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Guest Editorial. Cities, Suburbs and Peripheries in Theory and Empirical Research

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ABSTRACT

In recent years, spatial planning has been subject of debate for researchers who focused on good practices and providing suitable solutions for various issues at the local or regional scale, but also on the poor quality practices, which particularly generate spatial chaos and other negative consequences. The identification and assessment of endogenous dependencies of the implemented spatial management policies require in-depth studies aimed at understanding their nature and consequences. Moreover, the integrated order and spatial development in the urban core area and the suburbs are to be considered when analysing these conditions and dependencies. If we also consider spillover effects and spatial externalities, we must tackle the intensification of problems in spatial management. Therefore, the various aspects of urban development and planning should be approached especially in relation to the economic and social aspects of urban, suburban and rural areas.

This thematic issue is one of the results of the collaborative research project¹ carried out by members of the staff from the Department of Spatial Management and the Department of Socio-Economic Geography; Institute of Spatial Management and Urban Studies, Faculty of Public Economy and Administration from Kraków University of Economics, Poland and the

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Undoubtedly, the analysis of the development trends of the peri-urban zone of the Functional Urban Areas (FUA) is nowadays one of the important focuses of specialists in spatial planning, spatial economy and socio-economic geography (Hołuj, 2020). A wide range of spatial processes are evaluated, including the impact of urban sprawl, suburbanisation and peripherality on the socio-economic development of suburban and rural areas (Hołuj and Lityński, 2021; Lityński and Hołuj,

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2020; Semczuk, 2020a; 2020b). It was decided that an important topic of research in the project would also be the delineation of urban sprawl and suburbanisation processes, including trends in demographic transformation (Serafin, 2020), broken down into peripheral areas and areas located closer to development centres (urban core and metropolitan core). An additional aim of the project was to determine the potential and balance of renewable photovoltaic energy in selected urban structures in Poland (Hołuj et al., 2021). Attention was also paid to climate change in relation to urban planning. Current development strategies of two rank 1 cities, Krakow (Poland) and Cluj-Napoca (Romania), were analysed by illustrating ways of embedding the provisions of the most current European and national regulations and policies related to climate change mitigation and adaptation, as strategic objectives and actions in their medium and long term strategies for sustainable and carbon neutral urban development (Ilba et al., 2022). Externalities have been extensively analyzed, with particular emphasis on the effects generated by planning and zoning (Hołuj, 2021). Spatial planning practices and spatial policy, real estate management or the development of technical infrastructure and facilities create a contextual occurrence of positive and negative externalities, which, regardless of their scale (local to national level) have a positive or negative impact on private or public entities, which may be immediate, temporary or long-lasting and on long-term (Hołuj et al., 2022). An innovative method for the delimitation of urban areas at risk of urban sprawl was proposed (Lityński and Hołuj, 2020), with special attention to the delimitations used so far in the Polish spatial policy and how urban sprawl affects the state budget and national economic growth (Lityński and Hołuj, 2021). In contrast to many academic studies that examine urban sprawl by dispersing the population around cities, a more complex analysis was undertaken using the location of buildings. Underestimating the extent of urban sprawl results in ineffective spatial policies due to the omission of specific areas from public intervention (Hołuj and Lityński, 2021). This particularity is related to the fact that these are usually outer areas, the farthest from the core city, where the highest costs from urban sprawl occur. At the same time, these are areas in early stages of spatial growth where, with the implementation of an appropriate spatial policy, a coherent spatial structure could be maintained. The discussion was complemented by an analysis of building roofs in selected Polish cities, based on which the potential for renewable photovoltaic energy was clarified. In addition, this research contributed to the assessment of external costs and benefits of spatial management (Hołuj et al., 2021).

The impact of the closure of primary schools on the economic development of rural areas was

assessed (Semczuk, 2020a). Further, in relation to population dynamics and the changing regulatory framework of the education system in Poland, the reorganisation of the primary school network in the Polish Carpathians over the 2000-2020 period was analysed, findings reflecting that despite the decrease in the number of pupils in mountainous areas school closure recorded lower dynamics because of the socioeconomic impact it has on the communities, especially those located in peripheral areas and due to the effort of various managing authorities in supporting the functioning of schools (Semczuk et al., 2022). An important result of the ongoing research was the assessment of the economic consequences of spontaneous suburbanisation (Hołuj and Lityński 2021). The impact of protected areas in Poland on the level of development of units (municipalities) in their immediate surroundings was also assessed (Zawilińska et al., 2021). New forms of implementation of GIS field applications in the inventory and management of cultural heritage and tourism infrastructure were proposed (Quirini-Popławski and Semczuk, 2021a). In this case, the 'interdependencies' of external costs indicated by Scitovsky (1954) were made more specific by detailing the externalities of spatial management on their basis. Assumptions for the identification of externalities, including the economy as well as spatial planning, were systematised (Hołuj, 2021).

As part of the ongoing work, new research methods for spatial economy were sought. As a result, the following should be pointed out: the delimitation methodology developed and used and the identification of economic and environmental benefits resulting from the urban sprawl process (Hołuj and Lityński 2021; Lityński and Hołuj 2020); a proposal for a method of identifying suburban residential potential for solar energy generation should also be highlighted (Hołuj et al., 2021).

Through the research and analysis carried out, it was established how economically significant the effects of spontaneous suburbanisation (urban sprawl processes) are on human functioning. A person directly or indirectly generating externalities accompanying these processes will be susceptible to various benefits as well as disadvantages of this state of affairs (Hołuj, 2021). Unfortunately, the consequences of the characterised spontaneity will be borne by all users of space, not only by those responsible for the process. The author's delimitation method honours the characteristics of urban sprawl relating to spatial structure, socio-economic processes and spatial policy efficiency. The method may be useful for spatial management and spatial policy aimed at reducing the costs of spontaneous suburbanisation and urban sprawl (Lityński and Hołuj, 2020; 2021). This is especially true for the economy as well as for policies implemented at the central and regional level. In addition, the results of

research indicate that in most Polish urban areas, the delimitations used so far delimit too narrowly around the core cities. Despite that, at the national level, spatial policy targets are formulated to reduce the negative consequences of urban sprawl (including suburbanisation); the delimitation methods used so far do not take into account the particularities of this phenomenon. In considering the costs of spontaneous suburbanisation resistance is present, as one of the basic characteristics of space. Economically, overcoming the resistance of space implies financial outlays. And it is not the necessary financial outlay to overcome that is the important issue, but the increased costs or losses that are the difference between the necessary and additional outlay, which also occur in the case of protected areas (Zawilińska et al., 2021). It has been observed that the scale of externalities tends to increase in direct relation to the number of space users. However, this should not be equated with direct land use; the indirect user here will be the person who receives the intangible benefits of being in that space. Residents of dispersed municipalities who travel by car incur very high losses in relation to residents of more settled suburbs. These very high losses consist of the expenses directly incurred and the value of lost time. The correlation results allow us to conclude that: the higher the density, continuity and spatial concentration of development, the lower the individual transport costs and the value of lost time (Hołuj and Lityński, 2021).

In order to prevent large social losses, public policy should coordinate the location of new suburban development in a way that is concentrated, dense and maintains spatial continuity. Thus, spatial compactness will significantly reduce social and individual losses, but will also balance land use and spatial order. Detailing the problem, CityGML data were processed to perform an analysis of roof exposure to sunlight using algorithms based on vector data (Ilba, 2021; Hołuj et al., 2021). The dynamics of change over time was estimated and the existing photovoltaic installations were compared to the total potential of the selected area. The use of the energy potential of the analysed building roofs was used to assess the external costs and benefits of spatial planning. We can see that the phenomenon of transferring part of the costs resulting from space development processes to third parties, usually residents (users of a given area) is a common process (Hołuj, 2021). It is likely to reduce the current and future well-being of the local community, understood as the level of quality of life in space. The interrelationships between the private and social optimum also appear to be important, as purely interventionist actions can be generated through them.

In addition, this special issue includes analyses on enterprises operating around the largest cities in Poland in areas where urban sprawl is identified. The costs and benefits of these enterprises were assessed

based on surveys as well as financial data from the Central Statistical Office in Poland. It was observed that there are benefits (financial mechanism consisting in the reduction of spatial costs, more efficient use of fixed assets and production factors) for enterprises located in the urban sprawl zone. These include lower burdens resulting from, among other things, property taxes, energy costs, as well as third-party services (Lityński, 2021). A classification of residential development in the Krakow FUA was also carried out. This research was conducted using GIS analysis and the urban transect method. The overarching conclusion of this research is that chaotic suburbanisation contributes to deficiencies in the availability of general urban areas and the dominance of single-family housing in the Krakow FUA (Węgrzynowicz, 2021). Relevant results were achieved by Maris and Kovacik (2021) who aimed to establish a potential link between the urban structure and regional economic performance in Slovakia, at district level (LAU1).

Using the Agglomerative Hierarchical Clustering (AHC) method, they depicted distinct patterns in terms of urban structure and economic performance at the district level in Slovakia. Another pertinent view in our research context was brought by the study of areas represented by the municipalities of Chía and Cajicá in the northern suburbs of Bogotá city. Barbosa et al. (2022) assessed whether the expansion areas defined in different planning instruments generate urban inclusion and are aligned with the already consolidated urban area. The proposed research methodology integrates data from municipal land use plans and the spatial syntax method to visualise the effect of expansion on urban morphology. This study concludes that the new expansion areas should be developed on the central axes, where the highest integration values are located, and at a greater distance from natural elements.

REFERENCES

- Barbosa V., Suarez Pradilla M.M., Chica-Meja J. E.** (2022), The Growing Suburban Sprawl in Large Latin American Cities: Applying Space Syntax to the Case of Northern Peripheral Region of Bogotá. *Journal of Settlements and Spatial Planning*. DOI: 10.24193/JSSPSI.05.CSPTEP
- Hołuj A.** (2021), Externalities in the Light of Selected Spatial Economy Issues - Contribution to the Discussion. *European Research Studies Journal*. DOI: 10.35808/ersj/1947
- Hołuj A.** (2020), Gospodarowanie przestrzenią strefy podmiejskiej – wybrane aspekty teoretyczne (Spatial management of the peri-urban area - selected theoretical aspects). In: Hołuj A., Luchter B., Semczuk M., Serafin P., *Zmiany użytkowania ziemi i ich skutki ekonomiczne i pozaekonomiczne w strefie podmiejskiej na tle*

przemian demograficznych. Kraków. Uniwersytet Ekonomiczny w Krakowie. ISBN 9788372528155

Hołuj A., Lityński P. (2021), Ekonomiczne konsekwencje żywiolowej suburbanizacji (The Economic Consequences of Urban Sprawl). In: Śleszyński P. et al., Suburbanizacja w Polsce jako wyzwanie dla polityki rozwoju. Polska Akademia Nauk. URL:

<https://publikacje.pan.pl/chapter/122135/rozdzial-4-ekonomiczne-konsekwencje-zywiolowej-suburbanizacji-br>

Hołuj A., Ilba M., Lityński P., Majewski K., Semczuk M., Serafin P. (2021), Photovoltaic Solar Energy from Urban Sprawl: Potential for Poland. Energies. DOI: <https://doi.org/10.3390/en14248576>

Hołuj A., Alexandru D. E., Zotic V. (2022), Spatial Externalities – a Contribution to Identifying a Network of Relationships. Insights from Poland and Romania. Journal of Settlements and Spatial Planning, DOI: <https://doi.org/10.24193/JSSPSI.06.CSPTER>

Ilba M. (2021), Parallel Algorithm for Improving the Performance of Spatial Queries in SQL: the Use Cases of SQLite/Spatialite and PostgreSQL/PostGIS Databases, Computers & Geosciences.

DOI: <http://dx.doi.org/10.1016/j.cageo.2021.104840>

Ilba M., Zotic V., Hołuj A., Lityński P., Semczuk M., Serafin P., Alexandru D. E. (2022), Urban planning and development in the context of climate change. Evidence from Poland and Romania. Journal of Settlements and Spatial Planning.

DOI: [10.24193/JSSPSI.08.CSPTER](https://doi.org/10.24193/JSSPSI.08.CSPTER)

Maris M., Kovacik M. (2021), Urban Structure as a Precondition of Regional Development. Evidence from Slovakia. Journal of Settlements and Spatial Planning.

DOI: [10.24193/JSSPSI.04.CSPTER](https://doi.org/10.24193/JSSPSI.04.CSPTER)

Lityński P. (2021), Business Urban Sprawl: a Financial Evaluation of Enterprises in Poland. Journal of Settlements and Spatial Planning.

DOI: [10.24193/JSSPSI.02.CSPTER](https://doi.org/10.24193/JSSPSI.02.CSPTER)

Lityński P., Hołuj A. (2020), Urban Sprawl Risk Delimitation: the Concept for Spatial Planning Policy in Poland. Sustainability.

DOI: <https://doi.org/10.3390/su12072637>

Lityński P., Hołuj A. (2021), Macroeconomic Perspective on Urban Sprawl: a Multidimensional Approach in Poland. Land.

DOI: <https://doi.org/10.3390/land10020116>

Lityński P., Serafin P., Hołuj A. (2020), The Fiscal Impact of Urban Morphology Dynamics. In: Noworól A., Jopek D. (eds.), City and Countryside - Identity and Space in the 21st Century: the Complexity of Mutual Interactions in the Peri-urban Interface, Kraków. 62-73. ISBN 978-83-7252-822-3

Semczuk M. (2020a), The Impact of the Closure of Primary Schools on the Economic Development of Rural Areas in Małopolska Voivodeship. *Przedsiębiorczość - Edukacja*. DOI: <http://dx.doi.org/10.24917/20833296.161.20>

Semczuk M. (2020b), Zróżnicowanie rozwoju społeczno-gospodarczego obszarów wiejskich w województwie małopolskim (Diversification of socio-economic development of rural areas in Małopolskie voivodship). *Studia Geographica*, 15, 7-22. URL: <https://annalesgeo.up.krakow.pl/article/view/7800/7091>

Semczuk M., Majewski K., Alexandru D. E., Hołuj A., Ilba M., Lityński P., Serafin P., Zotic V. (2022), Reorganization of the primary school network in the Polish Carpathians in the Period 2000 - 2020. *Journal of Settlements and Spatial Planning*. DOI: [10.24193/JSSPSI.07.CSPTER](https://doi.org/10.24193/JSSPSI.07.CSPTER)

Serafin P. (2020), Zmiany demograficzne w otoczeniu dużych miast Polski – przykład strefy podmiejskiej Krakowa. (Demographic changes in the surroundings of large Polish cities - the example of the Krakow suburban area). In: Hołuj A., Luchter B., Semczuk M., Serafin P., Zmiany użytkowania ziemi i ich skutki ekonomiczne i pozaekonomiczne w strefie podmiejskiej na tle przemian demograficznych. Kraków. Uniwersytet Ekonomiczny w Krakowie. ISBN 9788372528155

Quirini-Popławski Ł., Semczuk M. (2021a), Wykorzystanie aplikacji mobilnych GIS w zarządzaniu dziedzictwem kulturowym: propozycja postępowania badawczego. (The use of mobile GIS applications in cultural heritage management: a proposal for a research procedure). *Perspektywy Kultury*, DOI: <https://doi.org/10.35765/pk.2021.3504.13>

Quirini-Popławski Ł., Semczuk M. (2021b), Use of Geographic Information Systems in the Cataloguing of Tourist Facilities: the Proposal of a New Research Procedure. In: Soliman (ed.), *Innovation Management and Information Technology Impact on Global Economy in the Era of Pandemic: Proceedings of the 37th International Business Information Management Association Conference (IBIMA)*, 30-31 May 2021 Cordoba, Spain. ISBN 9780999855164

Węgrzynowicz P. (2021), Characteristics of Residential Areas in Krakow Functional Urban Area. *Journal of Settlements and Spatial Planning*. DOI: [10.24193/JSSPSI.03.CSPTER](https://doi.org/10.24193/JSSPSI.03.CSPTER)

Zawilińska B., Brańka P., Majewski K., Semczuk M. (2021), National Parks - Areas of Economic Development or Stagnation? Evidence from Poland, Sustainability.

DOI: <https://doi.org/10.3390/su132011351>