

Discovering social aspects of rurbanization: A literature review¹

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Abstract. The article considers social aspects of rurbanization as a process when rural areas increasingly adopt urban characteristics, which blurs the lines between traditional rural and urban lifestyles. The article presents a comprehensive literature review and a topic modeling analysis to identify key issues when considering social aspects of rurbanization: the impact on mental health, theoretical changes in understanding social interactions, challenges and opportunities in the sustainable infrastructure development, the role of economic policies in balancing rural and urban needs, the influence of smart innovations on local governance and community engagement, changes in education and employment. The authors' findings highlight both positive and negative effects of rurbanization, such as an enhanced access to urban amenities and increased social tensions. The authors emphasize the need for multi-faceted approaches to diverse challenges determined by rurbanization.

Key words: rurbanization, social aspects, mental health, sustainable infrastructure, economic policy, smart innovation, education and employment, community cohesion, rural-urban integration, social cohesion, theoretical frameworks

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Urbanization, especially in developed countries, often spreads into nearby rural areas, changing traditional rural lifestyles, which is common for areas around fast-growing cities, where rurbanization or 'new rurality' takes place. Rurbanization as a combination of 'rural' and 'urbanization' describes the trend when rural areas start to take on more urban traits, which makes distinction between urban and rural lifestyles less clear. The term 'rurbanization' refers to "a process of altering rural forms with pre-selected urban patterns and lifestyles, which creates new genetically altered rurban forms" (Mahajan, 2010). This shift is influenced by such factors as social chang-

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es, economic opportunities, technological advancements (remote work, better transportation), and the spread of urban culture into rural settings. As people increasingly move to rural areas to enjoy a lower cost of living and natural surroundings while still accessing urban conveniences, rural communities undergo significant changes which are crucial for understanding by policymakers, urban planners and social scientists due to affecting sustainable development, regional planning, and social unity.

The concept of rurbanization has been explored in various disciplines due to its multifaceted nature. In urban studies, rurbanization is often defined as a continuum in which rural areas increasingly adopt urban characteristics under the impact of such factors as migration, infrastructure development and changing social-economic conditions (Smith, Jones, 2020). Studies show that rural regions close to urban centers have experienced significant demographic changes — an influx of urban residents seeking more affordable living and a slower pace of life (Brown, 2018). This migration often leads to a combination of urban and rural lifestyles, creating unique social-cultural landscapes that question traditional urban-rural dichotomies (Wilson, 2018). Thus, urban studies frame rurbanization as a continuum of rural adaptation to urban characteristics (Smith, Jones, 2020), while sociology highlights tensions between rural residents and urban newcomers, power dynamics and cultural hybridization (Miller, 2019; Clark, 2021).

Despite growing research interest, there are few systematic literature reviews focusing on social dimensions of rurbanization. Most studies focus on specific contexts such as rural-urban fringes in developed countries, while reviews — on hybrid spaces (see, e.g.: Hoffmann et al, 2023) or on nature-based solutions (see, e.g.: Ianos et al, 2024), prioritizing ecological or infrastructural issues over social dynamics. This multidisciplinary study aims at mapping key topics and contributors to social aspects of rurbanization since 2000 to provide a framework for future research for avoiding duplication, focusing on the least studied contexts and developing more holistic theoretical models that take into account complex effects of urbanization on social structures, identity and inequality. Therefore, the article aimed at answering the following questions: what are research topics related to social aspects of rurbanization and what are the key authors contributing to these topics?

The analysis of research related to social aspects of rurbanization was conducted with the systematic literature review (SLR) approach which seeks to systematically collect and evaluate the research on a particular topic by addressing specific research questions with data that meets the set criteria (Snyder, 2019). The review followed the PSALSAR framework developed by Mengist et al (2020) as an extension of the traditional SALSA (Search, Appraisal, Synthesis, and Analysis) approach, which includes two additional steps — Protocol development and Reporting of results — to enhance the rigor and

transparency of systematic literature reviews. This methodology was used in various state-of-the-art studies in different subject fields. In environmental and social sciences, Mengist et al (2020) introduced the PSALSAR framework to provide a structured approach for systematic literature reviews, emphasizing its applicability in complex interdisciplinary research.

PSALSAR consists of six steps: Protocol development (creating a detailed and transparent plan for the review, specifying objectives, research questions and inclusion criteria to minimize bias and ensure consistency), Search strategy (identifying relevant literature), Appraisal of studies (evaluating the quality and relevance of selected studies), Synthesis of findings (combining and organizing key insights), Analysis (interpreting broader implications and addressing research gaps), and Reporting of results (presenting findings). This structured process ensures comprehensiveness and replicability of the review, making it particularly suitable for the analysis of the multifaceted social dynamics of rurbanization (Fig. 1). In addition, according to the study objectives, the PSALSAR framework was enhanced with both bibliometric and textual analysis.



Fig. 1. The PSALSAR framework (Wurst et al 2022)

After the research protocol was prepared, we defined the searching rules — search terms, inclusion and exclusion criteria, data sources and expected results. The search within the PSALSAR framework (Fig. 2) allowed to identify 533 papers (Scopus — 19; Web of Science — 34; Semantic Scholar — 480); then, after screening, 148 papers were included in the SLR (Scopus — 5; Web of Science — 17; Semantic Scholar — 126).

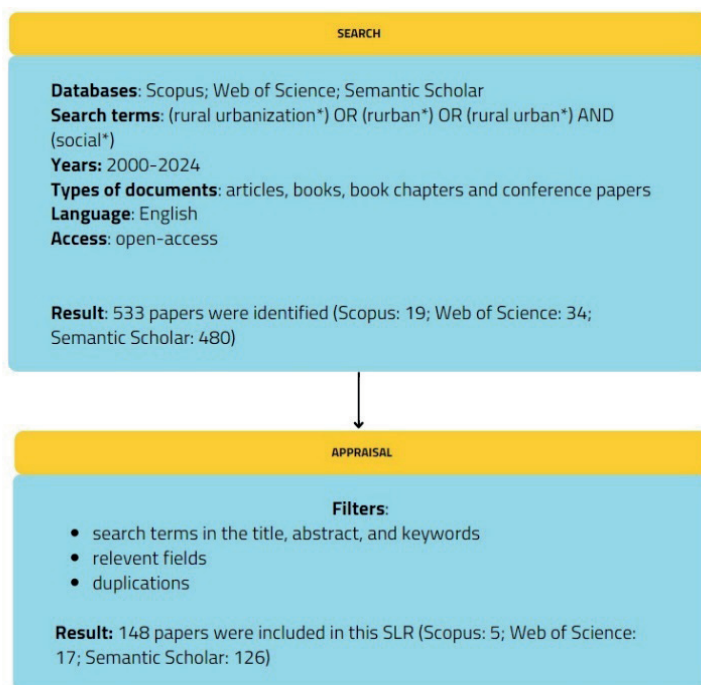


Fig. 2. Search and Appraisal steps of the PSALSAR framework

At the Synthesis stage, the data from the papers was collected and sorted by the key variables — (1) Abstract (with title and key words), (2) Author, (3) Journal, (4) Year, (5) Theoretical framework (after reviewing the full text of each paper) — and extracted into an Excel spreadsheet for analysis. We used the Python 3.12 main modules for data analysis (such as pandas, numpy, NLTK, sklearn, etc.): first, to provide an overview of the descriptive bibliographic analysis, second, to clean abstracts and prepare the text corpus for the thematic analysis which would answer the main research question about the evolution of social issues related to rururbanization (Fig. 3).

Following the visualization of the Thematic Analysis pipeline (Fig. 3), one should say that the data preprocessing is an essential step to ensure the accuracy of results according to the principle ‘garbage in, garbage out’ (Egger, 2022). This process involves the following steps to prepare data for effective analysis: normalization — to convert texts to lowercase to maintain consistency (Jurafsky, Martin, 2020); lemmatization — to reduce words to their base/root form called ‘lemma’ (unlike simpler methods like stemming, which cuts off word endings, lemmatization uses language rules and dictionaries to find the correct base form of a word) (Raghavan, Schütze, 2008); removing of stop words (common words like ‘and’, ‘the’, ‘is’) that usually do

not add significant meaning to textual analysis, which is why removing these words helps to reduce data and focus on the most important words (Soricut and Brill (2004) emphasize that removing stop words improves the accuracy and efficiency of such textual analysis tasks as classification and search). We expanded the list of stop words, since today's libraries do not take into account 'noise' words, especially for specific research purposes: the list of stop words was expanded with prepositions and words common to the text corpus but not reflecting the specifics of particular topics (for example, 'development', 'examination', 'analysis' etc.). We also removed words that reflected our search query in general ('rurban', 'urban', 'rural') as such words typically lack significant meaning and are usually excluded from scientific texts.

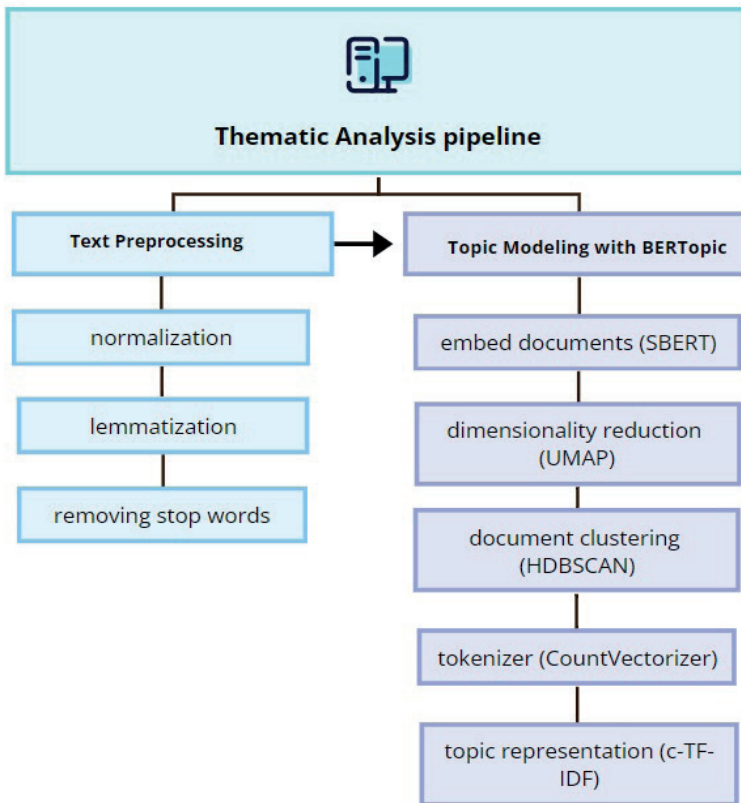


Fig. 3. Thematic Analysis

Finally, we used the BERTopic algorithm for modeling and visualization to identify the main topics in the selected papers. Introduced by Grootendorst, BERTopic has shown superior performance in top-

ic coherence and diversity compared to other methods (like LDA) and offers advantages such as minimal hyperparameter tuning and effective visualization. BERT developed by Google is a state-of-the-art model that uses a deep learning architecture known as Transformers to generate contextualized embeddings (Devlin et al, 2018). Unlike traditional word embeddings that assign a single vector to each word regardless of context, BERT considers the whole sentence, enabling each word's embedding to reflect its nuanced meaning based on specific use in the text. After the stage of BERT embeddings, HDBSCAN (Hierarchical Density-Based Spatial Clustering of Applications with Noise) allows to group similar words and phrases into topics by identifying clusters based on the density of data points in the high-dimensional space of embeddings. HDBSCAN effectively groups similar vectors while recognizing noise-data points that do not fit into any cluster. Such flexibility is particularly beneficial for clustering complex and such diverse datasets scientific publication abstracts. After clustering, UMAP (Uniform Manifold Approximation and Projection) reduces the dimensionality of data while preserving important relationships between clusters. UMAP excels at visualizing high-dimensional data, maintaining the structure and relationships of the original dataset. By projecting data into a lower-dimensional space — as a rule, 2D or 3D — clear visualizations highlight clusters, facilitating topic interpretation.

The key visualization is the Intertopic Distance Map which illustrates the relationships between topics derived from textual data. UMAP reduces high-dimensional embeddings to a two-dimensional space, ensuring that similar documents remain close for clear differentiation of themes. The distance between topics, measured by the Euclidean distance between their centroids, indicates semantic similarity; topics that are proximal tend to share contextual meanings even if their terminology differs. The axes of this map are abstract and lack specific interpretive labels, unlike PCA (Principal Component Analysis). When applied to abstracts, the Intertopic Distance Map visually represents the relationships and distances between topics: each point on the map presents a different topic, with proximity indicating the degree of similarity or difference; topics that are closer may share common themes or methodologies, while those farther apart represent different research areas.

Some additional analytical tools were developed to explore topic relationships: (1) dendrogram — visual representation of clusters' arrangement formed during hierarchical clustering, illustrating how topics are grouped based on similarity and allowing to assess their relationships at various granularity levels; (2) topic-word scores that quantify the association between specific words and identified topics (word frequency and distribution across topics allows to identify the most representative words for each topic, thus, enhancing interpretability); (3) similarity matrix that visualizes the similarity between

different topics based on their respective word distributions, providing insights into overlapping themes and content areas. These tools facilitated a comprehensive analysis of complex datasets, uncovering meaningful patterns and relationships for a better understanding of the hierarchical organization of themes in scientific literature.

The final step in the PSALSAR framework is the Report stage presented further.

Descriptive Analysis. At Figure 4, one can see that the number of articles had increased since 2000 to reach its peak in 2016, then there was a sharp decline, after which the number increased significantly in 2019–2020. Now we see a slight decline in the number of publications on social aspects of urbanization; however, the topic remains relevant and attracts researchers' interest. Additionally, Table 1 shows journals with the largest number of articles analyzed, and the *Journal of Rural Health* stands out. Table 2 presents the most frequently used key words: we used the YAKE (Yet Another Keyword Extraction) algorithm which is an effective technique in natural language processing. YAKE works without external resources like dictionaries or pre-trained models, instead relying on statistical features of texts, which makes YAKE flexible across languages, domains, and document sizes (Hu et al, 2018) (in Table 2, lower scores indicate the most frequently used keywords).

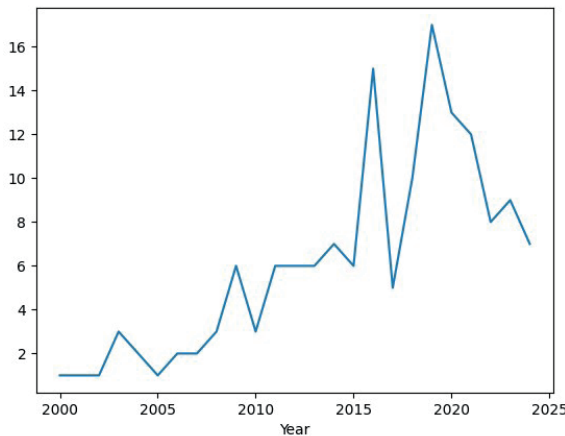


Fig. 4. The number of reviewed articles by year

Intertopic distance map presents topics as circles on a two-dimensional grid; the place of each circle reflects the distances between topics (Fig. 5). This map provides valuable insights into the thematic structures and relationships within the corpus, showing the ways in which topics interact and differ. Thus, Topic 0 forms the largest and most prominent cluster, highlighting crucial societal challenges faced by migrant populations, particularly concerning mental health

and family support. Its isolation from other topics means that discussions in this area form a specialized domain of discourse that requires special policymakers' attention.

Table 1. Journals in which the reviewed articles were published

Journal name	# of articles *
Journal of rural health	31
Sustainability	24
Journal of population economics	13
Population and environment	8
Rural Sociology	8
Frontiers in sociology	7

Table 2. Most frequently used key words in the reviewed articles

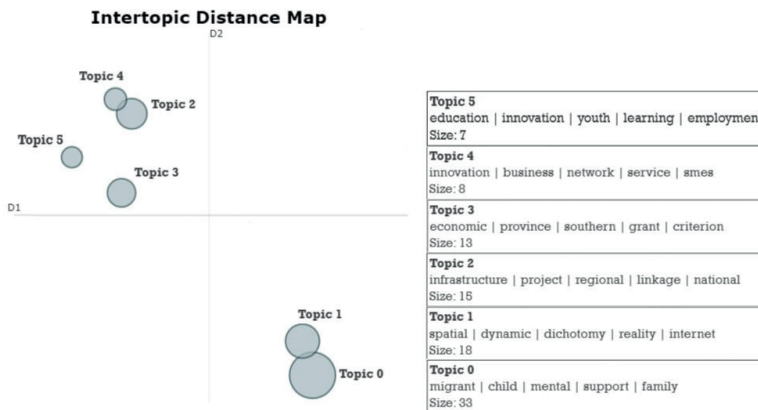
keyword	score
economic	0.001
support	0.001
spatial	0.001
education	0.001
network	0.001
cultural	0.001
sustainable	0.001
migrant	0.001
local	0.001
linkage	0.002
service	0.002
level	0.002
environment	0.002
identity	0.002
infrastructure	0.002
policy	0.002
project	0.002
government	0.002
design	0.002
resource	0.002

Topic 1 has a peripheral position, reflecting theoretical studies of contrasts between physical and digital spaces, showing a niche focus characterized by limited overlap with practical applications. This focus underscores the potential for interdisciplinary research linking abstract theories with specific infrastructural or economic models, pointing to an area that needs further analysis to bridge theoretical insights with real-world implications. Topic 2 represents discussions about large-scale projects and regional connections as related to the national development agendas. Its proximity to Topic 3 suggests that economic implications are intertwined with infrastructure discourse, proving that investments in this sector are crucial for broader growth strategies. Topic 3 seems to be a critical

junction for several areas, centering on policies and funding mechanisms that drive regional development (especially with grants). Such adjacency indicates that economic strategies play a crucial role in supporting both infrastructure and innovation initiatives. Topic 4 is a central hub at the map, linking the themes of infrastructure, economy, and education. The significance of this topic is determined by discussions about fostering innovation with business networks and public-private partnerships. This topic central positions proves that these domains are interconnected in driving regional development. Topic 5, the smallest cluster near Topic 4, suggests that discussions about education-to-employment pipelines for the youth are integral to broader innovation strategies, which emphasizes the need for target programs of training the youth for industry needs and addresses both the youth employment and the skilled labor force training challenges. Finally, the core cluster formed by Topics 2, 3, 4 and 5 reflects a holistic approach to regional development as based on interdependencies of economic growth, innovation and education. However, the isolation of Topics 0 and 1 indicates a divide between social discourse and economic policy.

Fig. 5. Intertopic distance map for abstracts

Topic names were set through discussions of researchers, who



analyzed articles' abstracts and content to identify recurring themes and conceptual patterns. Discussions involved iterative refinement to ensure thematic coherence, although it could lead to subjectivity in label selection and potential oversight of less 'visible' nuances. While this method enhances contextual relevance, its reliance on interpretative consensus could limit reproducibility. The following labels were set:

- Topic 0 — Mental Health

- Topic 1 — Paradigm Shift
- Topic 2 — Sustainable Infrastructure
- Topic 3 — Economic Policy
- Topic 4 — Smart Innovation
- Topic 5 — Education and Employment

We used these topic names for the HDBSCAN hierarchical clustering (HC) dendrogram (Fig. 6) which shows that similar topics are based on their document-level relationships, i.e., the way in which topics are distributed across the corpus. Each document in topic modeling is represented as a distribution of topics (a certain share of a document belongs to Topic 1, another share to Topic 2, etc.). The hierarchical clustering method groups topics that co-occur frequently in the same documents, for example, Topics 0 and 1 may seem closer due to their frequent co-occurrence in publications on family and spatial dynamics, Topics 4 and 5 — due to their thematic focus on the youth, innovation and education, i.e., they often appear in similar contexts. This visualization helps to understand the intellectual framework of topics in the field of rurbanization.

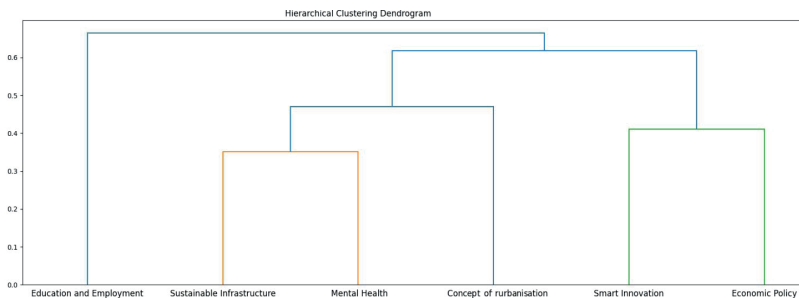


Fig. 6. Dendrogram of the refined model of abstracts

Next, we visualized the labeled topics together with their *c*-TF-IDF scores for the most common words (Fig. 7). By generating topic embeddings using both *c*-TF-IDF and embedding techniques, we made a similarity matrix through cosine similarities applied to these embeddings. The class-based term frequency-inverse document frequency (*c*-TF-IDF) allowed to identify the terms most characteristic of each topic. By measuring word frequency and their occurrence in the corpus, we identified distinctive terms that contribute to the identity of each theme, which allowed for a nuanced understanding of the dataset thematic structure. Topic embeddings enhanced our comprehension of the semantic relationships between topics. By applying cosine similarity to embeddings, we got a similarity matrix that provides an informative overview of topic interrelations. The heatmap format of Figure 8 facilitates quick assessments of thematic overlaps, revealing clusters of related topics that indicate potential for interdisciplinary research. The analysis of the topic word scores

(Fig. 7) revealed key terms for each topic. For instance, the words ‘migrant’, ‘child’ and ‘family’ in the Mental Health topic highlight a focus on vulnerable groups, suggesting the need to study challenges these groups face. On the contrary, the topic Concept of rurbanization is characterized by such words as ‘spatial’, ‘dynamic’ and ‘infrastructure’, reflecting a structural perspective which is in line with urban planning discussions.

Fig. 7. Topic-word scores for abstracts

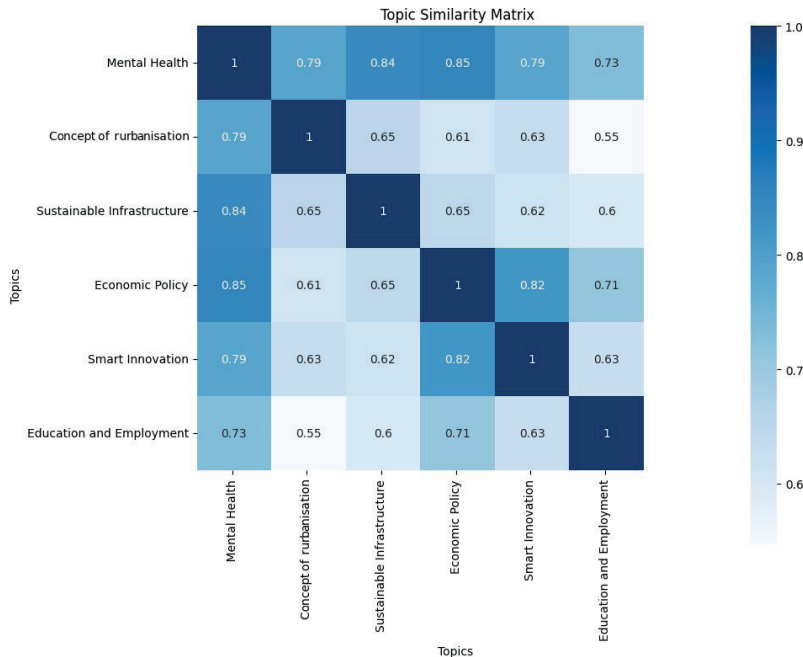


Fig. 8. Similarity matrix for abstracts

Figure 8 represents the similarity matrix, showing how closely related the topics are. Thus, the strong similarity score of 0.85 between Mental Health and Economic Policy indicates overlaps that suggest a need for policies addressing the satiation with mental health; Smart Innovation and Sustainable Infrastructure show significant similarity (0.82), showing opportunities for research that bridges technological advancements with sustainability goals; moreover, the importance of specific terms related to Education and Employment (‘education’, ‘learning’ and ‘employment’) suggests robust intersectional research that would focus on pedagogical models preparing individuals for evolving employment landscapes, particularly in technology and service sectors.

Finally, we identified authors who contributed to each topic (Table 3).

Table 3. Authors contributing to each topic the most

Topic	Authors
Mental Health	Carmo (2010); Gennaro & Fantini (2009); Meng & Xue (2020); Hardy et al. (2024); Li et al. (2021); Smith et al. (2019); Nguyen & Tran (2022)
Concept of Rurbanization	Bosworth and Willett (2011); Shucksmith (2018); Wilson (2012); Marsden et al. (2003); Graham and Marvin (2001)
Sustainable Infrastructure	Orodaru et al. (2020); Patel and Garcia (2019); Kim and Lee (2020); Martin and Clark (2018)
Economic Policy	Ward and Brown (2016); Shaw and Montgomery (2019); Miller and Roberts (2018); Johnson and Carter (2021)
Smart Innovation	Ravazzoli et al. (2021); Olmedo et al. (2024); Goodwin-Hawkins et al. (2021); Esparcia et al. (2020); Bosworth and Turner (2018)
Education and Employment	Gao et al. (2014); Erdogan et al. (2021); (Fuqua et al. 2021); Brown et al. (2020); Garcia and Thompson (2019); Singh and Patel (2018)

Thus, the topic modeling analysis allowed us to identify and extract various themes from the data to address our research question (RQ). Based on the HC dendrograms with topic heatmaps, we identified a range of themes, each connected to a distinct perspective: technology and infrastructure applications, mental health and family, social-economic considerations. These themes shed light on those specific social aspects of rurbanization that need to be taken into account during design and management phases of addressing various challenges. Therefore, in the social perspective of rural-urban linkages, we identified the following key aspects of rurbanization:

1) *Mental Health*. Rurbanization affects mental health both positively and negatively: on the positive side, access to urban amenities like healthcare and education can enhance well-being; on the contrary, the shift from rural to urban environments often brings stress and anxiety due to social and cultural changes. According to Carmo (2010), the breakdown of traditional community structures in rurban areas can increase isolation and depression; Gennaro and Fantini (2009) note that social-economic pressures and weakened communal ties can negatively affect mental health, Li et al (2021) — that increasing social stratification and inequality in rurban areas contribute to stress, particularly among lower-income residents; Hardy et al (2024) — that disparities in access to services and employment exacerbate mental health issues, affecting vulnerable groups (for instance, the elderly); Smith et al (2019) and Nguyen and Tran (2022) — that demographic changes and social tensions in rurban areas can lead to displacement and mental health challenges, highlighting the need for fostering social cohesion and community integration.

2) *Concept of Rurbanization.* To understand social impacts of rurbanization, we need a multidisciplinary approach combining various theoretical frameworks, especially concepts and paradigms focusing on rurbanization's social aspects. Such theories as Social Network Theory (Granovetter, 1973; Bosworth, Willett, 2011; Besser et al, 2013), Resilience Theory (Adger, 2000; Wilson, 2018; Folke et al, 2010), Urban-Rural Interface Theory (Bosworth, Willett, 2011; Shucksmith, 2018; Bryant, Pini, 2009), Social Capital Theory (Putnam, 2000; Shucksmith, 2018; Coleman, 1988), Sustainable Livelihoods Framework (Scoones, 1998; Wilson, 2018; Ellis, 2000), Relational Approach to Rural Development (Marsden et al, 2003; Woods, 2005; Murdoch, 2000) and Splintering Urbanism (Graham, Marvin, 2001; Graham, 2000) have been developed and applied to study social aspects of rurbanization together with new theories on rurbanization, such as New Rural Paradigm (OECD, 2006; Shucksmith, 2018) and Rurbanization Dynamics (Tacoli, 1998; Paniagua, 2009) which explore rural-urban characteristics, social integration and adaptive strategies within transforming rural-urban spaces.

For instance, Social Network Theory offers a framework for understanding complex relationships in rurban areas in which rural and urban social structures interact and evolve. Granovetter's concept of weak ties (1973) and studies of Bosworth and Willett (2011) show how these relationships shape social cohesion, information flow and community development in rurban settings. Based on Network Society Theory developed by Castells (2000), Graham and Marvin (2001) introduced the Splintering Urbanism theory which examines how infrastructure networks can lead to social and spatial fragmentation in urban areas. When applied to rurban contexts, this theory helps explain how uneven development and infrastructure provision lead to disparities in rurban areas. In addition, Resilience Theory examines how social-ecological systems adapt to disturbances and change, showing how rural communities respond to urbanization and social-economic shifts. Adger (2000) and Wilson (2018) used this framework to analyze how rurban areas ensure community well-being and adapt to environmental, social and economic challenges with various strategies. Marsden et al (2003) applied structural-functionalist theory to explore how rural communities perform new urban social functions while preserving the traditional ones, thus maintaining social cohesion in changing conditions. Chigbu (2013) focused on how New Ruralism influenced social cohesion in transforming communities, noting an improved interaction between rural residents and newcomers, i.e., this approach promotes a balance between rural and urban lifestyles as potentially reducing social tensions.

3) *Sustainable Infrastructure.* Rurbanization requires infrastructure that meets both social needs and sustainability goals, integrating elements of rural and urban planning, managing increased population density and urban-style development while preserving rural commu-

nity values. Li et al (2021) and Orîndaru et al (2020) discuss the need for green infrastructure (sustainable water management and renewable energy) to support social-economic development and environmental sustainability in rural areas. Patel and Garcia (2019) emphasize community involvement in planning to ensure socially inclusive and sustainable projects; Martin and Clark (2018) — such a design of infrastructure that promotes social cohesion and equal access; Hardy et al (2024) and Kim and Lee (2020) — the need for adaptable infrastructure that enhances community resilience to environmental and social-economic changes (rurbanization poses such challenges as financial and government constraints but also offers opportunities for innovative, sustainable infrastructure solutions); Nguyen and Tran (2022) and Wilson (2018) — the need for multi-level governance and collaboration to successfully implement infrastructure projects in rural settings.

4) *Economic Policy*. Rurbanization requires economic policies that meet both rural and urban needs, focusing on inclusive growth and sustainable development. Brown and McGranahan (2016) argue that economic policies should adapt to the unique challenges and opportunities of rural areas (such as balancing agricultural and industrial development). Shaw and Montgomery (2019) insist on the need for targeted economic policies that support local entrepreneurship and innovation as essential for economic diversification in rural contexts (and for community cohesion and equal access to resources); Miller and Roberts (2018) — on the importance of policies that support social inclusion, particularly in areas changing from rural to urban; Johnson and Carter (2021) — on effective economic policies to enhance social equity (all community members should benefit from economic growth) and meet local needs. Thus, rural challenges imply innovative policy approaches that integrate economic and social objectives (Shaw, Montgomery, 2019) and advocate for participatory policy-making that involves local communities.

5) *Smart Innovation*. Rurbanization fosters smart innovation by merging rural strengths with urban technologies. Ravazzoli et al (2021) explain how this convergence supports the development of smart, sustainable solutions based on local needs; Olmedo et al (2024) — the role of digital tools in enhancing social connections and local governance; Goodwin-Hawkins et al (2021) — how these innovations can create new economic opportunities and improve services in rural areas, reshaping social structures and community involvement; Esparcia et al (2020) — how smart innovation encourages community participation in local decision-making, fostering greater social cohesion; Bosworth and Turner (2018) — how the success of smart initiatives in rural areas depends on their connection with local cultural and social values, ensuring that innovation is both inclusive and sustainable; Olmedo et al (2024) — why, despite the potential for smart innovation, challenges such as technological gaps and

resistance to change remain and require strategies that bridge digital divides and promote inclusive participation.

6) *Education and Employment*. Rurbanization significantly affects employment and education by altering local economies and social structures, creates new job opportunities by combining traditional rural work with urban-oriented careers. Gao et al (2014) emphasize the diversification of employment options, while Singh and Patel (2018) — the need for upskilling to adapt to changing job markets. In education, Erdogan et al (2021) argue for integrating rural and urban curricula to prepare students for varied careers, while Brown et al (2020) discuss challenges (limited access to resources) that can affect educational outcomes. Fuqua et al (2021) stress the importance of community networks for overcoming these challenges and supporting social mobility.

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The conducted research emphasizes that the success of rurbanization lies in the development of targeted, context-sensitive strategies that address the key rurban challenges: investments in infrastructure that bridge urban and rural divides, policies that promote inclusive economic participation, programs that preserve cultural heritage while fostering innovation, a balanced approach that integrates community input and evidence-based policymaking. A critical insight of the study is the role of social cohesion in facilitating positive outcomes of rurbanization: communities that successfully navigate rurbanization are those that maintain strong networks of trust and collaboration while adapting to structural changes; therefore, policymakers and researchers should prioritize interventions that strengthen these networks (community development initiatives and capacity-building programs).

While the study provides a comprehensive overview of social aspects of rurbanization, there are some limitations. The key one is the restricted scope of data sources — only those indexed in Scopus, Web of Science, and Semantic Scholar. This limitation may have led to the exclusion of relevant studies in other databases, narrowing the scope of analysis. Moreover, policy documents, reports and books were not considered, though they could have provided additional insights into the social dynamics of rurbanization. Another limitation is language: the review is based exclusively on English-language articles, potentially omitting valuable research published in other languages, especially in regions where rurbanization is a significant issue but discussed in local languages. Furthermore, access restrictions (such as paywalls) mean that not all full-text papers were accessible. Sampling errors represent another limitation: some studies may have been excluded due to the search query limitations (for example, studies of rurbanization, which did not use this very term). Despite the use of

tools like BERTopic, the thematic analysis involves a degree of subjectivity together with manual coding and evaluation at the stage of categorizing themes and frameworks. In addition, few studies in the final sample limit the generalizability of findings.

Given the focus on literature review and preliminary data analysis, the study does not provide comprehensive empirical evidence but rather offers a foundation for understanding the phenomenon; and the generalizability of the findings is limited by the contextual focus, as the social context of rururbanization can vary significantly across regions depending on cultural, economic and governance factors. Another limitation is the lack of longitudinal data, which does not allow for assessing long-term effects of rururbanization. The exploratory nature of the research means that it raises more questions than gives answers, being a starting point for deeper investigations rather than definitive conclusions. Despite these limitations, the study highlights critical areas for future research, including an empirical analysis of everyday experiences of individuals and communities under rururbanization and comparative studies. Moreover, future research could expand the search by including additional databases, policy reports, books and studies in other languages, overcome access restrictions by institutional partnerships or alternative strategies, refine search queries and use the advanced machine learning algorithms to detect implicit connections, thus, reducing sampling errors and broadening the scope the analysis. Bibliometric and co-authorship analyses could help map the knowledge structure of the subject field. Further exploration of rururbanization theories and their relationship with other frameworks would provide valuable contributions. Lastly, broadening the selection criteria to include more indirectly relevant studies could improve the representativeness of future reviews.

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*V. N. Mukha,
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Discovering
social aspects of
rurbanization:
A literature review

Аннотация. В статье рассмотрены социальные аспекты рурбанизации как процесса, в ходе которого сельские территории обретают все больше городских черт, что размывает границы между сельским и городским образом жизни. Представлены результаты всестороннего анализа литературы и тематического моделирования, позволившие определить ключевые вопросы в изучении социальных аспектов рурбанизации: влияние на психическое здоровье; концептуальные изменения в трактовке социальных взаимодействий; проблемы и возможности устойчивого инфраструктурного развития; роль экономической политики в балансировании потребностей сельских и городских территорий; воздействие умных технологий на местное управление и участие в нем локального сообщества; изменения в сфере образования и занятости. Авторы отмечают как позитивные, так и негативные аспекты рурбанизации, в частности, доступность городских удобств и рост социальной напряженности, подчеркивая необходимость комплексного подхода к изучению разнообразных аспектов рурбанизации.

Ключевые слова: рурбанизация, социальные аспекты, психическое здоровье, устойчивая инфраструктура, экономическая политика, умные инновации, образование и занятость, сплоченность сообщества, сельско-городская интеграция, социальная сплоченность, концептуальные основания

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