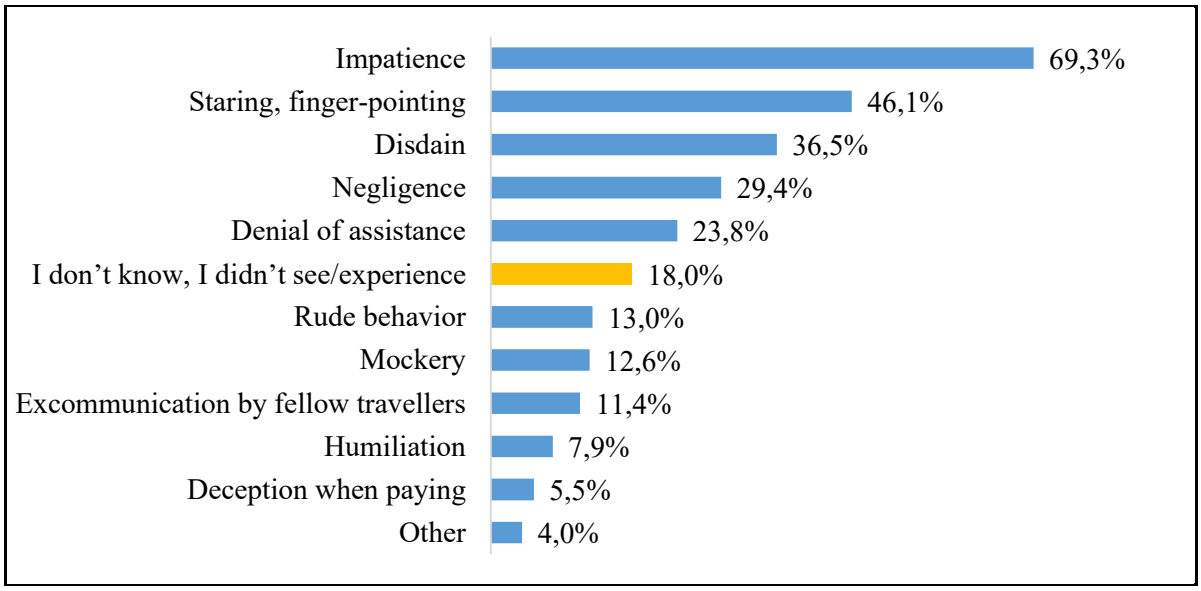
Source: authors' data.

Twelve percent of respondents mentioned a general lack of accessibility as a negative experience, with a smaller proportion pointing out a lack of accessible toilets and parking spaces for the disabled. Equally unfortunate and unsatisfactory is the situation in terms of basic tourism services of accommodation and catering, with several respondents reporting that the accommodation, restaurant, tourist attraction, or bathing resort was not accessible, and therefore they could not use the service as equal access was not ensured.

Analysis of the results of the survey of the whole population revealed an interesting contradiction. The population as a whole perceives the level of discrimination against people with disabilities to be much higher. Based on their personal experience, only 18% said they had never experienced discrimination against people with disabilities (Fig. 2).

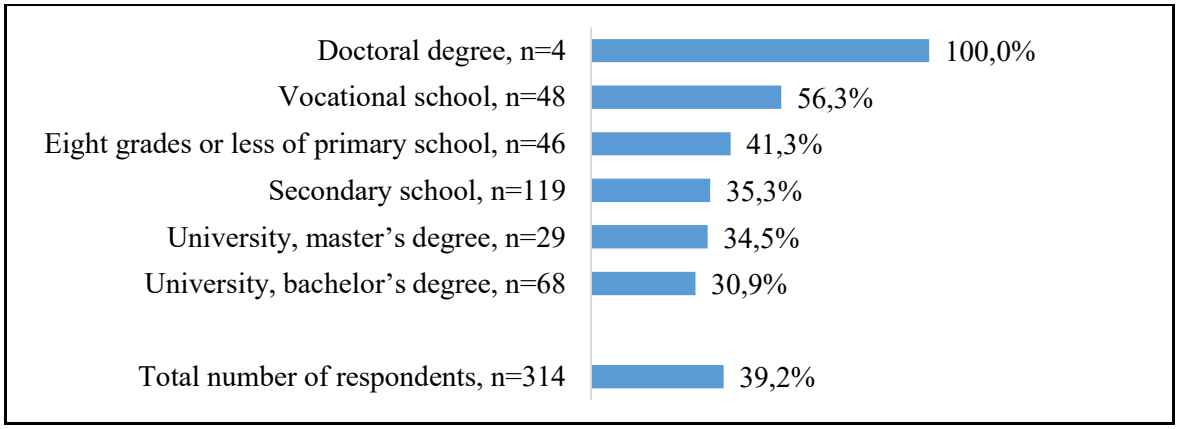
Testing our hypothesis H2, the Chi-square test revealed significant differences in perceptions of discrimination across groups according to their levels of education ($p=0.010<0.05$). As can be seen in Fig. 3, for lower-educated groups, a higher proportion of respondents had experienced discrimination during their travel. 56.3% of those with vocational education and 41.3% of those with eight grades or less of primary-school education felt discriminated against when travelling. This is in contrast to 34.5% and 30.9% for those with master's and bachelor's degrees, respectively. Holders of doctorate degrees are also included in the figure, but no conclusions can be drawn for them because of the low number (4). The empirical results not only did not confirm the hypothesis, but also showed a pattern to the contrary.

Figure 2 If you have personally seen/experienced discrimination against people with disabilities during your travels, what was it? (You can tick more than one answer) (n=1000)



Source: authors' data.

Figure 3 Perception of discrimination in travel according to level of education (p=0.010<0.05)

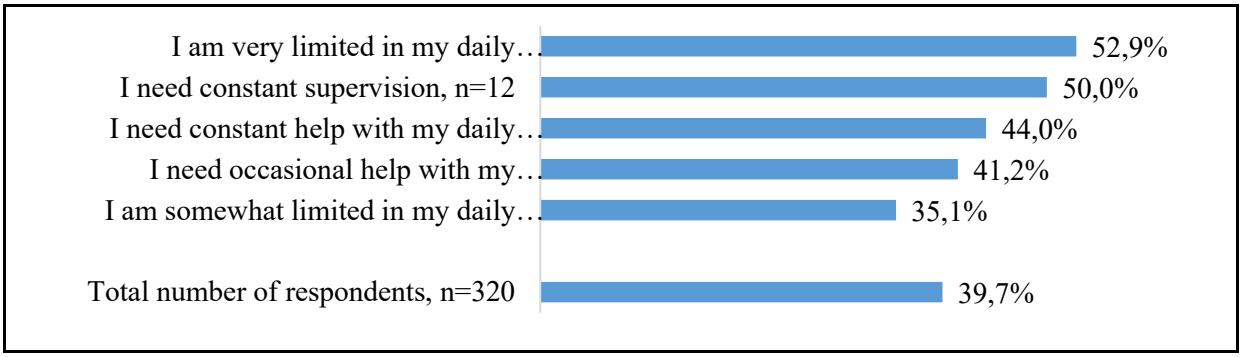


Source: authors' data.

The results did not confirm that women have higher rates of perceived discrimination in tourism, as the Chi-square test did not yield significant results (p=0.451>0.05). In terms of hypothesis H3, however, we did find significant differences with the Chi-square test as far as the rate of discrimination experienced was concerned during travel according to the severity of disability (p=0,038<0,05). Fig. 4 shows that 52.9% of those who are very limited in their daily activities and 50% of those who need constant supervision felt discriminated against in tourism. In contrast, only 41.2% of those who only need help with their daily activities occasionally and 35.1% of those who are somewhat limited in their daily activities reported experiencing

discrimination during their travels. In light of these results, we can verify the third hypothesis that stated that the level of discrimination in tourism increases with the severity of disability.

Figure 4 Perception of discrimination in travel according to severity of disability (p=0.038<0.05)



Source: authors' data

DISCUSSION AND CONCLUSION

This research sought to examine the degree and characteristics of prejudice encountered by those with disabilities when traveling, so adding to the wider discourse on accessible tourism. Our research indicates that prejudice continues to be a substantial obstacle for those with disabilities, affecting both physical accessibility and societal attitudes as well as service delivery. In contrast to our original hypothesis, two of the three assumptions were not validated. In particular, we discovered that:

- *Education level and perception of discrimination*: Our prediction that those with elevated education levels would exhibit more awareness of or sensitivity to discrimination was disproven. Respondents with lower educational attainment reported increased instances of felt prejudice while traveling. This research indicates a multifaceted link between education and the sense of discrimination, implying that elements beyond education – such as socio-economic position, personal experience, and exposure to inclusive environments – may affect one's view of discrimination.
- *Gender and perception of discrimination*: The hypothesis that women would report elevated levels of discrimination was not corroborated by the data. Although women may exhibit increased vulnerability in some situations, our data indicate that this was not evident in the tourist industry. This indicates that gender may not significantly influence the experiences of discrimination encountered by those with disabilities while travel, or other factors, such as the kind of impairment, have a greater influence.

- *Disability severity and perception of discrimination*: We established that the severity of an individual's handicap is directly proportional to the degree of prejudice encountered. Individuals with more limits reported elevated instances of adverse encounters, especially with human attitudes and accessibility challenges. This highlights the need for a more inclusive tourism framework that effectively caters to diverse levels of impairment.

The results of this study have several implications for the advancement of accessible tourism. There is an immediate need for enhanced awareness and training of tourist operators and service providers. The demeanour and actions of those engaging with impaired travellers – be they hotel personnel, transportation providers, or other tourists – are essential for facilitating a favourable travel experience. Neglecting to confront unfavourable attitudes and insufficient understanding about the requirements of those with disabilities may render initiatives aimed at enhancing physical accessibility ineffective.

The findings underscore the need for a more sophisticated understanding of accessibility. Although physical access to locations, amenities, and services is crucial, genuine accessibility entails enabling those with disabilities to travel with dignity and autonomy. This necessitates a comprehensive strategy for accessibility that transcends physical enhancements to include education, awareness initiatives, and improved enforcement of current legislation.

Ultimately, our research indicates a significant economic potential for the tourist industry. Prior studies indicate that the handicapped population is an underutilized market niche. Enhancing services and advocating for accessible locations would enable the tourist sector to attract a broader audience and foster social inclusion. This necessitates investment in the design of accessible areas and in fostering an atmosphere where those with disabilities feel accepted and supported.

Like every research, our study has inherent limitations. Initially, while the research sample included respondents from four nations, the analysis mostly focused on data from Hungary. This may restrict the generalizability of the results, especially to various cultural or socio-economic situations where perceptions of prejudice may vary. Future research should strive to include a more varied sample to investigate cross-cultural differences in the experience of prejudice within tourism.

The self-reporting aspect of the poll may have produced biases. The perceptions of prejudice among respondents are subjective and may be shaped by personal experiences, expectations, or interpretations of the notion itself. Some respondents may underreport their experiences owing to social desirability bias, whilst others may overreport due to increased sensitivity or previous adverse interactions.

A substantial segment of our sample abstained from responding to the inquiry on prejudice, potentially distorting the findings. The causes of non-response are ambiguous and require further inquiry. Comprehending the reasons behind some people's lack of response may provide significant insights on concealed prejudice or ambivalence toward the problem.

Finally, the research did not investigate in depth the particular sorts of disability and their correlation with various forms of prejudice. Future studies might benefit from a more detailed examination that distinguishes between the experiences of individuals with physical, sensory, intellectual, or mental health problems.

Based on the results and limitations of this study, numerous directions for further research arise:

- *Cross-cultural comparisons*: Broadening the study to include more nations and regions will provide a more comprehensive understanding of how cultural, legal, and social circumstances affect the experiences of those with disabilities in tourism. This may assist in identifying optimal methods and effective models for enhancing accessibility and mitigating prejudice across various contexts.
- *Longitudinal studies*: A longitudinal methodology may provide insights into the evolution of discriminatory perceptions over time as societal attitudes and accessibility legislation advance. This would also assist in evaluating the efficacy of initiatives aimed at enhancing accessible tourism and mitigating prejudice.
- *Intersectional analysis*: Future studies need to investigate the intersectionality of disability with other demographic characteristics, including race, ethnicity, age, and socio-economic position. Comprehending the interplay of various identity dimensions in the experience of discrimination may facilitate the development of more customized and effective policy interventions.
- *Service provider perspective*: Although this study focused on the experiences of impaired tourists, further research might investigate the viewpoints of service providers within the tourism industry. Comprehending their attitudes, knowledge deficiencies, and obstacles in assisting impaired clients might enhance training programs and policies to promote more inclusive settings.
- *Innovative solutions and technology*: The evolution of technology presents increasing opportunities to mitigate accessibility obstacles via new solutions, like virtual reality tours, assistive devices, and mobile applications for visitors with disabilities. Investigating how these

technologies may enhance the travel experience for those with disabilities would provide significant insights into the future of accessible tourism.

- *Policy impact studies*: Assessing the influence of national and international accessibility policies on the travel experiences of persons with disabilities helps illuminate the efficacy of existing restrictions. Research may concentrate on the implementation deficiencies and enforcement obstacles that might impede the achievement of accessible tourism objectives.

Accessible tourism is not just a legal or ethical concern but also an economic and social need. Notwithstanding advancements, considerable obstacles – both tangible and perceptual – persist for those with impairments. This study underscores the necessity for a comprehensive strategy that integrates infrastructure improvements with attitudinal shifts, awareness initiatives, and legal enforcement. By resolving these difficulties, the tourist sector can foster a more inclusive society in which all persons, irrespective of their disability, may fully experience the advantages of travel.

Acknowledgement

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***DETUROPE** – THE CENTRAL EUROPEAN JOURNAL OF REGIONAL DEVELOPMENT AND TOURISM*
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MEASURING SUSTAINABLE SOCIAL INNOVATION AT MESO LEVEL. A HUNGARIAN CASE STUDY: THE CITIES OF BORSOD-ABAÚJ-ZEMPLÉN COUNTY

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Abstract

Rapidly changing economic conditions have brought new challenges for the cities of Borsod-Abaúj-Zemplén county in the Northern-Hungary region. The countys 28 towns are important spaces for residents, businesses and commerce, and are the fastest to bring new and innovative solutions to the county. The cities of Borsod-Abaúj-Zemplén county are examined in the framework of our study through the lens of sustainability and social innovation providing a meso-level analysis in the field of social innovation. Miskolc, a city with county rights, is excluded from the scope of the cities studied, as this would significantly distort the sample and the results of the methodology. For the sake of our analysis, we have highlighted and included 3 elements from the 17 UN Sustainable Development Goals (SDGs) adopted in 2018, which best reflect the concept of sustainable social innovation. As a result of our analysis, we have grouped the urban network of the county into 5 cluster groups. The aim of our analysis was to find out how the 28 cities of Borsod-Abaúj-Zemplén county perform along the 3 SDGs (Sustainable Development Goals) priority dimensions. To what extent do the development dynamics and liveability of cities differ? The methodology chosen for the analysis was clustering. The results obtained reflect the specifities of the county's urban network, the current economic situation of the region and the direction of its development. It can be concluded that, among the municipalities of the county, the dynamics and the liveability of most of the medium-sized and small cities, as well as of the settlements linked to the Miskolc agglomeration, are the most favourable in the region.

Keywords: sustainable social innovation, complex index, Hungarian cities, liveability, spatial inequalities, urban development

INTRODUCTION

Sustainable development – the responsible management of resources – has been a central issue in environmental and climate policy since 1987, following the preparation of the Brundtland Report.[1] The document defines the concept of sustainable development as "development that meets the needs of the present generation without compromising the ability of future

[1] The document commonly known as the Brundtland Report: Our Common Future (1987): World Commission on Environment and Development. Oxford: Oxford University Press. 383 p. It outlined a form of economic growth that is robust, yet socially and environmentally sustainable (Li et al., 2024). This document was the first to define the concept of sustainable development, which had previously been mentioned by Meadows (1972) in his work "The Limits to Growth".

generations to meet their own needs" (Brundtland, 1987, p. 16). Nowadays, examining these issues is becoming increasingly essential for political decision-makers, as reflected in the United Nations' 11th Sustainable Development Goal (SDG), which emphasizes making cities inclusive, safe, resilient, and sustainable (UN, 2018).

Three main pillars are commonly mentioned in relation to sustainability, all of which play a key role in urban development. These three pillars are the environmental, economic, and social dimensions of sustainability (Lehtonen, 2004; Sikos T. & Szendi, 2023; Kozma, 2024). The environmental pillar primarily encompasses environmental protection aspects (natural environment: biodiversity, resource and waste management). The social dimension represents equity, citizen well-being, and the fulfillment of basic human needs, while the economic dimension can refer to the economic competitiveness and diversity of urban areas (Toli & Murtagh, 2020).

This study examines 28 cities in Borsod-Abaúj-Zemplén County. Miskolc, as a city with county rights, was excluded from the analysis because its population size and economic potential would significantly distort the results of our chosen methodology. Borsod-Abaúj-Zemplén County is located in the north-eastern part of Hungary (the northernmost county in the country), one of the three counties of the NUTS2 region of Northern Hungary. Bordering Slovakia from the north, the county seat has historically significant connections with the city of Košice. The county's topography is diverse, including the landscapes and mountainous areas of the Bükk National Park and elements of the Tokaj and Zemplén mountain ranges. Within the region, the distribution of settlements is uneven, with nearly 60% of the nearly 50 towns located in Borsod-Abaúj-Zemplén County. The average settlement size is significantly below the national average, as there are many areas with a small village structure in the county (more than 40% of settlements), which determine the county's position in economic and demographic terms (HCSO data; Varga et al., 2021) and its peripheral position.

When selecting the study area, we also considered whether our model would function effectively in a region that is in a peripheral position based on socio-economic factors, we have thus verified the position of the county among the 19+1 counties of Hungary (the plus one is the capital city, Budapest[2]) (Tab. 1).

[2] The situation of Budapest and Pest County is unique in that it previously appeared together at the regional level as the Central Hungarian region, but since 2018 it has been listed separately, thus we treat the capital separately from the 19 counties.

Table 1 The Position of Borsod-Abaúj-Zemplén County Based on Selected Economic Indicators (2022)

Position of Borsod-Abaúj-Zemplén County among the 19+1 counties of Hungary[3]	GDP per capita (thousand Ft)	Employment rate of the 15-64 age population (%)	Unemployment rate of the 15-64 age population (%)	Number of active enterprises per 1,000 inhabitants	Number of foreign enterprises per 1,000 inhabitants	Gross value added per capita (euro)	Share of the service sector in gross value added (%)
	15	**17**	**18**	**20**	**16**	**15**	**17**

Source: Data from the Hungarian Central Statistical Office (HCSO) and Eurostat (2022).

Analysing the above data series, it is evident that Borsod-Abaúj-Zemplén County is one of the most disadvantaged regions based on almost all the economic indicators examined. With the exception of GDP per capita and added value, it ranks in one of the last five positions among the counties (its position in these two indicators is only one place higher).

A common characteristic of peripheral areas, as shown by the EU's Cohesion Reports, is that while they may improve their position in the long term, the distance from the centers remains significant, and they are unable to catch up with the EU average (European Commission, 2024). The reason for this is that these areas are predominantly rural, with low innovation and knowledge intensity, have generally low-income levels, are demographically disadvantaged, and have low technological innovation absorption capacity (Pike et al., 2006; Brucker & Finta, 2023). In these areas, due to the lack of traditional technological innovation, social innovation, which mainly builds on bottom-up initiatives, can be regarded as a breakthrough point that could contribute to the future development of the region. Innovation is an important indicator of the economic development and competitiveness of the counties. For example, improvements in innovation performance can enhance the competitiveness of countries (Ciocanel & Pavelescu, 2015; Cetin & Erkisi, 2023), which is why it is worthwhile to examine added value in relation to development and competitiveness. The literature is overwhelmingly focused on the examination of the innovation potential of regions, primarily due to its active contribution to economic growth and competitiveness (Szendi, 2018). However, when studying innovation, it is important to distinguish between technological and social innovation potential, as the absorption capacity of individual regions is not the same in these two cases. Regarding technological innovation potential, input-side factors generally include research and development expenditures and research institutions, while output-side

[3] Here, Budapest was included in the comparison, as by the ranking of counties it doesn't distort the results so much, as it is the first in almost all indicators, and the relative position of Borsod-Abaúj-Zemplén County is unchanged among the counties. So relative positions are not affected in the order-based comparison.

factors include patent activity, implemented developments, and publications. The definition of social innovation is more problematic, as there is still no universally accepted term for it. However, in most definitions, social innovation is interpreted by authors as the improvement of social/human well-being, the satisfaction of social needs, the bottom-up nature of innovation, or its novelty in addressing social needs that the market cannot meet. According to the OECD's valid definition, social innovation "seeks new responses to social and societal challenges and refers to new solutions aimed primarily at improving the quality of life of individuals and communities by increasing their well-being and social and economic inclusion" (OECD, 2024, p. 9). It is argued that in peripheral regions, due to the lack of traditional technological innovation, social innovation based mainly on bottom-up initiatives could provide the breakthrough point for future regional development (Murray, 2010; Kocziszky et al., 2015; Benedek et al., 2016; Mulgan, 2019; Torre, 2022).

Benedek and his co-authors (2020) examined the social innovation conditions of Hungarian settlements, and according to their findings, settlements most affected by complex problems were more frequently found in the border areas of the North Hungarian region, in the Central Tisza region, and the South Transdanubian region. This study primarily focused on the performance of non-profit organizations, unemployment patterns, and the proportion of social enterprises. The analysis concluded that high technological innovation potential and performance are not necessarily associated with high social innovation activity, which also suggests that even in peripheral areas where technological innovation is lacking, there is hope for high social innovation performance. However, random and occasional developments (social innovation activities) do not necessarily promote the catching up of the region; the nascent innovations should be sustainable in the long term, relying on the three pillars mentioned above (economy, society, environment). This issue could be resolved by calculating a complex social innovation index. For these reasons, we chose to analyze the 28 urban settlements in Borsod-Abaúj-Zemplén County. The basic data of the 28 cities, including Miskolc, are presented in Tab. 2.

Miskolc is the fourth most populous city in the country, and its favorable economic situation is attributed to the continuous growth of jobs. It is also the economic center of the Northern Hungarian region, and through the University of Miskolc, it plays a key role in the scientific, educational, and cultural life. Its regional role significantly impacts the development process of the area, as well as the living conditions of more than 200,000 people living in the Miskolc agglomeration zone (Miskolc and the surrounding settlements). This significant impact is the reason for its exclusion from the current study. In this study, we reviewed three of the

Sustainable Development Goals for the cities of the county based on 21 indicators. Based on the results, we classified the settlements into clusters and assumed that cities with similar characteristics and indicators could be grouped together.

Table 2 Key Data of the cities of Borsod-Abaúj-Zemplén County

Name of the city	Type of the city	Received city status	Population number		Domestic migration balance per 1,000 inhabitants, 2023
			1949	2023	
Miskolc	city with county rights	before 1885	109,841	148,906	-760
Kazincbarcika	Medium-sized city	1954	3,846	24,993	-207
Sátoraljaújhely		1899	17,116	13,876	-46
Ózd		1949	29,184	32,923	-102
Tiszaújváros	Small town	1966	1,349	14,669	-146
Mezőkövesd		1973	18,228	16,095	43
Szerencs		1984	7,813	8,757	77
Encs		1984	2,999	6,324	24
Sárospatak		1968	13,644	11,357	-66
Edelény		1986	4,908	9,671	20
Tokaj		1986	5,074	3,617	-3
Szikszó	Village-cities that also include urban functions	1989	5,589	5,496	-29
Sajószentpéter		1989	7,455	11,817	28
Mezőcsát		1991	6,335	5,867	-24
Putnok	Urban sprouts	1989	5,175	6,730	-40
Gönc		2001	3,252	1,966	-12
Felsőzsolca	Cities without a significant urban role	1997	2,932	6,804	-24
Cigánd		2004	5,203	3,109	-102
Emőd		2001	4,343	5,028	-17
Abaújszántó		2004	4,567	2,827	-18
Alsózsolca		2007	3,093	5,678	-87
Szendrő		1996	3,312	4,090	-65
Nyékládháza		2003	2,369	5,168	10
Onga		2013	2,515	4,951	-7
Mezőkeresztes		2009	5,391	3,694	2
Borsodnádasd		2001	3,511	2,979	-41
Sajóbábony		2009	867	2,647	-5
Rudabánya		2008	2,677	2,478	16
Pálháza		2005	735	1,059	-3

Source: Beluszky, P. & Sikos T., T. (2020): Városi szerepkör, városi rang [City role, city rank] and HCSO data, compiled by the author.

In their 2020 work on the Hungarian settlement network, Beluszky, P. and Sikos T., T. distinguished seven hierarchical levels, and we applied this classification to the cities of Borsod-Abaúj-Zemplén County as a starting point for the research. In this study, our goal was to determine to what extent the classification would align with the established cluster groups (see later).

These are as follows:

- Capital City
- Regional centers (with effect and catchment areas extending across multiple counties)
- County centers (not necessarily the same as county seats)
- Medium-sized cities
- Small towns (mostly corresponding to district seats in the administrative hierarchy)
- "Village-cities", these towns only have urban functions in their early stages of development
- "Ceremonial towns" (from a settlement science perspective, they are not part of the city stock; thus, the urban hierarchy is effectively six-tiered).

Among the cities of Borsod-Abaúj-Zemplén County, only 10 cities have a real urban role, and these include medium-sized and small towns. These towns are mostly located in the narrower or broadly interpreted catchment area of Miskolc. A significant number of towns with locally employed industrial workers are also found along the Borsod industrial axis, in the strongholds of the chemical industry (Kazincbarcika 48.1%, Sajóbábony 66.9%, Tiszaújváros 69.8%). These were the flagship towns of socialist heavy industry and its beneficiaries. However, in case industrial development did not coincide with urbanization or other elements of functional growth, these towns were left behind and ended up in the last positions in the towns' dynamic order, e.g., Rudabánya, Borsodnádasd, Sajóbábony, Sajószentpéter, or Ózd. Several "flagship" cities from the socialist era in Borsod-Abaúj-Zemplén County have entered a phase of decline; 11 of the country's 31 most disadvantaged cities are located there.

In our study, we seek to analyze the performance of the 28 cities of the county along the three key dimensions of Sustainable Development Goals, which simultaneously reflect the cities' readiness for social innovation and their sustainability dimensions. This enables us to find out whether it is the performance in sustainability goals or the position in the urban hierarchy that defines the position of each city. During the analysis, we attempted to create a complex index and identified homogeneous city groups by forming clusters.

SUSTAINABLE SOCIAL INNOVATION

Social innovation, according to its most commonly used definitions, aims to address social needs that the market cannot satisfy. This new form of innovation can promote the convergence process of peripheral areas by creating new ideas and initiatives (Kocziszky et al., 2015; Benedek et al., 2016; Micelli et al., 2023; Starti et al., 2023). Due to the lack of traditional technological innovation, social innovation, which is primarily based on bottom-up initiatives, can be seen as a breakout point for future regional development (Le Ber & Branzei, 2010; Lin & Chen, 2016). Common points of these definitions include improving societal well-being, addressing social needs, bottom-up initiatives, or the innovative nature of addressing social needs that the market cannot meet. Other studies highlight the significant role of the promotion of social empowerment (Tóth & Varga, 2024). According to the European Commission, "Social innovation can be defined as the development and implementation of new ideas (products, services, and models) aimed at fulfilling social needs and creating new social relationships or collaborations." (European Commission, 2013, p. 6).

Sustainable social innovations are novel solutions that help address social problems and, in the long term, serve sustainability (Tinlab, 2021). These goals integrate the classic three pillars of sustainability: environmental, economic, and social aspects.

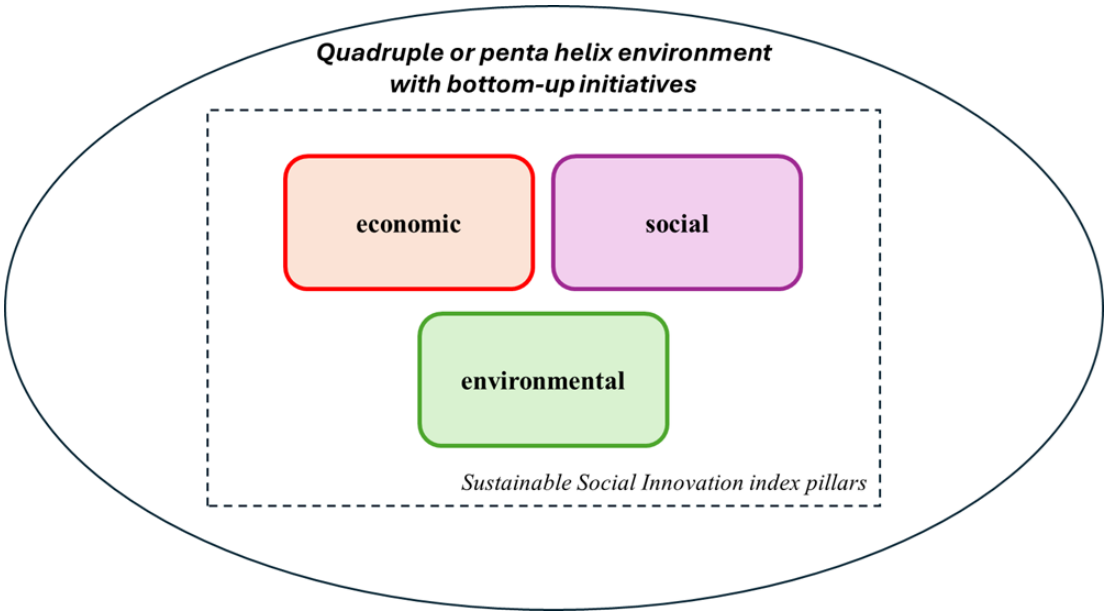
Sustainable social innovation is built on the following elements:

- Social impact: It primarily focuses on solving social problems, such as poverty, inequality, education, healthcare, and environmental sustainability.
- Sustainability: In addressing social problems, the environmental sustainability aspect is crucial, alongside economic and social considerations. This ensures that innovation targets not only short-term issues and does not endanger the ability of future generations to meet their needs.
- Collaboration: It involves the cooperation of various stakeholders, including governments, nonprofit organizations, businesses, and communities, in a triple (Leydesdorff, 2000) or quadruple helix (Alfonso et al., 2012) approach.
- Scalability and repeatability: Successful innovations are characterized by scalability and repeatability.

However, the conditions for social innovation (social embeddedness, acceptance, presence of bottom-up initiatives) can vary by region. This can significantly influence the success of individual innovations in the long term. To ensure the sustainability of social innovations, it is advisable to measure the performance of different regions according to the three pillars of

sustainability and to determine the long-term sustainability of activities within a complex index framework. The model below integrates both the conditions for social innovation and the dimensions of sustainable innovations together with the best working helix condition for implementing innovations (Fig. 1).

Figure 1 Framework model of Sustainable Social Innovation



Source: Compiled by the authors.

In order to achieve long-term sustainable innovations, in addition to the above, it may be necessary to organize already developed or planned social innovations into a network, as international literature also suggests (e.g., Merlin-Brogniart, 2019; Desmarchelier et al., 2020), which can lead to spillover effects, thereby enhancing the effectiveness of the innovations and developments implemented, and further improving overall social well-being.

However, the success of applying the framework model can be significantly influenced by factors such as the involvement and influence of civil society (as also argued by Bródy, 2022). There are three relevant approaches in the practice of involvement, with the oldest one being the so-called triple-helix model, which builds on the cooperation of the public, private and academic fields in a fundamentally top-down manner. Hence, civic engagement is quite weak (Calzada & Cowie, 2017). Conversely, the quadruple-helix also integrates civic society and does so in an institutionalised bottom-up framework (Szendi, 2021). And lastly, the penta-helix model integrates the participation of the social entrepreneurs and activists in a proactive model (Calzada, 2020). The above model takes a quadruple helix approach, which not only considers the cooperation between the government, private sector, and academia, but also integrates civil

society. This enables a more flexible response to social problems and creates an institutionalized, bottom-up framework for problem solving (Calzada, 2020).

METHODOLOGY

Similarly to social innovation, sustainable social innovation has no unified definition or calculation method so far. Therefore, to explore the database for sustainable social innovations (applicable indicators), we also utilized the opportunities offered by artificial intelligence (AI). This proved useful as no specific database is available to describe the examined issues, which allowed for a broad search and setting the framework for data mining expansion. Below, we provide the names and access points of the database collected by ChatGPT Plus:

1. **Sustainable Development Goals (SDG) Indicators Database**
    - **Description**: This database is used to track the implementation of the UN Sustainable Development Goals (SDGs) and contains data on indicators related to various goals. It provides data in areas such as poverty reduction, healthcare, education, gender equality, clean water, and climate protection.
    - **Access**: SDG Indicators Global Database
2. **Human Development Reports (HDR)**
    - **Description**: Reports published by the UN Development Programme (UNDP) provide data on various human resource development indicators, including education, income, health, gender inequality, and other socio-economic factors.
    - **Access**: Human Development Reports
3. **World Bank World Development Indicators (WDI)**
    - **Description**: The World Bank's WDI database contains a broad range of economic, social, and environmental data, often featured in UN reports and analyses.
    - **Access**: World Development Indicators
4. **UNESCO Institute for Statistics (UIS)**
    - **Description**: Provides data related to education, science, culture, and communication, including areas of educational access, quality, and innovation.
    - **Access**: UNESCO Institute for Statistics
5. **Global Innovation Index (GII)**
    - **Description**: While the GII is a joint initiative of Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), it is also frequently

featured in UN analyses. The index measures the innovation performance of countries, which can reflect various aspects of social innovation.

- **Access**: Global Innovation Index

6. **UN Environment Programme (UNEP) Data**
   - **Description**: Provides data and reports related to environmental indicators, including climate change, biodiversity, and pollution, which are relevant to the environmental aspects of social innovation.
   - **Access**: UNEP Data
7. **UN Data**
   - **Description**: A comprehensive data portal that gathers statistics from various UN organizations on topics such as population, health, agriculture, education, and environmental protection.
   - **Access**: UN Data
8. **UN Global Compact Reports**
   - **Description**: Contains data and case studies on corporate sustainability initiatives, highlighting the private sector's role in social innovation in line with UN principles.
   - **Access**: UN Global Compact

The above databases help assess the impact and progress of sustainable social innovations and provide a foundation for planning, implementing, and developing innovation initiatives. These types of databases and reports allow policymakers, researchers, and developers to identify gaps, uncover opportunities, and establish the long-term sustainability and social usefulness of innovations. For the purpose of this study, we selected the "Sustainable Development Goals Indicators" database from the above-mentioned sources. The choice is explained by the reasons outlined above, but the list also offers paths for analysis along different routes. In other words, for measuring sustainable social innovation at the county level, it is possible to apply various databases, which can assist in the analysis, interpretation, and control of the results. At the turn of the millennium, the focus of the UN's Millennium Development Goals was on the issues of developing countries. Fifteen years later, a sustainable development program was created that, in addition to the previous focus, also considered the perspectives of developed countries. This program ("Transforming our World: The 2030 Agenda for Sustainable Development") included 17 global sustainable development goal programs and 169 targets (European Environment Agency, 2020), with a particular emphasis on the environmental dimension (HCSO, 2022; UN, 2015). By 2020, the UN had developed

methodologies for all indicators (HCSO, 2022). In our study, we selected three sustainability goal programs from the 17 targets (targets 8, 9, and 11).

For the purpose of our study, sustainability and smart economy (innovation capacity) were the main focus. Among the Sustainable Development Goals, there are several that focus not only on environmental sustainability but also on economic sustainability. When selecting the 8th, 9th, and 11th components, our main aim was to examine the environmental and economic sustainability dimensions, in order to find out whether economically more developed cities can be sustainable in terms of environmental, economic, and social aspects.

When selecting the target indicators, we also aimed to include indicators of social innovation as well as the dimensions of sustainability among the selected dimensions. Several previous analyses can provide a basis for this, which associate each SDG with the pillars of sustainable development (e.g., Kostoska & Kocarev, 2019; Paoli & Addeo, 2019; or Mangukiya & Sklarew, 2023). The 8th and 9th goals were incorporated among the economic dimensions as they represent the characteristics of the region most accurately (strong industrial history, jobs, and economic growth). Inequalities between the cities of the county were integrated into income data. Among the social goals, we focused on sustainable cities and communities which most closely embody the concept of sustainable, innovative cities. We also included climate goals and cleaner energy use in this indicator group. There are several goals that are less relevant in the context of this meso-level analysis.

We also integrated indicators measuring pure social innovation potential into most of the goals, thus ensuring their measurability in the complex index (8. number of individual entrepreneurs and civil organizations; 11. recipients of municipal support, number of cultural institutions, educational institutions).

Thus, in total, we examined two economic goals: 8. decent work and economic growth; 9. industry, innovation, and infrastructure; and one social goal: 11. sustainable cities and communities (Tab. 3).

In our analysis, we examined how the 21 target indicators (Tab. 3) interact with each other. In this study, we conducted an analysis of the 28 cities of Borsod-Abaúj-Zemplén county based on three SDG index values (8th, 9th, and 11th target indicators). The novelty of the city-level analysis lies in the fact that, to date, no similar methodology has been used for meso-level analysis. It is important to note that at the meso level, indicator selection is significantly more challenging due to the limited availability of reliable variables. Many indicators must be excluded from municipal-level analyses because they are only available at the county level in the databases. Examples of such indicators include research and development activities (both

input and output sides, such as expenditures and patents), various satisfaction-related data, or even some infrastructure indicators.

Table 3 List of Indicators Used in Each Dimension

SDG Dimension	Indicator	Literature source	Data source/ data base
8. Decent work and economic growth	Net income per capita (the amount of net income, which forms the basis for personal income tax, per permanent resident)	Lafortune et al. (2019): The 2019 SDG Index and Dashboards Report for European Cities – **hereinafter referred to as Lafortune et al. (2019).**	HCSO – Dissemination database
	Number of unemployed persons registered for more than 180 days per 1,000 inhabitants	Lafortune et al. (2019)	HCSO – Dissemination database
	Old-age dependency ratio (65+ / 15-64 years)	HCSO (2022): Sustainable Development Goals – **hereinafter: HCSO (2022)**	HCSO – Dissemination database
	The proportion of active individual entrepreneurs (%)	HCSO (2022)	HCSO – Dissemination database
	The proportion of secondary school graduates (%)	HCSO (2022)	HCSO – Dissemination database
	The number of civil organizations per 1,000 inhabitants	HCSO (2022)	HCSO – Dissemination database
	The percentage of employed individuals in the resident population	HCSO (2022)	HCSO – Dissemination database
9. Industry, innovation, and infrastructure	The number of internet subscriptions per 1,000 residents	Lafortune et al. (2019)	HCSO – Dissemination database
	CO_2 emissions per capita (tons)	HCSO (2022)	OKIR – LAIR
	Domestic migration balance (permanent and temporary) per 1,000 inhabitants, 2020	Lafortune et al. (2019)	HCSO – Dissemination database
	Travel time to the county seat by road (fastest, in minutes)	Lafortune et al. (2019)	Google Maps route planner
11. Sustainable cities and communities	Per capita NO_2 emissions (kg/year)	Lafortune et al. (2019)	OKIR – LAIR
	Average property price per square meter	Lafortune et al. (2019)	ingatlannet.hu

Table 3 (continued)

SDG Dimension	Indicator	Literature source	Data source/ data base
	Financial aid (Number of people receiving municipal support as a percentage of the population)	Lafortune et al. (2019)	HCSO – Dissemination database
	Number of cultural institutions per 100,000 inhabitants	Lafortune et al. (2019)	Hungary's attraction map; Google Maps
	Number of attractions per 100,000 inhabitants	Lafortune et al. (2019)	Hungary's attraction map; Google Maps
	Number of museums per 100,000 inhabitants	Lafortune et al. (2019)	Hungary's attraction map; Google Maps
	Number of educational institutions per 10,000 inhabitants	HCSO (2022)	HCSO – Dissemination database
	Secondary utility gap (discrepancy in the proportion of households connected to water and sewage networks)	HCSO (2022)	HCSO – Dissemination database
	The proportion of selectively collected waste in total waste collection (%)	Lafortune et al. (2019)	HCSO – Dissemination database
	The amount of support received per capita for the development of renewable energy sources through GINOP grants (HUF)	HCSO (2022)	palyazat.gov.hu

Source: compiled by the authors.

When selecting indicators, we aimed to choose data sets that are accessible both for international and domestic cities, and that could allow our study to be reproduced in other timeframes and regions as well. The primary data sources were TEIR[4] and the HCSO Dissemination Database. Two main sources of literature provided the foundation for the analysis, both in terms of methodology and the selected indicators. During the creation of the database, we relied on 2020-2021 data, as these were the most recent and thus most suitable for the analysis of cities in Borsod-Abaúj-Zemplén county.

A key aspect during the creation of the database was the comparability of the data series and their potential to be aggregated to create a composite index. Accordingly, as an initial step, we calculated specific data, mostly based on values per 1,000 or 10,000 inhabitants, or applied

[4] TEIR: National Regional Development and Spatial Planning Information System makes statistical data of different data owners available in one system, supporting planning and evaluation activities from the national to the local level.

percentage distribution. Since the data did not contain uniform units even after calculating specific values, it was necessary to apply standardization for calculating the components. By transforming/scaling the data, we made the indicators comparable. We performed the standardization according to the following formula (1).

$$x = \frac{x_i - x_{min}}{x_{max} - x_{min}} * 100 \quad (1)$$

For the indicators where a higher value had a more unfavorable meaning (e.g., the number of unemployed people or various air pollution measurements), we continued the calculation with the reciprocal of the values (2).

$$x_{corr} = \frac{x_i - x_{max}}{x_{min} - x_{max}} * 100 \quad (2)$$

The main advantages of the method are:

- It allows the aggregation of datasets with different units of measurement (e.g., kg, %, m^2…) while preserving the original relationships.
- It does not cause data loss or distortion (Giffinger et al., 2007; Cohen, 2014).

Subsequently, we formed complex components from the indicators by applying a simple arithmetic average[5], thus generating the values for the SDG8, SDG9, and SDG11 indices, as well as the complex sustainability index based on these, which can measure sustainable social innovation according to its individual pillars. This way, the index can also provide insights into the long-term development prospects of the settlements along each dimension.

An interesting question during the compilation of the datasets is which indicator's removal from the analysis impacts the distribution of results most significantly (sensitivity analysis). To this end, we reviewed the dispersion of standardized values, which indicated that less influential indicators include air pollution data (carbon dioxide and nitrogen oxides), as well as the number of people receiving municipal aid. In contrast, there is greater dispersion in the income data, the dependency ratio of the elderly, migration data, and the utility gap. A more significant outlier value can be observed in the distribution of individual entrepreneurs, specifically in the town of Nyékládháza, which could slightly distort the results.

[5] Since the values of the indicators were standardized when calculating the components, no outlier values remained in the database, which justified the application of the arithmetic mean (Semanjski, 2023).

RESULTS

The grouping of cities was carried out through cluster analysis. The selected method is suitable for exploring the relationships between the indicators of heterogeneous objects and for forming homogeneous groups (Anderberg, 1973). After several iterations with the indicators, we finally accepted a five-cluster solution (Tab. 4). The complex index values calculated for each city based on the indicators of SDG8, SDG9, and SDG11 are presented in Tab. 4. The achievement status of the targets is indicated for the component values. In the studies of Lafortune et al. (2019), performance thresholds of 20% were defined for the performance of cities, where capitals with performance above 80% received the highest ratings. Regarding the settlements in the county, after reviewing the interpretation range of each dimension and the complex index, the clusters were classified as follows:

- Above 60% – Small towns with liveable[6] conditions;
- 50-60% – Cities with cyclical development but liveable conditions;
- 40-50% – Cities with below-average living conditions searching for their place;
- 30-40% – Cities without a real urban role, difficult to live in;
- Below 30% – Lagging cities with unfavourable conditions.

Cluster A: Small towns with liveable conditions

The first cluster includes only two towns: Tokaj (with a permanent population of 3,371) and Nyékládháza (with a permanent population of 5,180). The development of the Tokaj region is rooted in its history, as it served as an important crossing point at the confluence of the Tisza and Bodrog rivers and established connections between the Tokaj Hills and the Great Hungarian Plain. Tokaj has long been significant for its wine trade, as it was part of the so-called “market town agglomeration” (Beluszky & Sikos T., 2020), and it continues to play a key role in shaping the wine trade in the Tokaj region, its wine tourism, and in creating tourism destinations based on this image. Currently, there are 35 major wineries in and around Tokaj. The town has around 18 accommodation facilities, including a 4-star hotel. The town’s historical diversity is reflected in its religious variety (6 different churches), cultural wealth (art and writing camps, 6 museums, 47 sights), which has significantly contributed to the town’s development. These opportunities open the way for further development, strengthening its economic, tourism, and cultural roles, thereby enhancing the local social innovation capacity.

[6] By livability, we mean factors such as the quality and availability of public services, housing and sustainability, which provide adequate conditions for residents from an economic, social and environmental perspective.

Table 4 Clusters of the Complex Sustainable Social Innovation Index

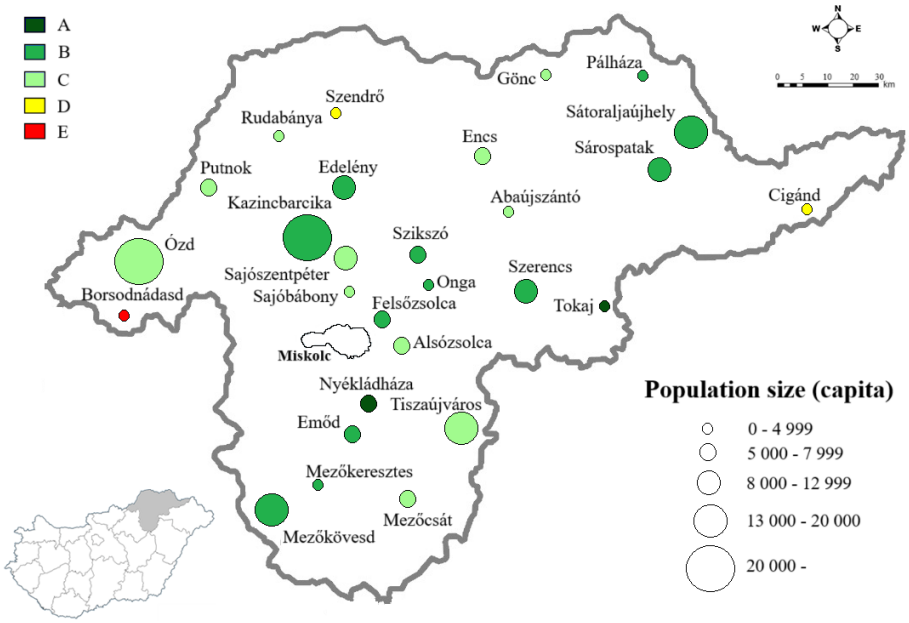
cluster	city	8	9	11	complex
A – Small towns with liveable conditions	Tokaj	52.1	73.0	68.8	64.6
	Nyékládháza	56.0	84.9	41.7	60.9
B – Cities with cyclical development, but liveable conditions	Felsőzsolca	49.4	76.1	46.8	57.4
	Pálháza	66.4	51.6	53.4	57.1
	Mezőkövesd	48.9	65.4	50.8	55.0
	Szikszó	50.1	69.0	45.7	54.9
	Sátoraljaújhely	50.4	48.5	62.1	53.7
	Emőd	50.9	70.8	39.1	53.6
	Onga	52.3	67.1	39.8	53.1
	Szerencs	50.8	71.8	31.4	51.3
	Mezőkeresztes	45.7	68.6	39.6	51.3
	Kazincbarcika	56.3	57.4	39.2	51.0
	Sárospatak	53.6	43.4	55.4	50.8
	Edelény	44.3	69.9	36.8	50.3
C – Cities with below-average living conditions, searching for their place	Mezőcsát	41.9	59.8	46.8	49.5
	Sajószentpéter	44.5	67.4	33.9	48.6
	Alsózsolca	44.0	61.0	40.3	48.4
	Encs	37.0	66.9	36.6	46.9
	Abaújszántó	44.3	51.7	43.5	46.5
	Sajóbábony	37.3	59.9	41.4	46.2
	Rudabánya	38.0	54.1	43.9	45.3
	Ózd	32.5	67.1	33.6	44.4
	Putnok	36.5	56.2	39.4	44.0
	Gönc	33.3	44.2	53.5	43.7
	Tiszaújváros	64.4	33.5	29.9	42.6
D – Cities without a real urban role, difficult to live in	Szendrő	24.7	43.9	45.1	37.9
	Cigánd	23.9	39.4	40.4	34.6
E – Lagging cities with unfavourable conditions	Borsodnádasd	20.3	36.6	29.2	28.7

Source: compiled on the basis of the authors' calculation.

Nyékládháza's prominent position is due to its role as a dormitory town and its close connection to the Miskolc agglomeration (Miskolc is 24 minutes away). Both small towns perform well in the 9th "Industry, Innovation and Infrastructure" and 11th "Sustainable Cities and Communities" SDG targets, with the highest calculated complex index values for Tokaj (64.6) and Nyékládháza (60.9). These values are attributed to the favourable environmental parameters and the lack of heavy industry in both towns. The two towns also perform well in the aforementioned social innovation data sets. Tokaj has the highest proportion of civil organizations, municipal support, and educational institutions. Nyékládháza is outstanding only in terms of the proportion of people receiving municipal support, which is over 90%. In terms of CO_2 emissions, both Tokaj and Nyékládháza report 0 tons, and they show similar values for NO_2 emissions (kg/year). The number of jobseekers registered for more than 180 days is more

favourable in Nyékládháza (66 people), thanks to its proximity to Miskolc, while in Tokaj, the number is 131, which is still well below the average of the 28 cities. The per capita net income forming the basis of personal income tax in 2022 was 4,485 € for Tokaj, slightly above the average of the 28 cities (4,465 €), while Nyékládháza had the highest value of the cities under study at 5,859 €. This value was influenced by Miskolc's proximity and better-paying job opportunities. Tokaj and Nyékládháza are among the cities that balance the fulfilment of the 8th, 9th, and 11th SDGs, which also contributes to their liveability (Fig. 2).

Figure 2 Clusters and distribution of the Complex Sustainability Index



Note: A – Small towns with liveable conditions; B – Cities with cyclical development, but liveable conditions; C – Cities with below-average living conditions, searching for their place; D – Cities without a real urban role, difficult to live in; E – Lagging cities with unfavourable conditions.
Source: Own creation.

Cluster B: Cities with Cyclical Development but Liveable Conditions

The 12-element cluster includes both long-established cities and former "socialist" cities, such as Kazincbarcika, as well as the suburban towns of the Miskolc agglomeration. There is also an "outlier" in the cluster, Pálháza, which was included due to its favourable environmental and labour market data (only 18 registered jobseekers for over 180 days). The cluster also includes Sárospatak and Sátoraljaújhely, which were once the market centers of the Bodrogköz region and are still significant towns in the area today. Sárospatak's status is further strengthened by being a famous university town and since 2021, it has hosted a branch of the Tokaj-Hegyalja University. In both towns, the per capita domestic income forming the tax base exceeds the average of the 28 cities (Sárospatak 5,144 €, Sátoraljaújhely 4,750 €). Szikszó became the

"county seat" of Abaúj-Torna County due to the Trianon border changes. This role was lost in 1950 with the county's unification, and henceforth, it has had a modest market role as a district seat. The most significant change in the life of the town in recent years is the arrival of HELL energy drink factory, which is a major employer, however, despite its presence, the per capita domestic income is only slightly above the average of the 28 cities (4,853 €). Larger cities, such as Miskolc, attract numerous agglomerated towns from their surroundings. This is reflected in the complex sustainability index values of towns such as Alsózsolca, Felsőzsolca, Nyékládháza, Emőd, and Onga. This group also includes Kazincbarcika, a former "socialist" city that was established in 1954. Its development is largely reliant on the chemical industry, particularly the Borsod Chemical Plant, later known as BorsodChem. In 1992, the chemical plant employed 4,527 people. Over time, the factory has undergone significant transformation, and by 2023, the number of employees had decreased to 3,728. Naturally, the factory has undergone significant modernization over the years, along with profile refinement. However, the environmental impact of the chemical plant is still not satisfactory. Air pollution is high (CO_2 emissions of 342,978,902 tons, NO_2 emissions of 415,563 kg/year), with only Tiszaújváros having worse values among the cities under review. However, the per capita domestic income forming the tax base is favourable (5,670 €), ranking third among the cities. Some towns show an outstanding performance in terms of social innovation data, providing potential points of breakthrough in their development. For example, Onga has the highest rate of individual businesses, Pálháza stands out in the number of civil organizations (second-highest rate), and Mezőkövesd has the highest proportion of people receiving municipal support.

Cluster C: Cities with Below-Average Living Conditions, Searching for Their Place

The 11-element cluster can be divided into three subgroups:

1. Medium-sized and small towns (Ózd, Encs, Tiszaújváros),
2. Towns closely linked to the Miskolc agglomeration without a significant urban role (Alsózsolca, Sajószentpéter, Sajóbábony),
3. Towns with emerging urban characteristics (Mezőcsát, Putnok, Gönc).

The fate of mining towns has essentially been sealed by post-regime change industrial policies (Putnok, Rudabánya). In the Putnok Black Valley mine, several tens of millions of tons of expensive-to-extract brown coal remained unextracted, and this partly applies to the mines around Ózd as well. Ózd was further burdened by the closure of its steelworks, contributing to the stagnation of the town's development and the onset of its "agonizing" process. Among the

28 cities in the county, evidently, Ózd has the highest number of unemployed, with 1,442 people, and its per capita domestic income forming the tax base is also quite unfavourable (3,523 € in 2022, the average: 4,465 €). The town's environmental situation is significantly degraded by the CO_2 emissions level of operating businesses (20,823,768 tons) and NO_2 emissions (80,218 kg/year), these values being more unfavourable only in the former "socialist city" of Tiszaújváros (CO_2 emissions of 405,487,346 tons, NO_2 emissions of 958,162 kg/year). Regarding the income conditions of the two towns, Tiszaújváros has a significantly higher per capita domestic income (7,601 € in 2022), largely thanks to its chemical plants. The development of Tiszaújváros was essentially based on the Olefin program.[7] Encs and Gönc, as district centres, partly bring together the villages of the Abaúj region and the Zemplén area, with the common characteristic of being centres of disadvantaged regions. Encs is part of the Gönc region, a town without an urban role, located in the Hegyalja wine region. The district seats mentioned above lack industry, as reflected in the number of unemployed (Encs 311 people, Gönc 178 people), as well as in per capita domestic income values (4,097 € in Encs, 3,629 € in Gönc in 2022, with the average being 4,465 €). The group of towns closely linked to Miskolc partly plays a dormitory role, such as Alsózsolca. Sajószentpéter has an industrial function, similarly to Sajóbábony (due to chemical plants), but does not truly fulfil an urban role. There are no outstanding indicators among the social innovation data for these towns, and they only show an average performance.

Cluster D: Cities without a real Urban Role, difficult to live in

The 4th cluster consists of two elements. This group includes Szendrő, the former district seat, which is currently part of the Edelény district. It used to play a significant role before the unification of the counties. The other member of the cluster is Cigánd, which is the centre of Bodrogköz and a district seat.

Szendrő's natural environment is excellent, being located just 39 km (46 minutes) from the county seat, neighbouring the Aggtelek National Park. The number of its educational institutions is mediocre for its size (7 institutions). The number of businesses per 1,000 residents is also 7, with the most significant business in the town being Aluszefém Ltd., which replaced a machine station. The products of Aluszefém Ltd. are mainly used in the automotive, mechanical, construction, and gas industries. The town's CO_2 emissions, measured in tons,

[7] Petrochemical activity began in 1970 with the installation of the first polyethylene plant. Construction of the Tisza Oil Industry Company began in 1973, and oil processing began in 1978. In addition, the 140-hectare Tiszaújváros Industrial Park has been in operation since 1997 (tiszaujvaros.hu).

amount to 1,376,949, which is not considered favourable, while NO_2 emissions are 2,596 kg/year.

Despite being the district seat of Bodrogköz, Cigánd is in a precarious situation due to its demographic, labour market, and social conditions. In Cigánd, only around half of the households have an employed person. Although Cigánd obtained city status, no real urban functions are associated with it, and the town's institutional network is extremely underdeveloped. Larger scale "urban development" is not a realistic option in Bodrogköz in the future.

The two towns in this cluster contribute the two lowest per capita domestic income values for the 28 cities examined. Cigánd's per capita domestic income is 2,884 €, while that of Szendrő is just slightly higher, at 3,047 €. This significantly contributes to the difficult living conditions of the towns' residents. However, for Szendrő, a potential breakthrough point could be the presence of the highest proportion of educational institutions per capita.

Cluster E: Lagging Cities with Unfavourable Conditions

In some cases, it can be assumed that the losers of regime change, the economically disadvantaged mining and industrial towns were granted city status as a form of "consolation", as demonstrated by the example of Rudabánya and Borsodnádasd. The Nádasdi Ironworks, founded in 1864, had a profound impact on the life of the town and its surroundings for over 120 years. The town's settlement structure still reflects the traces of the settlement built around the former factory, with the main square of the settlement being the area in front of the former factory gate. The closure of the factory in 1991 interrupted the development of Borsodnádasd. Small businesses sprang up on the ruins of the factory, but they were not significant. Since the closure of the steel mill, the central location of the settlement has almost completely disappeared, replaced by a more rural image, and the factory district now functions mainly as a dormitory area with no real "town-village" role.

The CO_2 emissions from the small factories built on the site of the steel mill amount to 20,014 tons, and the NO_2 emissions are 178 kg/year, which is not considered significant. The town's aging index is 48%, which is very high, and naturally, the proportion of job seekers within 180 days is relatively low. In 2022, Borsodnádasd had one of the lowest per capita domestic income values among the 28 cities of Borsod-Abaúj-Zemplén County, with 3,127€. Additionally, the town ranks last in terms of the proportion of individual entrepreneurs. The liveability of the town is significantly impacted by the fact that it has only one educational institution, and the number of cultural institutions is only slightly higher (2), with one museum

(the Local History Museum). The only attractive feature is the picturesque surroundings of the area.

SUMMARY

In our study, we attempted to assess the economic and environmental sustainability of the cities in Borsod-Abaúj-Zemplén County using the SDG methodology and indicator set developed by the UN, focusing on three main dimensions. Our attempt to measure sustainability was based on an analysis of the cities in the county divided into five clusters, which resulted in more or less homogeneous groups in terms of the structure of the cities in the county. The methodology developed for the analysis is suitable for measuring both sustainable development goals and social innovation through the analysis of goals 8, 9, and 11 (Goal 8: Decent Work and Economic Growth, Goal 9: Industry, Innovation, and Infrastructure, and Goal 11: Sustainable Cities and Communities). The resulting composite indices also confirm the findings of previous research on settlement networks (e.g., Beluszky & Sikos T., 2020), clearly distinguishing between real urban groups and "created" cities (similarly to the analysis of Szirmai (2013), which also analyzed the socialist planned cities (with extensive industrial development and powerful ideological roles) from the county, such as Kazincbarcika or Tiszaújváros.

Based on the indicators examined, among the municipalities closely connected to the Miskolc agglomeration, the small towns of Nyékládháza and Tokaj possess compact urban characteristics. Among the cities in Borsod-Abaúj-Zemplén County, the medium and small towns, as well as those connected to the Miskolc agglomeration, are considered dynamic and liveable in the region. These towns may have the potential for breaking out of their peripheral positions within the county. The indicators measuring social innovation also reflect the outstanding performance of the first cluster, while the group of "cities searching for their place, offering below-average living conditions" shows an average performance based on these indicators. In the case of the declining Borsodnádasd, individual businesses do not represent a realistic point of breakthrough.

The biggest limitation of the applied methodology is that there is significantly less data available at the meso level compared to, for example, the analysis of cities with county rights. It limits the generalizability of the results and the specificity of indicators for measuring social innovation potential, such as in the case of measuring smart cities mentioned by Dusek (2024). Another limitation is that according to the model's methodology, cities with extreme values may have differential effects on the composite indicator in each region, potentially distorting

certain elements and causing autocorrelation between the indicators. These factors should definitely be monitored when applying the model. Regarding the opportunities for international comparisons, the database also has some shortcomings, as our data was gathered mainly from national databases which do not allow for applying a similar structure and set of indicators for the Visegrad countries. Thus, in international comparisons, only the methodology can be smoothly transferred to practical analyses. However, from a spatial development perspective, the relevance of sustainable social innovation is unquestionable, as it can significantly contribute to the catching up of settlements in peripheral situations.

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Book review

TAMÁS SIKOS T. & DÓRA MOLNÁR (EDS. 2024): BUDAPEST – PAST AND FUTURE (LUDOVIKA UNIVERSITY PRESS, BUDAPEST, P. 304)

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The volume *Budapest: Past and Future*, edited by Tamás Sikos T. and Dóra Molnár, was published in 2024 to mark the 150th anniversary of the unification of the Hungarian capital. The book was jointly issued by Ludovika University Press and the University of Miskolc, with the primary aim of examining Budapest's past, present, and future prospects from a multidisciplinary perspective. Among the contributors are renowned human geographers, economists, sociologists, and urban scholars such as Pál Beluszky, Zoltán Kovács, Gábor Michalkó, Viktor Pál, Tamás Sikos T. and Annamária Uzzoli. The studies are written with academic rigor yet remain accessible to the interested general readership.

The scientific starting point of the volume is Budapest's dual identity: it is simultaneously a national capital and a major urban centre of East-Central Europe. The studies highlight that throughout its historical development, the city has always been embedded in a dual – local and international – sphere of influence. Over the 150 years since the unification of the city (1873), Budapest has become one of the region's leading economic, cultural, and administrative hubs, although its development has not been uninterrupted. The dichotomy of "past and future" in the book's subtitle serves not only as a temporal frame but also as a methodological foundation: the authors complement historical analyses with interpretations of contemporary processes and forward-looking strategic recommendations.

The collection of studies outlines a 150-year historical arc that takes the reader from the medieval functions of Pest-Buda through 19th-century metropolitan development to 21st-century Budapest facing global challenges such as climate change, digitalisation, the creative economy, and artificial intelligence. The authors place particular emphasis on examining the relationship between the city and its agglomeration, as social and economic processes are increasingly difficult to describe within administrative boundaries.

The introductory studies and foreword emphasise that the book's thematic structure is built around three main dimensions: (1) historical urban development, (2) contemporary urbanistic and social challenges, and (3) future-oriented development proposals. This structured approach not only enhances the clarity of the volume but also supports its use for policy-making, planning, and educational purposes.

A key feature of *Budapest: Past and Future* is that it not only conveys scientific knowledge but also seeks to outline a clear vision for the future. Among the future-oriented concepts discussed are the "smart city," issues of liveable urban environments, and the potential for advancement in the creative economy and social well-being. The volume therefore functions as a kind of scientific and strategic foundational document, useful for decision-makers, urban planners, researchers, educators, and students alike.

In the opening study of the volume, Pál Beluszky analyses the capital's centuries-long development from a historical-geographical perspective, aptly describing it as a "roller coaster." The history of Pest-Buda appears as a series of rises and declines in which natural geographic endowments, geopolitical processes, and socio-economic structures all play decisive roles. Beluszky provides a detailed account of how the geographical location of Pest-Buda has favoured urbanisation from the very beginning: situated at the centre of the Carpathian Basin at a key crossing point of the Danube, where important commercial and military routes intersect. The region's topography, hydrography, and transport geography virtually predestined it to become a regional centre.

Budapest's true "take-off" occurred after the Austro-Hungarian Compromise of 1867: following the unification of the city (1873), metropolitan development began in earnest. Commerce, the financial sector, industry, and infrastructure (railways, bridge construction, public utilities) expanded rapidly, leading to a dramatic increase in the city's structure, population, and economic weight. By the turn of the century, Budapest had become one of the most dynamically developing major cities not only in Hungary but in the entire region. Beluszky also stresses that the city's development has never been linear: Ottoman occupation, Habsburg dependence, the Treaty of Trianon, the Second World War, and Soviet influence repeatedly hindered the city's full unfolding. Thus, development depended not only on internal endowments but was always strongly shaped by external power relations and economic conditions.

Several studies in the *Budapest: Past and Future* volume deal in detail with the historical formation, structural development, and socio-economic characteristics of the capital and its immediate surroundings – the metropolitan agglomeration. Based on these works, it becomes clear that today's Budapest can no longer be understood within its administrative boundaries: it in fact functions as a complex urban-regional system in which the capital and its surrounding settlements mutually shape each other's development.

Dóra Molnár's study provides a comprehensive overview of how state-organisation and administrative reforms have influenced the relationship between Budapest and its agglomeration. From the age of Dualism, through the "Greater Budapest" concept (1950), up to the post-transition decentralisation period, numerous transformations have taken place. After earlier centralising efforts, today's development policies increasingly emphasise cooperation and coordination – although these often materialise in unstructured, ad hoc ways. According to the study, one of the greatest challenges for the future will be the establishment of coordinated, sustainable agglomeration governance.

The work by Kovács and Dövényi presents the stages of spatial development in the agglomeration from the interwar era to the present day. They highlight that urban sprawl began already during the socialist period but intensified significantly after the political transition. Due to residential and economic suburbanisation, the classic monocentric urban structure has loosened, and the functional urban region has taken on an increasingly polycentric character. Key drivers of suburbanisation include differences in housing prices, the search for higher quality of life, and the development of transport infrastructure.

The study examining housing market processes (by Zoltán Kovács and Gáborné Székely) shows that the structure and quality of the housing stock have undergone radical changes over the past century and a half. After the political transition, the system of state housing allocation disappeared and market-based solutions emerged, resulting in unequal access. Opportunities for acquiring housing, the necessity of commuting, and social inequalities together shape the spatial pattern of social stratification that still characterises Budapest and its region today.

In their study, Viktor Pál and Annamária Uzzoli dedicate special attention to the spatial inequalities of well-being across Budapest. Based on objective and subjective indicators of quality of life, they find considerable differences between inner-city districts and more advantaged suburban settlements in terms of healthcare access, environmental conditions, and social infrastructure. These inequalities intensified during the COVID-19 pandemic – residents

of high-density, service-poor areas were exposed to greater risks. From the combined perspective of the studies, Budapest's agglomeration is both an opportunity and a source of risk: social polarisation is reflected spatially as well. Mobility pressure, shortcomings in transport infrastructure, uneven distribution of public services, and access to green spaces all shape the region's quality of life. According to the authors, future urbanistic and social-policy interventions can only be effective when approached from a regional perspective.

The studies in the second half of the volume approach the city not primarily from a historical or descriptive viewpoint, but from a future-oriented, strategic perspective: they outline alternative development trajectories for Budapest based on the creative economy, the smart city concept, and public opinion. A shared idea across the contributions is that the capital must not only adapt to global challenges but also proactively shape its own future – through the triad of knowledge, innovation, and quality of life.

Dóra Szendi's analysis begins with the theoretical foundations of the "smart city" concept and continues with practical examples of Budapest's smart-city efforts. The author presents in detail the intelligent systems and developments (e.g., transport digitalisation, e-governance, energy management, smart public-space solutions) that may enhance the city's competitiveness among East-Central European capitals. However, the study also points out limitations: uncoordinated projects, lack of strategic vision, and weak public engagement significantly slow Budapest's progress toward becoming a smart city. In international rankings (e.g., the IESE Cities in Motion Index), Budapest currently performs only at a medium level – which, while somewhat commendable, does not indicate a major breakthrough in the region.

Tamás Egedy's study examines Budapest's cultural and economic potential based on Richard Florida's "creative class" concept. According to the analysis, the city possesses the conditions (higher education institutions, cultural venues, international connections, tolerance) that could allow it to become a stronghold of the knowledge and creative economy. However, despite these opportunities, the capital often exploits its advantages only partially: the concentration of research and development, the emerging startup ecosystem, and the presence of international capital are promising but have not yet produced systemic breakthroughs. A key element of the study is the spatial distribution of creative labour: while inner districts (e.g., Districts V, VI, VII, XI) remain focal points, creative activities increasingly appear in certain areas of the agglomeration as well. Major challenges include rising housing costs, overburdened inner districts, and the underfunding of creative industries.

Tamás Sikos T.'s study offers a new perspective on Budapest's spatial structure through shopping habits and commercial land use – not from a classical urbanistic or sociological angle but based on the spatial dynamics of commercial functions. The city's commercial zones have radically transformed in recent decades: downtown street shops have been increasingly overshadowed by the dominance of shopping malls. The study discusses in particular detail the "western gate" area (Budakeszi-Budaörs-Törökbálint), which exerts a kind of commercial suction effect, drawing purchasing power away from the inner districts of the capital. The research is based on empirical surveys: consumer preferences, habits, and the accessibility of commercial nodes all play a role in the spatial economic reorganisation of the city. According to Sikos, future commercial development can only be sustainable if it considers residents' spatial behaviour, mobility options, and the role of local supply systems.

The volume *Budapest: Past and Future* provide a comprehensive and rich synthesis of the historical development, contemporary challenges, and future possibilities of the Hungarian capital. The editors' aim – to present Budapest from a fresh, multidisciplinary perspective on the occasion of the 150th anniversary of the city's unification – is fully achieved. The book is not only a scholarly read but could also serve as a strategic document: it informs, explains, reflects critically, and formulates recommendations. One of the volume's greatest strengths is its thematic and methodological diversity: from historical descriptions to spatial modelling, administrative analysis, economic geography, and population attitude studies, all the way to future-oriented urban development approaches, nearly everything is represented. This diversity allows scholars from various fields to connect with the text, although it may also pose a challenge for readers who do not come from a specific discipline.

The volume's main message is that Budapest is not merely a city but a spatial-social system shaped at the intersection of historical endowments, economic cycles, social mobility, and political decisions. Its future is not predetermined but not independent of the past either: earlier "roller-coaster" patterns still echo in today's social and economic processes. The Budapest of the future can only succeed if it adopts coherent development directions, considers the needs of its residents, and can integrate global trends (smart technologies, green transition, creative economy) with local particularities. This volume both warns and inspires: it reminds us that Budapest's development is not self-evident, yet also shows what resources and knowledge exist to guide the city strategically. It is an important work from scientific, educational, and urban policy perspectives.