

REVIEW ARTICLE

Dynamics of settlement hierarchy: A bibliometric analysis (1959 – 2024)

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Abstract

Settlement hierarchy, a fundamental concept in urban geography and spatial planning, has garnered significant attention over the decades due to its relevance in understanding the spatial organization and dynamics of human settlements. This study presents a comprehensive bibliometric analysis of research on settlement hierarchy published from 1959 to 2024, using data from the Scopus database. Through a systematic analysis of 1,197 documents, it examines the evolution of research themes, publication trends, and influential authors in the field. The results reveal a growing interest in settlement hierarchy over time, with a notable increase in publications since the 2000s, corresponding to advancements in spatial data accessibility and analytical tools. Influential authors emerged predominantly during the 2000s, while highly cited articles were primarily between the late 1960s and the late 1980s. The United States leads in citation counts, followed by the United Kingdom and China, reflecting significant scholar focus on China's urban settlement system. Despite limitations such as database coverage and potential search term bias, this study offers valuable insights into the development of settlement hierarchy research and serves as a guide for future investigations.

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<https://doi.org/10.36922/JCAU025080019>**Received:** February 23, 2025**Revised:** June 3, 2025**Accepted:** June 27, 2025**Published online:** July 15, 2025**Copyright:** © 2025 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution-Non-Commercial 4.0 International (CC BY-NC 4.0), which permits all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.**Publisher's Note:** AccScience Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

The uneven distribution of human activities across space has long been a concern in most societies, as it gives rise to regional disparities and spatial inequalities (Mulligan, 1984). Understanding the spatial organization of settlements and the distribution of human activity remains a central issue in geography, planning, and related disciplines. To explain these patterns, researchers have adopted the concept of settlement hierarchy, which refers to the ranking of human settlements based on their level of primacy and relative importance within a broader spatial system. This concept is widely used by urban planners, sociologists, geographers, and economists. Settlement hierarchies are typically measured by indicators such as population size, migration patterns, and the availability of services. Consequently, they are influenced by demographic shifts, economic transformations, and technological advancements (Guedes *et al.*, 2009; Neal, 2011). The formation and development of settlements are shaped by a complex interplay of spatial, economic, social, and behavioral factors,

and their hierarchical organization has evolved over time (Curtin & Church, 2007).

Research on settlement hierarchies has a long tradition, heavily influenced by the central place theory, first introduced by German economist August Lösch (1906 – 1945) and German geographer Walter Christaller (1969 – 1969). Central place theory (Christaller, 1933; Lösch, 1940) explains how settlements are spatially distributed based on their sizes and purposes. It posits that settlements function as central places providing goods and services to surrounding hinterlands, forming a hierarchical network of varying centrality (Curtin & Church, 2007; Mulligan, 1984). Two key concepts – population thresholds and range of goods – define the spatial organization of these economic activities (Olsson, 1967). The theory assumes a geographically uniform space, without any physical barriers, in which settlements emerge to distribute goods and services optimally (Doran & Fox, 2016; Hsu *et al.*, 2014).

Although many empirical investigations have relied on city-size-based models (Neal, 2011), depending solely on city size or population as a proxy for urban hierarchy has limitations (Preston, 1971). Cities are increasingly viewed as overlapping hierarchies or lattices (Batty, 2006), through which commodities and services circulate along the networks of transportation and communication infrastructures (Castells, 2016). Since the past decade of the 20th century, influenced by globalization and world cities research, scholars have emphasized the role of economic connectivity and global linkages in shaping a city's hierarchical status (Castells, 1996). In this context, cities are defined more by multifunctionality than by specialization. While the foundational assumptions of central place theory – such as a flat, isotropic plain with uniform transportation costs and evenly distributed populations and resources – have been heavily criticized in urban geography, a network-based model of urban hierarchy has increasingly supplanted the traditional size-based approach (Neal, 2011). This shift introduces a spatial perspective grounded in connectivity and interaction, leading to the conceptualization of spatial hierarchies (Friedmann, 1986). Consequently, variables such as population density and the volume of goods and services exchanged with neighboring communities are now frequently incorporated in models of settlement hierarchy. This approach has also been extended to the study of historical settlements; for instance, in the 1980s, Rihll and Wilson (1987) successfully applied the spatial interaction framework to archaeological data.

Understanding the hierarchy of settlements is crucial, as it offers insightful information for governance, planning,

and development. By shedding light on the flow of people, goods, and services, settlement hierarchy models support the delivery of efficient public services, the design of transportation networks, the control of urban sprawl, and the reduction of spatial inequalities. Acquiring knowledge about settlement hierarchies thus enables policymakers to promote sustainable growth, allocate resources more effectively, and improve the quality of life for local populations.

The present study seeks to provide a comprehensive overview of research on settlement hierarchies using bibliometric analysis. A bibliometric literature review systematically and quantitatively evaluates the published literature in a specific field to describe, assess, and monitor its development (Zupic & Cater, 2015). Bibliometric techniques analyze components such as authorship, publication trends, citation counts, and keyword co-occurrences. With the emergence of software tools for conducting bibliometric analyses – such as VOSviewer, BibExcel, and CiteSpace – interest in this methodological approach has grown rapidly (Ellegaard & Wallin, 2015; Passas, 2024; Zupic & Cater, 2015).

In this study, the Scopus database was queried to compile a bibliometric database. We used bibliometrix, an open-source R package, to collect and analyze a sample of 1,200 peer-reviewed publications. The findings of this study offer a valuable resource for academics and decision-makers interested in understanding the historical evolution and present landscape of settlement hierarchy research. Furthermore, the results highlight areas that remain underexplored and may benefit from future investigation.

2. Methodology

The exponential growth of academic publications across nearly all disciplines has made it increasingly difficult for researchers to keep track of past and present contributions to the literature (Aria & Cuccurullo, 2017; Briner & Denyer, 2012). This challenge underscores the need for evidence-based qualitative and quantitative literature review methods to synthesize existing research effectively (Rousseau, 2012). There are three major approaches to literature review: bibliometric analysis (quantitative), meta-analysis (quantitative), and systematic literature review (qualitative) (Donthu *et al.*, 2021). While each method has its advantages, bibliometric analysis is particularly well-suited for handling large datasets and offering a comprehensive overview of trends within a research field. It enables researchers to investigate key questions such as identifying dominant research areas and topics over time and understanding the interrelations between topics (Waltman *et al.*, 2010).

To comprehensively examine scholarly work on settlement hierarchy, this study adopts a bibliometric analysis approach. Web of Science (WoS) and Scopus are two leading and competing bibliographic databases with extensive interdisciplinary coverage. Given Scopus's broader content scope – particularly its inclusion of more journals, books, and conference proceedings, as well as its better representation of non-English and regional literature, especially in the social sciences and humanities – Scopus was chosen over WoS for this analysis (Passas, 2024; Prancutė, 2021; Zhu & Liu, 2020).

The present study aims to explore the settlement hierarchy literature published from 1959 to March 2024 and indexed in the Scopus database. The search terms used were “settlement hierarchy,” “urban hierarchy,” and “hierarchical urban systems,” which yielded a total of 1,197 publications (Figure 1). Data were analyzed using the open-source bibliometrix R package and its biblioshiny() function (Aria & Cuccurullo, 2017). A user-friendly web interface is also available for non-coders at www.bibliometrix.org/biblioshiny/. The quantitative analysis was conducted through the web interface, focusing on three units of analysis: sources, documents, and authors.

3. Results

The initial search in Scopus, using article title, abstract, keywords, and authors fields, yielded 1,209 publications matching our search criteria from 1959 onward (Figure 1). To ensure a broader and more comprehensive bibliometric analysis, we included publications in all languages, rather than restricting the search to English only. In addition, we considered various document types to capture regionally focused research and emerging trends that may not have appeared in peer-reviewed journals. After removing 12 duplicates, errata, and articles in press, the final dataset comprised 1,197 publications, which were classified into six categories based on document type. Table 1 presents the distribution of these document types and their respective percentages. This inclusive approach encompassed not only social sciences citation index/science citation index-indexed publications but also grey literature, such as conference proceedings, reviews, and editorials. Articles constitute the predominant document type in settlement hierarchy research, accounting for over 84% of the total (Table 1).

We first analyze the annual scientific production, which provides insight into the evolving academic interest in this field. Figure 2 illustrates the publication distribution by year. The earliest record dates to 1959, with a gradual rise through the late 1970s. A more notable increase began in the 1980s, peaking in 2021 with 63 publications. The growing interest since the 2000s has also led to an increase

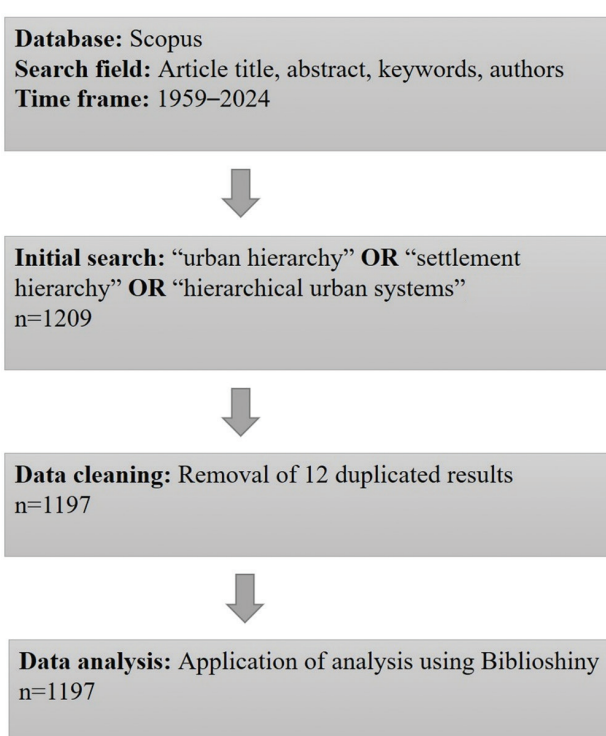


Figure 1. Data extraction process
Source: Diagram by the authors

Table 1. Distribution of publications by document type

| Document type | Number of documents | Percentage |
|-----------------------|---------------------|------------|
| Article | 1,008 | 84.2 |
| Book | 18 | 1.5 |
| Book chapter | 106 | 8.9 |
| Conference proceeding | 27 | 2.3 |
| Review | 32 | 2.7 |
| Others | 6 | 0.5 |

in average annual publications, reaching 18.1 publications per year between 1959 and 2024. Note that this analysis includes publications up to March 2024.

A similar pattern is observed in the citation trends of the publications (Figure 3). Citation analysis serves as a proxy for academic impact, highlighting influential works and foundational studies within the field. As shown in Figure 3, the average number of citations per document per year increased significantly from the 2000s onward. The overall average number of citations per document is 17.4, with the highest average – 69.2 citations per document – recorded in 2004.

Figure 4 presents the top 10 most relevant authors, based on the number of publications, while Table 2 showcases

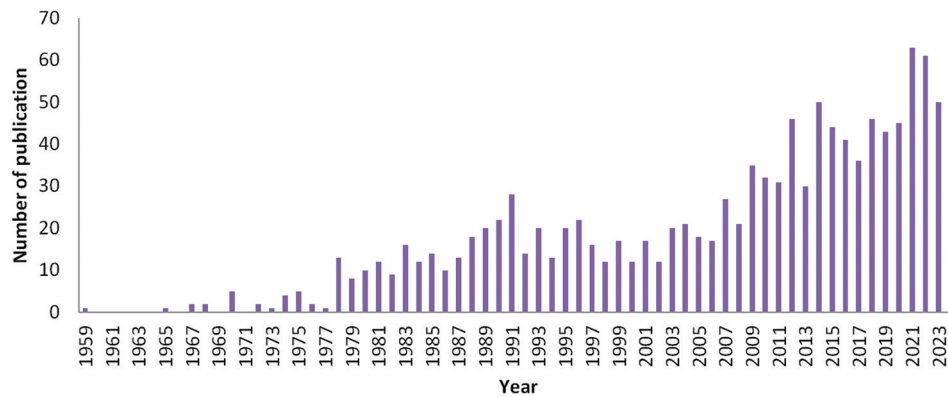


Figure 2. Number of publications per year (1959 – 2024)
Source: Graph by the authors

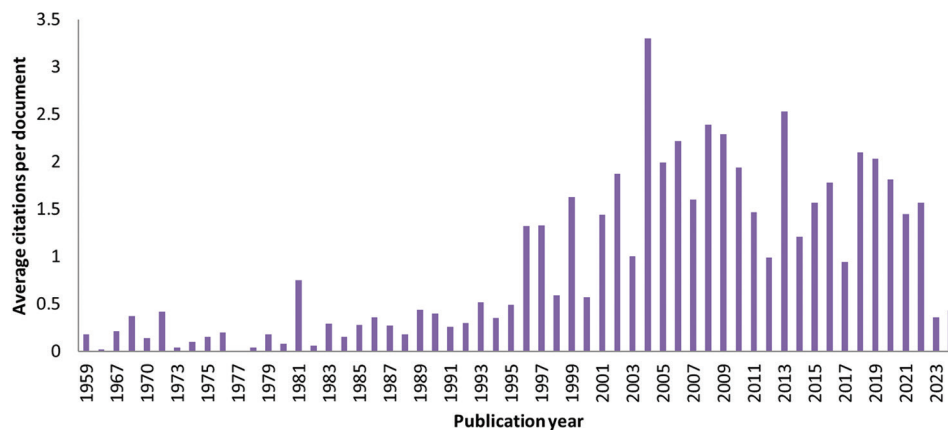


Figure 3. Average citations per document per year (1959 – 2024)
Source: Graph by the authors

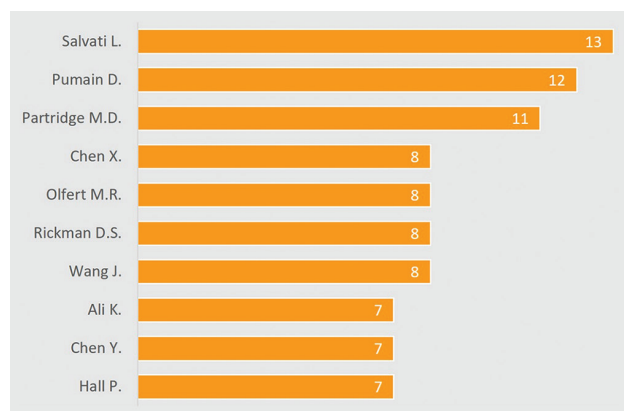


Figure 4. Most relevant authors (by number of publications)
Source: Graph by the authors

Table 2. Top 10 influential authors in the field

| Author | h-index | Total citations | Number of publications | Production start year |
|----------------|---------|-----------------|------------------------|-----------------------|
| Partridge M.D. | 11 | 827 | 11 | 2007 |
| Rickman D.S. | 8 | 628 | 8 | 2007 |
| Salvati L. | 8 | 333 | 13 | 2014 |
| Ali K. | 7 | 592 | 7 | 2007 |
| Olfert M.R. | 7 | 597 | 8 | 2007 |
| Derudder B. | 6 | 405 | 6 | 2003 |
| Pumain D. | 6 | 185 | 12 | 1982 |
| Chen X. | 5 | 165 | 8 | 1991 |
| Chen Y. | 5 | 101 | 7 | 2004 |
| Liu L. | 5 | 218 | 5 | 1996 |

the top 10 most influential authors, ranked by total citation counts and h-index values. The h-index, introduced by Hirsch (2005), is defined as the number h such that a researcher has published h papers, each cited at least h

times. It is widely used as a metric of both productivity and impact, offering potential insights into future scientific performance (Alonso *et al.*, 2009; Hirsch, 2007). Salvati L., Pumain D., and Partridge M.D. are identified as the

most prolific authors, each with more than 10 publications in the field of settlement hierarchy. Although Partridge M.D. entered the field relatively late (in 2007), he ranks highest in terms of influence, as measured by citation counts and h-index. Collectively, the top 10 influential scholars have garnered 4,051 citations, accounting for 8.8% of total citations in the field. These findings help identify the key researchers whose contributions have shaped and expanded settlement hierarchy research over time.

It is also valuable to identify the most influential sources in the field based on publication count, total citations, and h-index values. Table 3 shows that Urban Studies, Regional Studies, and Cities are the leading journals in the settlement hierarchy literature, with high publication volumes and strong h-index scores. These journals serve as central platforms for the dissemination of influential research findings and theoretical advancements. Given that the h-index assesses a journal's global academic performance, it is unsurprising that these sources are among the leading international outlets in urban and regional research, all possessing relatively high impact factors. They play a vital role in shaping scholarly discourse and guiding future research priorities in the field.

The geographical distribution of scientific production reveals the global scope of settlement hierarchy research. The dataset includes 1,197 publications from 54 countries. Table 4 highlights the top contributing countries by total publications and citations. The United States leads with 4,359 citations from 105 publications, followed by the United Kingdom and China. Interestingly, the most cited countries span several continents, indicating widespread international interest in the topic. As depicted in Figure 5, Canada, France, and the United Kingdom have exhibited steady growth in publication output, while China has demonstrated a marked increase, particularly in the past decade. This geographical perspective helps uncover key hubs of academic activity and the leading contributors to the evolution of the field.

Figure 6 showcases the most frequently used words, appearing not only in the titles of publications but also in the keywords and references. This approach facilitates a deeper understanding of article content by capturing greater thematic breadth and diversity (Garfield & Sher, 1993). The results indicate that “China” is the most commonly occurring term, followed by “urban area,” “urban hierarchy,” and “population growth,” each appearing more than 90 times. The frequent use of these terms suggests that certain themes dominate the settlement hierarchy research landscape. As anticipated, terms associated with population and urban areas feature prominently among the top 10 most relevant words. Our temporal analysis of word frequency (Figure 7) reveals differing patterns

Table 3. Top 10 most influential journals in settlement hierarchy research

| Journal | h-index | Total citations | Number of publications | Production start year |
|------------------------------------------------------|---------|-----------------|------------------------|-----------------------|
| Urban Studies | 21 | 1611 | 33 | 1970 |
| Regional Studies | 15 | 883 | 20 | 1968 |
| Cities | 12 | 713 | 22 | 1986 |
| Professional Geographer | 12 | 599 | 13 | 1983 |
| International Journal of Urban and Regional Research | 9 | 1081 | 9 | 1989 |
| Economic Geography | 8 | 468 | 10 | 1972 |
| Tijdschrift voor Economische en Sociale Geografie | 8 | 270 | 10 | 1989 |
| Urban Geography | 8 | 294 | 12 | 1983 |
| Annals of the Association of American Geographers | 7 | 158 | 8 | 1970 |
| Journal of Regional Science | 7 | 142 | 11 | 1967 |

Table 4. Top 10 most cited countries in settlement hierarchy research

| Country | Total citations | Share of total citations (%) | Average citations per article |
|----------------|-----------------|------------------------------|-------------------------------|
| United States | 4,359 | 36.5 | 41.5 |
| United Kingdom | 1,158 | 9.7 | 34.1 |
| China | 1,046 | 8.7 | 14.5 |
| Canada | 604 | 5.1 | 28.8 |
| Italy | 481 | 4.0 | 20.9 |
| France | 460 | 3.8 | 10.2 |
| Japan | 454 | 3.8 | 45.4 |
| Belgium | 412 | 3.4 | 41.2 |
| Australia | 374 | 3.1 | 34.0 |
| Netherlands | 346 | 2.9 | 20.4 |

of development across terms. Notably, paralleling the rise in scientific output from China (Figure 5), the term “China” has seen significant growth, particularly since the 2000s. While terms such as “migration” and “population” shaped the research field until the 2010s, focus gradually shifted toward “urbanization,” “urban area,” and “urban population.” In addition, “urban hierarchy” emerged as a central concept from the mid-1990s onward and continues to hold importance today.

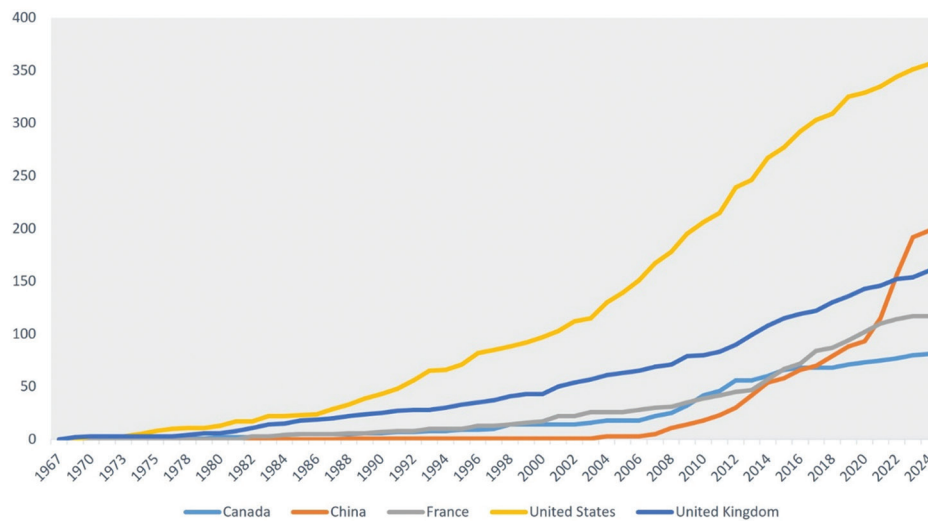


Figure 5. Annual scientific production by country (1959 – 2024)

Source: Graph by the authors

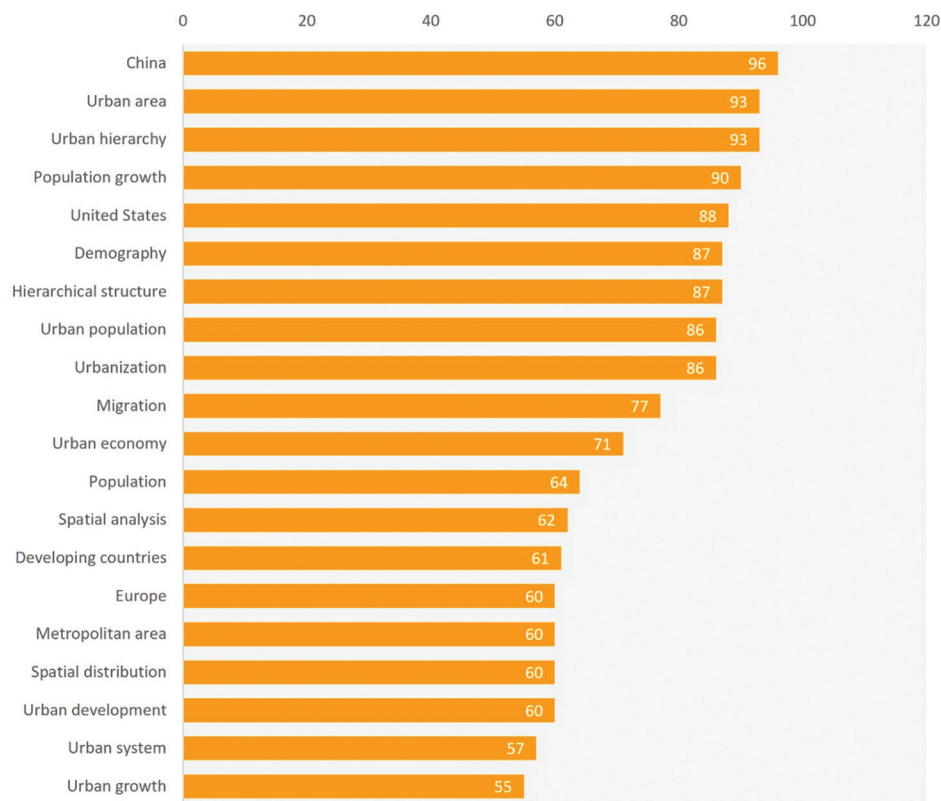


Figure 6. Most frequently occurring terms in titles, keywords, and references

Source: Graph by the authors

Co-word analysis, a form of document-based network analysis, utilizes the words/keywords within documents to generate similarity measures. A key advantage of this

approach over citation-based network analysis is that it relies on the content of the documents rather than their citation links. Accordingly, in co-word analysis, the

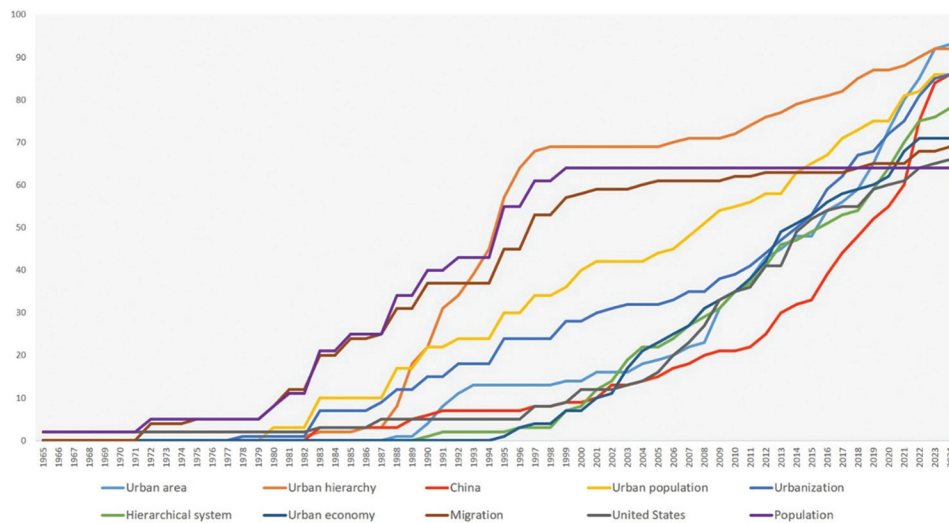


Figure 7. Temporal distribution of keyword frequency (1959 – 2024)

Source: Graph by the authors

keyword serves as the primary unit of analysis (Aria & Cuccurullo, 2017). By identifying which keywords appear together, co-word analysis reveals underlying thematic linkages and conceptual clusters within a particular research domain. Figure 8 depicts a co-word network that represents the conceptual structure of research on settlement hierarchy. The network contains two clusters and a total of 49 nodes, with red and blue colors used to distinguish between different keyword groups. The size of each node corresponds to the frequency of keyword occurrence, with larger nodes indicating more prominent concepts in the literature.

- The red cluster includes studies centered on urban areas, urbanization, hierarchical systems, urban economy, and metropolitan areas
- The blue cluster encompasses studies focused on urban population, demography, population dynamics, migration, and geography.

This categorization underscores a clear distinction between research that emphasizes population- and demographic-based approaches and research that explores the spatial and economic dimensions of settlement hierarchy.

As the next step, we analyzed the evolution of keyword themes from 1959 to 2024, identifying four distinct thematic periods. This thematic evolution analysis, based on keyword co-occurrence within each time span, identifies how certain research themes emerge, decline, persist, or transform over time. In Figure 9, vertical blocks represent thematic clusters for each period, while connecting lines indicate thematic continuity and significance (Aria &

Cuccurullo, 2017; Cobo *et al.*, 2011; Firmansyah *et al.*, 2024; Parlina *et al.*, 2020). The first three phases each span 20 years, while the final phase focuses solely on the most recent 4 years (2020 – 2024). In the early periods, research was predominantly concentrated on methodology and migration, particularly from a developing-country perspective. In contrast, more recent years have seen a broader diversification of sub-themes within settlement hierarchy studies. During the 2000s, topics such as urban economy and metropolitan areas emerged as key areas of interest. Given the rapid pace of urbanization and the rising number of large cities worldwide, scholar attention naturally expanded to include hierarchical urban systems.

The final period (2020 – 2024) reveals some intriguing findings. New themes such as archaeology, accessibility, and COVID-19 have emerged, with a particular focus on Europe and China. This emphasis on addressing present global challenges and incorporating advanced technological tools for analyzing past settlements indicates that settlement hierarchy research remains both timely and relevant.

Finally, we investigated the topic using the Google Books Ngram model, covering the period from 1940 to 2024 (Figure 10). The Google Ngram analysis tracks word frequency over time based on the Google Books database, a vast corpus of digitized books. A key advantage of this method is its ability to normalize word frequency by the total number of words published in each year (Michel *et al.*, 2011). We search for the terms “urban hierarchy” and “settlement hierarchy,” and the resulting trend lines exhibit similar patterns. The relative frequency of these terms has

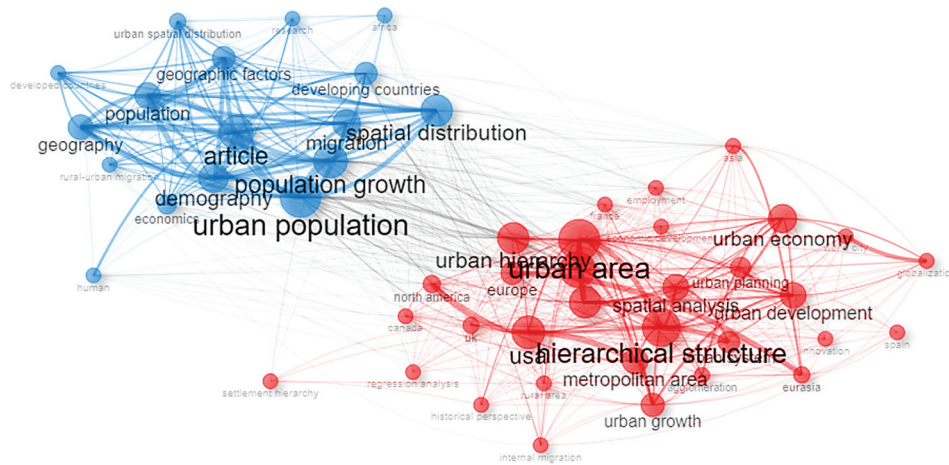


Figure 8. Co-word network of settlement hierarchy research
Source: Graph by the authors

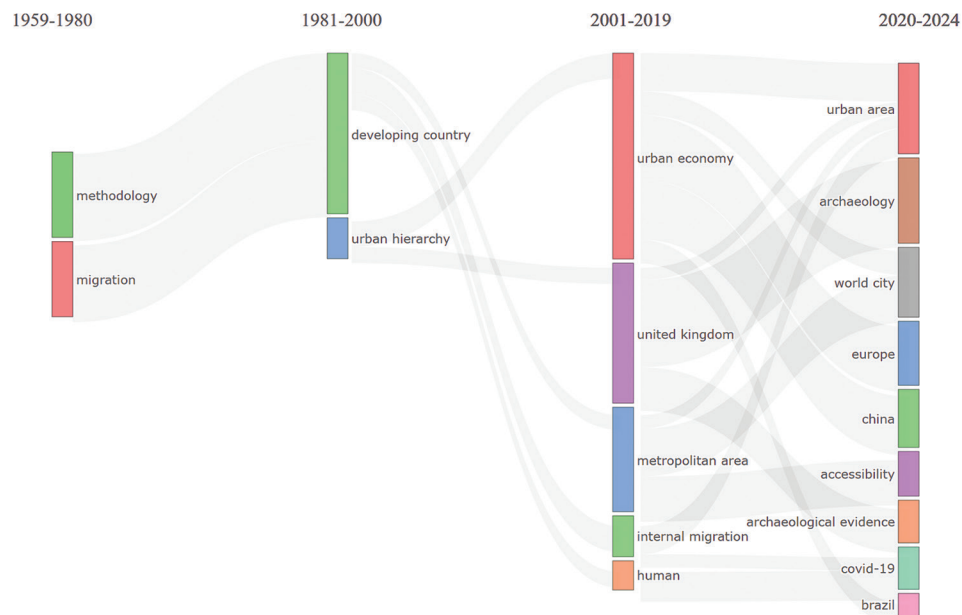


Figure 9. Thematic evolution of settlement hierarchy research (1959 – 2024)
Source: Graph by the authors

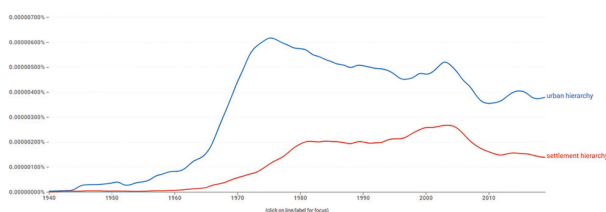


Figure 10. Google Books Ngram model of the terms “urban hierarchy” and “settlement hierarchy” (1940 – 2024)
Source: Graph by the authors

grown substantially over the decades, reflecting increasing scholarly and public interest in the topic. However, after a period of rapid growth, both trends appear to have entered a maturity phase in the 2010s, following a curve consistent with a sigmoid function.

4. Conclusion

The study of settlement hierarchies offers valuable insights into the systems through which towns, cities, and

metropolises develop and prosper, ultimately informing more effective resource allocation and supporting sustainable growth. A bibliometric analysis of over 1,000 publications dating back to the late 1950s reveals a steadily increasing interest in the topic. While local peaks in publication output are evident in nearly every decade, a notable surge began in the 2000s – likely driven by the growing availability of accurate spatial data and open-source analytical tools. Correspondingly, six of the top 10 most influential authors began publishing in the field between 2000 and 2010. Interestingly, the majority of the highly cited articles were published in journals established between 1965 and 1989, coinciding with significant advancements in quantitative techniques within planning and geography. The United States is the most cited country, followed by the United Kingdom and China. Notably, “China” is the most frequently recurring term, reflecting considerable scholarly attention to its urban settlement systems. The term “urban” ranks second, aligning with global trends in urbanization, industrialization, globalization, and rural-to-urban migration.

Thematic evolution across time periods reveals shifting research priorities. From 1959 to 1980, studies primarily focused on methodology and migration. In the second phase (1981 – 2000), attention shifted toward developing countries and urban hierarchical structures. Between 2001 and 2019, a broader thematic diversity emerged. Terms, such as “internal migration,” “metropolitan area,” and country names, such as “United Kingdom” reflect an increase in empirical studies centered on individual countries. In the final observed period, from 2020 to 2024, the terms “accessibility” and “archaeology” gained particular prominence. The former indicates a shift toward a network-based approach, moving beyond traditional size-based models of settlement hierarchy. The latter reflects a growing interest in historical urban systems, enabling comparisons between past and present hierarchies and shedding light on the future of settlement systems.

While this bibliometric analysis highlights influential publications, authors, key concepts, and the thematic evolution of settlement hierarchy research, it also has important limitations. It is noteworthy that the findings are predominantly dependent on the search terms used. In addition, some significant publications may not be indexed in the databases considered in the study. As a complementary approach, integrating WoS – with its selective indexing and focus on high-impact journals – could enhance the comprehensiveness of future analyses. Despite these limitations, this study successfully uncovers key patterns and trends in the settlement hierarchy literature. Future studies may benefit from a stronger emphasis on empirical

studies, systematically categorized by geographic scale, methodological approach, and thematic variables.

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Conflict of interest

The authors declare they have no competing interests.

Author contributions

Conceptualization: All authors

Visualization: All authors

Writing – original draft: All authors

Writing – review & editing: All authors

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data

Primary and secondary sources and data supporting the findings of this study were all publicly available at the time of submission.

References

- Alonso, S., Cabrerizo, F.J., Herrera-Viedma, E., & Herrera, F. (2009). H-Index: A review focused in its variants, computation and standardization for different scientific fields. *Journal of Informetrics*, 3(4):273–289.
<https://doi.org/10.1016/j.joi.2009.04.001>
- Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975.
<https://doi.org/10.1016/j.joi.2017.08.007>
- Batty, M. (2006). Hierarchy in cities and city systems. In: D Pumain (eds.). *Hierarchy in Natural and Social Sciences*. Berlin: Springer, p. 143–168.
- Briner, R.B., & Denyer, D. (2012). Systematic review and evidence synthesis as a practice and scholarship tool. In: DM Rousseau (eds.). *The Oxford Handbook of Evidence-Based Management*. Oxford: Oxford University Press, p. 112–129.
<https://doi.org/10.1093/oxfordhb/9780199763986.013.0007>
- Castells, M. (1996). *The Rise of the Network Society*. England: Blackwell.

- Castells, M. (2016). Space of flows, space of places: Materials for a theory of urbanism in the information age. In: R LeGates and F Stout (eds.). *The City Reader*. 6thed. London: Routledge, p. 229-240.
- Christaller W. (1933). *Die Zentralen Orte in Süddeutschland [The Central Places in Southern Germany]*. Jena, Germany: Fischer.
- Cobo, M.J., López-Herrera, A.G., Herrera-Viedma, E., & Herrera, F. (2011). Science mapping software tools: Review, analysis, and cooperative study among tools. *Journal of the American Society for Information Science and Technology*, 62(7):1382-1402.
<https://doi.org/10.1002/asi.21525>
- Curtin, K.M., & Church, R.L. (2007). Optimal dispersion and central places. *Journal of Geographical Systems*, 9(2):167-187.
<https://doi.org/10.1007/s10109-007-0042-4>
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W.M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133:285-296.
<https://doi.org/10.1016/j.jbusres.2021.04.070>
- Doran, D., & Fox, A. (2016). Operationalizing central place and central flow theory with mobile phone data. *Annals of Data Science*, 3(1):1-24.
<https://doi.org/10.1007/s40745-015-0066-4>
- Ellegaard, O., & Wallin, J.A. (2015). The bibliometric analysis of scholarly production: How great is the impact? *Scientometrics*, 105, 1809-1831.
<https://doi.org/10.1007/s11192-015-1645-z>
- Firmansyah, D., Irawan, M.Z., Amrozi, M.R.F., Maitra, B., Rahman, T., & Widiastuti, N.O. (2024). A bibliometric analysis of motorcycle studies in Asia: From 1971 to 2022. *IATSS Research*, 48(1):68-83.
<https://doi.org/10.1016/j.iatssr.2024.01.005>
- Friedmann, J. (1986). The world city hypothesis. *Development and Change*, 17(1):69-83.
<https://doi.org/10.1111/j.1467-7660.1986.tb00231.x>
- Garfield, E., & Sher, I.H. (1993). Brief communication keywords plus-algorithmic derivative indexing. *Journal of the American Society for Information Science*, 44(5):298-299.
[https://doi.org/10.1002/\(SICI\)1097-4571\(199306\)44:5<298:AID-ASIS5>3.0.CO;2-A](https://doi.org/10.1002/(SICI)1097-4571(199306)44:5<298:AID-ASIS5>3.0.CO;2-A)
- Guedes, G., Costa, S., & Brondízio, E. (2009). Revisiting the hierarchy of urban areas in the Brazilian amazon: A multilevel approach. *Population and Environment*, 30(4-5):159-192.
<https://doi.org/10.1007/s11111-009-0083-3>
- Hirsch, J.E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences*, 102:16569-16572.
<https://doi.org/10.1073/pnas.0507655102>
- Hirsch, J.E. (2007). Does the H index have predictive power? *Proceedings of the National Academy of Sciences*, 104:19193-19198.
<https://doi.org/10.1073/pnas.0707962104>
- Hsu, W.T., Holmes, T.J., & Morgan, F. (2014). Optimal city hierarchy: A dynamic programming approach to central place theory. *Journal of Economic Theory*, 154:245-273.
<https://doi.org/10.1016/j.jet.2014.09.018>
- Lösch A. (1940). *Die Räumliche Ordnung der Wirtschaft [The Spatial Order of the Economy]*. Jena, Germany: Gustav Fischer.
- Michel, J.B., Shen, Y.K., Aiden, A.P., Veres, A., Gray, M.K., Google Books Team., et al. (2011). Quantitative analysis of culture using millions of digitized books. *Science*, 331(6014): 176-182.
<https://doi.org/10.1126/science.1199644>
- Mulligan, G.F. (1984). Agglomeration and central place theory: A review of the literature. *International Regional Science Review*, 9(1):1-42.
<https://doi.org/10.1177/016001768400900101>
- Neal, Z.P. (2011). From central places to network bases: A transition in the U.S. Urban hierarchy, 1900-2000. *City and Community*, 10(1):49-75.
<https://doi.org/10.1111/j.1540-6040.2010.01340.x>
- Olsson, G. (1967). Central place systems, spatial interaction, and stochastic processes. *Papers of the Regional Science Association* 18:13-45.
<https://doi.org/10.1007/BF01940310>
- Parlina, A., Ramli, K., & Murfi, H. (2020). Theme mapping and bibliometrics analysis of one decade of big data research in the scopus database. *Information*, 11(2):69.
<https://doi.org/10.3390/info11020069>
- Passas, I. (2024). Bibliometric analysis: The main steps. *Encyclopedia*, 4(2):1014-1025.
<https://doi.org/10.3390/encyclopedia4020065>
- Pranckutė, R. (2021). Web of science (WoS) and scopus: The titans of bibliographic information in today's academic world. *Publications*, 9(1):12.
<https://doi.org/10.3390/publications9010012>
- Preston, R.E. (1971). The structure of central place systems. *Economic Geography*, 47(2):136-155.
- Rihll, T.E., & Wilson, A.G. (1987). Spatial interaction and structural models in historical analysis: Some possibilities and an example. *Histoire and Mesure*, 2(1):5-32.
- Rousseau, DM (ed.). (2012). *The Oxford Handbook of Evidence-*

Based Management. Oxford: Oxford University Press.

<https://doi.org/10.1093/oxfordhb/9780199763986.001.0001>

Waltman, L., Van Eck, N.J., & Noyons, E.C. (2010). A unified approach to mapping and clustering of bibliometric networks. *Journal of Informetrics*, 4(4):629-635.

<https://doi.org/10.1016/j.joi.2010.07.002>

Zhu, J., & Liu, W. (2020). A tale of two databases: The use of web

of science and Scopus in academic papers. *Scientometrics*, 123(1):321-335.

<https://doi.org/10.1007/s11192-020-03387-8>

Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3):429-472.

<https://doi.org/10.1177/1094428114562629>