SPACE AND SOCIETY: 40 YEARS AND BEYOND IN REGIONAL SCIENCE AND SPATIAL RESEARCH

Space and Society: 40 Years and beyond in regional science and spatial research: Editorial

40 év és azon túl a regionális tudományban és területi kutatásokban: Vendégszerkesztői bevezető

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This special issue marks a significant milestone in Hungarian regional science: the 40th anniversary of Tér és Társadalom (Space and Society), the leading publication platform for Hungary's regional science and regional studies community. Summarising four decades of Space & Society in a single special issue is undoubtedly challenging. As Lux (2026) shows in an overview of this period, the journal has addressed a wide range of topics, from enduring spatial and societal issues to practical approaches to regional development. It was therefore difficult to determine how the issue could cover the most important topics while also addressing recent socioeconomic developments—such as technological change, digitalisation, and climate change—that increasingly shape local conditions and regional development pathways.

In preparing this special issue, the guest editors have sought to follow the journal's original goals, as set out by founding editor-in-chief György Enyedi: "to explore the relationship between space (spatial issues) and society from multiple perspectives" (Enyedi 1987). Against this background, the papers in this special issue address long-standing themes in regional science while also exploring new challenges facing regions today.

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Regional science today faces a set of increasingly interconnected challenges that make the spatial perspective ever more important. Climate change, demographic decline and ageing, technological transformation, geopolitical fragmentation, and recurrent economic shocks do not affect places uniformly. Their consequences are filtered through inherited economic structures, institutional capacities, accessibility, human capital, and the position of regions within wider national and international networks. As a result, processes that may generate growth can simultaneously reinforce territorial inequalities, while regions that appear similar according to conventional indicators may follow increasingly divergent development trajectories.

These transformations also challenge some of the established categories and assumptions of regional research. The traditional distinctions between core and periphery, urban and rural, developed and lagging regions remain relevant, but they increasingly intersect with new forms of technological, environmental, demographic, and institutional unevenness. Digitalisation and artificial intelligence may create new opportunities for peripheral regions but may also strengthen existing agglomeration advantages. The green transition can generate new development paths, while at the same time imposing uneven adjustment costs on industrial regions and vulnerable communities. Likewise, demographic contraction, changing labour markets, and the reorganisation of production networks require regional science to look beyond growth alone and devote greater attention to resilience, adaptive capacity, and the quality of territorial institutions.

These developments reinforce the need for a regional science that combines analytical rigour with sensitivity to place, and remains open to interaction across disciplinary and policy boundaries. Understanding contemporary spatial processes requires connecting economic, social, technological, environmental, and governance perspectives and examining how global transformations are mediated by institutions and actors at different territorial scales. The challenge for the field is therefore not only to identify where inequalities and development opportunities emerge, but also to explain why territories respond differently to common shocks and transformations, and under what conditions place-based policies can strengthen the capacity of territories to shape, rather than merely absorb, change.

The selection seeks to balance major themes in Hungarian regional science with contemporary issues. The selected papers cover subfields that have been vital to the Hungarian regional science community over the past four decades: territorial governance (Somlyódyné, Pálné Kovács 2026), centre-periphery issues in manufacturing (Micek et al. 2026), urbanisation and the urban-rural divide (Smętkowski 2026), socio-spatial inequalities (Nagy et al. 2026), complex modelling of territorial profiles (Delcea et al., 2026), and the local impact of newly built corridors (Farkas, Hardi 2026). At the same time, the editors aim to ensure that this special issue is more than a commemorative collection. It also highlights current societal issues that offer potential research directions for the future: the role of AI in regional development (Rodriguez-Pose, You 2026), wage inequalities across

Europe (Lenzi, Panzera 2026), territorial capital in light of the sustainability transition (Tóth 2026), and the emerging role of the green transition (Szalmáné Csete, Szlávik 2026).

Addressing a current societal issue, *Zhuoying You and Andrés Rodriguez-Pose (2026)* ask whether generative AI could serve as a tool for revitalising Europe's economic foundations. The study highlights AI's dual nature: it may create new economic opportunities, yet its regional socioeconomic impacts remain uncertain. The authors analysed NUTS 2 regions across the EU from 2011 to 2019 using a panel dataset. Applying several complementary econometric methods, they sought to determine whether regional AI-related inventive capacity contributes to economic and employment growth, and whether these effects are distributed evenly across regions. Their results indicate positive relationships between AI generation and regional economic growth, as well as between AI generation and employment growth. However, these benefits are not distributed evenly across EU regions, and AI may reinforce existing territorial disparities. Evidence concerning AI's employment effects supports this conclusion. Therefore, without targeted policies, AI-driven development may widen territorial inequalities within the EU.

As sustainability transitions may reshape local and regional socioeconomic contexts, it is essential to assess transformative capacities and prepare territories and their stakeholders for this process. *Balázs István Tóth (2026)* examines how this can happen by considering regions' territorial capital. Accordingly, the paper recontextualises the territorial capital framework, presenting a renewed perspective informed by transformative capacities and prosilience. This reframed concept regards the elements of territorial capital as a distinct source of transformative capacity, while prosilience provides a basis for guiding interactions between territorial capital elements and transformative capacities. The study therefore argues that institutions and stakeholders can proactively shape regional development pathways, rather than merely responding to external shocks, if they identify their transformative capacities and combine them with relevant elements of territorial capital. In this way, it offers new insight into how regions can develop policies grounded in their endowments and sustainability needs.

Camilla Lenzi and Elisa Panzera (2026) shed light on employer wage-setting power, or labour market power, as a key driver of spatial wage differences. They examine how this power varies across the wage spectrum and between metropolitan and non-metropolitan regions. Using the CompNet database, the paper analyses wage inequality across European Union NUTS 2 regions, drawing on indicators including labour markdowns, market concentration, and exposure to robotisation. The study finds that regional differences in wage levels and inequality persist, while labour markdowns consistently depress wages – primarily at the top of the distribution. This suggests that employer wage-setting power compresses wages from above by disproportionately reducing high-wage workers' earnings. These effects are significantly stronger in metropolitan regions, especially for highly skilled and

highly paid workers, suggesting that dense competition and weaker bargaining power intensify monopsony. The study concludes that reducing territorial disparities requires redistribution, stronger labour institutions (including collective bargaining and enforcement), and place-based policies that preserve the productivity benefits of cities while curbing employers' wage-setting power.

Turning to Central and Eastern European countries, *Maciej Smętkowski (2026)* examines how metropolisation has shaped regional development, concentrating economic activity, skilled labour, and population in city regions. The study traces demographic changes and regional inequalities across eleven countries from 2000 to 2023. Using a decomposition framework, it separates economic contributions to GDP per capita growth from population change, comparing capital-city NUTS3 regions – used as metropolitan proxies – with other regions. Capital regions consistently achieve faster GDP growth, but population gains can dampen per capita growth. Conversely, population decline can inflate per capita figures in peripheral areas despite weak economic performance. These effects vary across countries, reflecting urban concentration or rural depopulation, and also shape inequalities among peripheral regions. The study urges treating GDP per capita as a hybrid measure and accounting for demographic dynamics in research and policy to avoid misreading regional progress.

Still focusing on Central and Eastern Europe (CEE), *Grzegorz Micek, Krzysztof Gwosdz, Robert Guzik, Arkadiusz Kocaj, and Bolesław Domański (2026)* examine manufacturing's role in regional development. They challenge conventional accounts, arguing these may oversimplify CEE's changing position and overlook its uneven integration into Europe's division of labour. Combining datasets, they find manufacturing output has grown substantially, especially in automotive, electrical equipment, and machinery, driven largely by productivity and exports. Yet CEE regions vary in innovation, foreign ownership, and economic structure, and remain outside the functional core: high-level R&D and headquarters are concentrated in Western Europe. The authors also assess shifting internal and external development factors and two routes to functional upgrading: Industry 4.0 and defence and dual-use industries. They conclude CEE is not homogeneous; its development reflects selective repositioning, not straightforward convergence with Western Europe.

Zooming in on industrial restructuring, *Erika Nagy, Gábor Nagy, Gábor Pirisi, Gergely Tagai, and Ernő Molnár (2026)* study the complex dynamics of socio-spatial transitions and regional inequalities. Their paper studies Hungarian small towns as sites of peripheral industrialisation following the global financial crisis, where productive capital, state intervention, and technological change have intersected to shape labour mobility and income patterns. Drawing on a geographical political economy perspective, the study links local transformations to broader macroeconomic processes. Statistical analysis of 168 towns over two decades shows that increased state centralisation and shifts in local agency have

significantly reshaped labour markets, commuting patterns, and income distribution. These changes have fostered new forms of social fragmentation and intensified inequalities within small towns and between urban and rural areas, while reinforcing the external dependencies characteristic of peripheral regions.

Governance structures and mechanisms across territorial levels have been a key focus in regional science and regional studies. In a broader international context, *Edit Somlyódyné Pfeil and Ilona Pálné Kovács (2026)* provide a comprehensive overview of how territorial governance in Hungary has evolved, tracing a shift from the once-dominant neoliberal, decentralised model to a highly centralised, unitary system. The paper examines territorial reforms since 1990, with a focus on subnational and local government. It analyses reforms in detail, particularly those introduced after 2010, and finds a pronounced shift towards centralisation, state-building, and expanded public ownership. These changes have substantially eroded local autonomy, leaving local authorities comparatively weak and limiting horizontal and vertical cooperation across governance levels. Despite the rhetoric of building an efficient so-called 'good state', comprehensive evaluations of the reforms remain absent. The study concludes that Hungary is not an isolated anomaly, but a notable example of the complex interplay between governance models and societal development.

As the impacts of climate change become more tangible, social scientists increasingly examine how emissions-intensive activities can be replaced by more sustainable forms of production. *Mária Szalmáné Csete and János Szlávik (2026)* reframe green transition through locality – not merely administrative boundaries, but the territorial embeddedness of sustainability. They argue that environmental conditions, institutions, social relations, and local capacities shape how sustainability goals are interpreted and achieved. Drawing on regional science, institutional economics, and social capital theory, the study identifies actor interactions as links between local contexts and sustainability outcomes. Findings show that place-specific factors shape adaptation through knowledge-sharing, governance, and participation. The authors propose locality as a complementary sustainability dimension that recognises territorial diversity and supports cross-place learning and climate-policy coordination.

Analysing territorial development disparities requires complex factors and modelling. *Camelia Delcea, Daniela Luminița Constantin, Ionuț Nica, Bianca Cibu, and Ștefan Ionescu (2026)* develop a population-adjusted typology of 34 Moldavian districts and the capital, linking socio-economic development, infrastructure, environmental pressures, and spending. Using Principal Component Analysis (PCA) and Fuzzy C-Means clustering on per-capita and rate-based indicators, with logarithmic transformations and standardisation, they identify high-pressure districts with greater environmental spending, intermediate districts with lower pressure, and peripheral, low-intensity districts with minimal spending. Several districts, however, fall between categories. Overall, the findings

offer a nuanced, size-adjusted picture of Moldova's core–periphery structure and support differentiated, place-based territorial and environmental policies.

The final paper in this anniversary issue, by *Orsolya Farkas and Tamás Hardi (2026)*, examines the socio-economic effects of two new expressways on rural settlements in Northwest Hungary's Győr-Moson-Sopron and Vas counties. Using 2011 and 2022 census and territorial data, correlation analysis, and difference-in-differences, it compares affected areas with distant controls. Improved accessibility had modest direct effects, though proximity correlated with better demographic and income indicators. The expressways increased labour mobility, out-commuting, labour-market catchment areas, and daily cross-border travel, particularly to Austria. Overall, they reinforced existing spatial and labour-market structures rather than creating new development axes. Transport infrastructure alone has not driven territorial convergence or balanced, polycentric regional development.

On behalf of the journal's editorial team, we hope this collection of studies provides valuable insights into the recent results of Hungarian and international regional science. Looking ahead, we hope that the regional science community will continue to highlight the geographical dimensions and spatial consequences of contemporary societal processes.

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