









Bibliometric Analysis of Global Research on Private Cities (1985 to 2023)

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ABSTRACT

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The proliferation of private cities globally has spurred academic interest in understanding this evolving urban phenomenon. This paper presents a comprehensive bibliometric analysis of global research on private cities, aiming to elucidate key trends, thematic priorities, and collaborative networks within the literature. Employing bibliometric methodologies, data was collected from online academic sources and analyzed using VOSviewer software. The results reveal a sustained increase in publications on private cities since 2012, indicating a growing scholarly interest. Publications predominantly consist of journal articles, reflecting a preference for in-depth analyses. The research spans various subject areas, highlighting the interdisciplinary nature of private city studies. The analysis identifies the United States, the United Kingdom, and Germany as leading contributors to the literature, with diverse representation from emerging economies like India, Brazil, and Indonesia. Additionally, academic institutions such as Universitas Pembangunan Jaya and The University of Sheffield have emerged as prominent contributors. Notable researchers include Ablo, Barbieri, and Biswas, among others. Network visualizations reveal distinct thematic clusters, covering topics ranging from settlement patterns and social capital to new industry cities and healthy cities. The findings underscore the global socio-economic, environmental, and governance dynamics shaping private urban development. This study contributes to a deeper understanding of private cities' significance in contemporary urban studies and offers insights for future research directions and policy considerations. The study's main implications emphasize the need for urban policy frameworks that integrate interdisciplinary approaches and international collaboration for sustainable development in private cities.

1. INTRODUCTION

In recent years, the global landscape of urban development has witnessed a notable surge in the establishment of new cities and sprawling urban mega-projects characterized by extensive private sector involvement. These urban entities, often termed “private cities,” are not confined to a specific region but are a global phenomenon, distinct from traditional settlements both politically and geographically, being built and governed privately and existing separately from established urban centers [1]. The emergence of these private cities reflects a broader trend wherein cities worldwide are increasingly viewed as pivotal hubs for enhancing national competitiveness amidst the forces of globalization, with notable examples observed in China [2].

Moreover, across various Southeast Asian countries, rapid economic and population growth has catalyzed the rapid development of new towns, particularly in the peripheral areas surrounding major metropolitan regions [3]. This phenomenon underscores the evolving urban landscape in developing

nations, where urbanization reshapes the socio-economic fabric and drives spatial transformations.

In Southeast Asian countries, private cities are gaining traction, with countries like Indonesia witnessing a proliferation of “new towns” or “private cities.” The scale of this development is staggering, with Greater Jakarta alone boasting at least 23 private cities, signaling a significant shift in urban development paradigms [4, 5].

Despite the growing prominence of private cities in the global urban discourse, there remains a gap in comprehensive scholarly analysis that systematically examines the body of research dedicated to this emerging field. Thus, this study seeks to address this gap by conducting a bibliometric analysis of global research on private cities. By leveraging bibliometric methodologies, this research aims to elucidate key trends, thematic priorities, and collaborative networks within the literature on private cities, thereby contributing to a deeper understanding of this evolving urban phenomenon.

Such an analysis contributes to the existing knowledge base by: (1) This paper highlights the evolution and trajectory of

research on private cities, thereby revealing how scholarly interest has developed over time. (2) Identifying the leading countries, institutions, and researchers contributing to this field enhances research productivity. It paves the way for future collaborations, fostering a sense of optimism and inspiration in the academic community. It also uncovers thematic clusters and priority areas within the literature, which can guide future research directions and inform policy-making. (3) They offer insights into the socio-economic, environmental, and governance dynamics shaping the development of private cities, thus enriching the broader discourse on urban development and planning.

Therefore, this study seeks to address the identified gap by conducting a bibliometric analysis of global research on private cities. It employs bibliometric methodologies to elucidate key trends, thematic priorities, and collaborative networks within the literature, thereby contributing to a deeper understanding of this evolving urban phenomenon.

2. LITERATURE REVIEW

2.1 Definitions of private cities

Private cities can be defined in various ways based on the perspectives and contexts provided by different experts. According to Darcy [6], private cities are experimental urban spaces that help delineate the roles of government and individual responsibilities, offering insights into the essential governance tasks and what can be left to personal discretion. Li et al. [7] describe private cities as urban developments led by private actors or through significant public-private collaborations characterized by mixed land use and covering substantial areas, typically exceeding 2.5 square kilometers.

Glazze et al. [8] highlight the phenomenon of gated communities within private cities, emphasizing their role in privatizing residential governance and the implications for public resource allocation and community dynamics. Ablo [9] provides a perspective from African urban contexts, where private cities are seen as solutions to urban planning and governance challenges, offering critical infrastructure and development control. However, their scope and strategies are often limited and piecemeal. Lastly, Voorwinden [10] touches on the influence of smart technology providers in the governance of private cities, indicating that these actors play a significant role in shaping urban policies and implementing smart city initiatives.

These definitions underscore the multifaceted nature of private cities, encompassing aspects of governance, urban planning, private investment, and technological influence, each contributing to the evolving landscape of urban development.

2.2 Characteristics of private cities

Private cities exhibit several distinctive characteristics shaped by various socio-economic and environmental factors. One prominent feature is the privatization of urban and regional planning, where large developers play a crucial role in conceiving and implementing urban development plans on a metropolitan scale [11]. This privatization often results in the creation of privately owned, for-profit spaces that cater to leisure and entertainment, which combined natural elements with urban amenities to create accessible and healthy

environments for urban colonists [12]. Private cities are also characterized by a high degree of managed landscapes, particularly in private yards, which function as novel ecosystems where natural and anthropogenic processes drive community assembly. These areas often support diverse species, including exotic ones phylogenetically clustered within communities [13].

The social dynamics within private cities also exhibit unique patterns. While urbanism in general is associated with reduced public helpfulness and increased social conflict, it does not necessarily lead to fewer social ties or heightened psychological stress among residents. Instead, it fosters a sense of fear and distrust of 'foreign' groups in the public sphere, without affecting private social networks [14]. Economically, private cities benefit from high levels of entrepreneurial activity, diversity among geographically proximate industries, and substantial human capital, all of which contribute positively to employment growth [15]. However, it's worth noting that the manufacturing sector may not experience the same benefits.

These characteristics collectively define private cities' complex and multifaceted nature, emphasizing the interplay between privatization, social dynamics, environmental management, and economic growth.

2.3 Drivers of private cities

The drivers of private cities are multifaceted, encompassing infrastructural, socio-economic, and environmental factors. In terms of infrastructure, the design and planning of urban environments often perpetuate car dependency, as demonstrated by Oran Park in Sydney. Despite efforts to promote alternative transportation modes, historical and contemporary practices have reinforced private car use [16]. Socio-economically, the spread of private streets in exurban and rural areas, such as those around Halifax and Nova Scotia, reveals a disparity where affluent regions benefit from superior infrastructure. In contrast, poorer areas endure inadequate road conditions, compelling residents to rely on cars [17]. Environmentally, the spatial distribution of emissions and structural features of urban areas, such as poor accessibility, further drive dependence on private vehicles, as evidenced by a UK study linking vehicle emissions to geographic and social profiles [18].

The built environment's 'drivability' significantly influences car use. Higher residential density and a diverse land-use mix are associated with reduced car driving, while individual factors like age, gender, employment, and household composition also play crucial roles [19]. The dominance of private car commuting is not just a problem, but a pressing issue that contributes to traffic congestion, fatalities, and environmental degradation. This urgency prompts the exploration of alternatives such as customized bus transit systems. These systems have shown promise in cities like Auckland and Paris, offering more efficient and cost-effective commuting options than private cars. It's time for us to take responsibility and act on these alternatives [20]. These factors illustrate the complex interplay of planning, socio-economic disparities, environmental impacts, and individual preferences that drive the prevalence of private cities.

2.4 Impacts of private cities

Private cities, or urban areas managed by private entities,

have multifaceted impacts on both social and environmental dimensions. Research indicates that private capital holdings can enhance the stability and performance of city commercial banks, reducing return volatility and contributing to overall financial stability. However, the lack of financial awareness among local governments can sometimes negate these benefits [21]. Corporations' concentration of political and economic power in urban settings can pose health risks by promoting unhealthy behaviors through industries like food, tobacco, and automobiles. However, cities also offer opportunities to counteract these harmful practices through innovative health strategies [22].

Privately protected areas (PPAs) within these cities often yield positive environmental outcomes, such as increased ecosystem representativeness and reduced deforestation, though their social impacts are mixed. Benefits like improved social capital and employment are often offset by reduced social cohesion and negligible effects on household income [23]. Entrepreneurial activity in private cities can drive employment growth, particularly in diverse and human capital-rich environments, although the manufacturing sector may experience different benefits [15].

The structural organization of private cities significantly influences their vulnerability to epidemics. Hierarchical cities with concentrated mobility hotspots are more susceptible to rapid disease spread but respond well to mobility restrictions. In contrast, sprawled cities with multiple activity centers spread diseases more slowly but are less responsive to such interventions [24]. Thus, private cities present a complex interplay of economic, social, and environmental factors that require nuanced management to maximize benefits and mitigate risks.

2.5 Previous bibliometric analyses in related private cities

Bibliometric analyses in the context of private cities, often called smart cities, provide a comprehensive understanding of the evolving research landscape, technological advancements, and emerging trends. These analyses reveal that smart cities leverage various pioneering technologies, such as Machine Learning (ML), Artificial Intelligence (AI), the Internet of Things (IoT), and Data Mining (DM), to enhance connectivity and efficiency in urban environments [25, 26]. Studies indicate that AI and IoT are particularly prominent, with diverse AI technologies employed across different tiers of smart city projects, including instrumentation, middleware, and application layers [25]. Similarly, DM techniques are widely used, with several ML algorithms, both supervised and unsupervised, adopted to operate various layers of smart city infrastructure [26].

Privacy concerns are a significant issue in smart cities, as the extensive collection and use of citizen-generated data can lead to potential privacy violations. This necessitates robust data protection measures and transparent data usage policies [27]. Information security is another critical area, with research indicating opportunities for further advancements in adopting information security policies within government institutions to safeguard smart city applications [28].

This study on private cities builds upon these prior bibliometric analyses by extending the focus to the specific context of private urban developments, often called private or proprietary cities. While previous studies have concentrated on smart cities' technological and infrastructural aspects, this research delves into the socio-economic and environmental

dimensions of private cities. It explores how private entities influence urban planning, governance, and community dynamics, adding a new layer of understanding to the existing body of knowledge.

Furthermore, this study leverages the established methodologies and insights from previous bibliometric analyses to map the intellectual structure and research fronts in the context of private cities. By examining key trends, thematic priorities, and collaborative networks within the literature on private cities, this research provides a comprehensive overview of this emerging field's current state and future directions. It also addresses the unique challenges and opportunities associated with private urban development, such as the privatization of urban and regional planning, the creation of for-profit spaces, and the role of private capital in enhancing financial stability and performance.

While prior bibliometric analyses have laid the groundwork by exploring the technological and infrastructural aspects of smart cities, this study builds upon them by focusing on the socio-economic and environmental impacts of private cities. It provides valuable insights for academic researchers, local governments, and policymakers, guiding future research and policy development in the context of private urban developments.

3. METHODOLOGY

The research methodology employed in this paper involves bibliometric analysis. Bibliometric analysis is a quantitative approach that systematically evaluates academic publications to extract valuable insights regarding publication patterns, thematic emphases, and collaborative networks within a particular field [29].

3.1 Objective of the study

This study aims to conduct a bibliometric analysis of global literature on private cities. The research will explore trends, patterns, and research focuses in this field and identify the most influential authors, institutions, and countries contributing to the literature on private cities.

3.2 Data collection

Data for this research is obtained from online academic sources, Scopus.com, and university digital repositories. The keyword "private cities" is used to identify relevant literature.

3.3 Sample selection

The research sample will consist of journal articles, conference proceedings, book chapters, and others that meet the established inclusion criteria [30]. Inclusion criteria include publications in English, relevance to the topic of private cities, and a specific publication period from 1985 to 2023. Inclusion criteria for publications in English in this bibliometric analysis are essential for capturing a comprehensive and globally relevant view of research on private cities. English is the primary language of international scholarly communication and is prevalent in high-impact journals and conferences. This focus ensures the analysis reflects the most influential and widely cited studies, providing a standardized and accessible dataset. Concentrating on

English-language publications helps streamline the data collection process and enhances the comparability and accuracy of the results.

3.4 Bibliometric analysis

Bibliometric analysis was conducted using software such as VOSviewer. VOSviewer, a bibliometric analysis tool, was employed to visualize the interconnections among research themes. Clusters of related themes were detected to uncover interdisciplinary patterns present in the literature. Content analysis explores research focuses and trends.

3.5 Stages of bibliometric analysis

The stages of the bibliometric analysis of this study are in Figure 1.

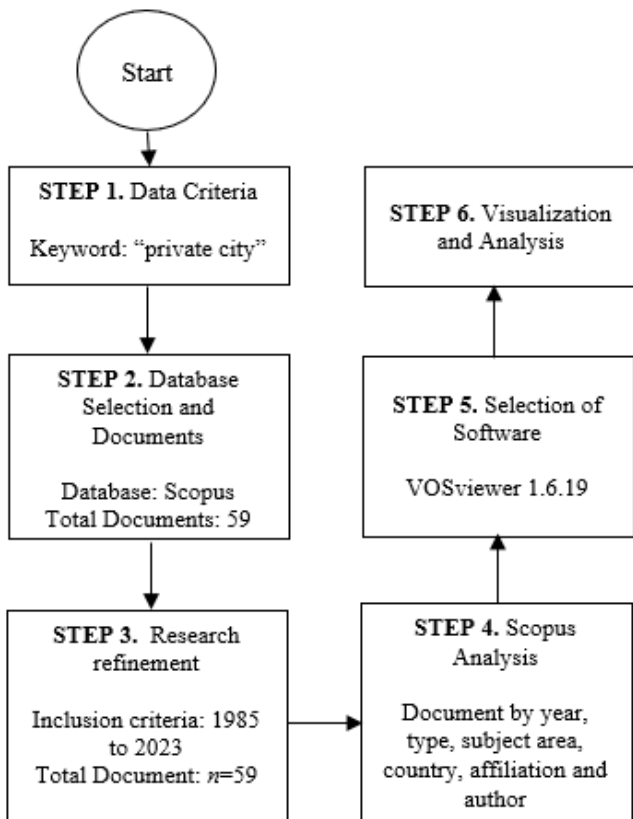


Figure 1. Stages of bibliometric analysis

4. RESULT

4.1 Exploring trends and characteristics of publications on “private city”

Exploring publications using the search keyword “private city” in the Scopus database revealed 59 publications from around 1985 to 2023. While showing fluctuations, the publication trend tends to exhibit an overall increase from 2012 to 2023 (refer to Figure 2).

Fifty-nine publications suggest a sustained interest in the “private city” concept within academic discourse. The fluctuating publication trend over the years indicates potential shifts in research focus or periodic changes in scholarly attention. However, the notable upward trajectory from 2012

onwards suggests the topic's growing significance and relevance in recent years.

The increasing publication trend since 2012 implies a heightened research interest in private cities. Researchers and scholars may find this topic particularly compelling, indicating a potential evolution or deepening of the understanding of private cities in academic circles.

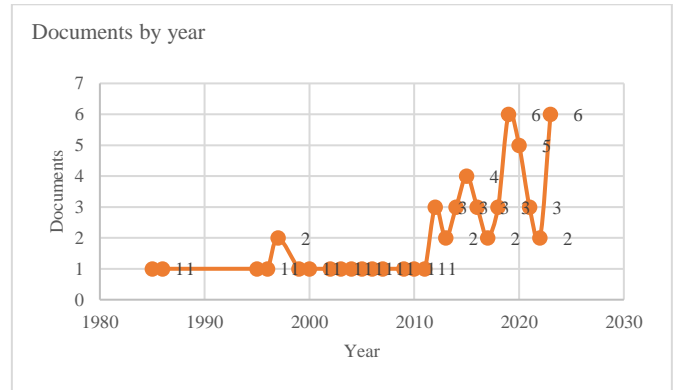


Figure 2. Publication trends about private cities
Source: Scopus Database

The rising trend from 2012 to 2023 suggests that private cities have become more relevant in contemporary discussions. This may be attributed to global urbanization trends, changes in governance structures, or emerging challenges related to urban development and management.

Policymakers, urban planners, and stakeholders in city development may find value in exploring the findings of these publications. The increasing body of knowledge on private cities could offer insights into innovative urban planning models, governance structures, and potential implications for public policy.

The fluctuating nature of the trend before 2012 might indicate periods of lower interest or gaps in research. Identifying these gaps could guide researchers toward untapped aspects of the private city concept, presenting opportunities for further exploration and expanding the current knowledge base.

The analysis of the Scopus database's publications on “private city” reveals a dynamic landscape of scholarly interest, with implications for academic research and practical considerations in urban development and governance. The upward trend in recent years underscores the evolving significance of private cities in the broader discourse on urban studies.

Table 1. Publication by type

Publication by Type	Total
Article	38
Book Chapter	8
Conference Paper	6
Book	3
Editorial	2
Review	2

The publications are categorized into different forms, predominantly journal articles, accounting for 39 publications, constituting 66.1%. Following this are eight book chapters, representing 13.5%, and five conference papers, making up 8.5%. Books contribute three publications, constituting 5.1%

of the total. The remaining two publications fall into the categories of editorials and reviews, each representing 3.4% of the total (refer to Table 1).

The overwhelming majority of journal articles (66.1%) publications suggest that scholars and researchers prefer this format for disseminating in-depth studies and analyses on private cities. This dominance could indicate a preference for peer-reviewed and more comprehensive research outputs.

The distribution across various publication formats, including book chapters, conference papers, and books, indicates a diversity in the types of contributions to the field of private cities. This suggests that researchers utilize different platforms to communicate their findings, catering to diverse audiences and scholarly preferences.

The presence of book chapters and conference papers (13.5% and 8.5%, respectively) highlights the potential for collaborative efforts within the academic community. These formats often involve contributions from multiple authors or researchers, fostering a collaborative approach to exploring private cities.

Including book publications (5.1%) indicates an effort to consolidate and disseminate comprehensive knowledge on private cities. Books may serve as foundational resources for scholars, policymakers, and practitioners seeking a more holistic understanding of the subject beyond individual research articles.

The presence of reviews and editorials (each representing 3.4%) suggests that there is a focus on original research and critical evaluations and discussions within the academic discourse. These formats may play a role in shaping opinions and guiding future research directions.

The distribution of publications across different formats provides insights into the varied approaches taken by researchers in contributing to the discourse on private cities. Understanding these patterns can aid in appreciating the depth and breadth of knowledge available, fostering collaboration, and guiding future research efforts.

Table 2. Publication by subject area

No.	Subject Area	Total
1	Social Sciences	37
2	Environmental Science	14
3	Arts and Humanities	12
4	Business, Management and Accounting	9
5	Economics, Econometrics and Finance	6
6	Earth and Planetary Sciences	7
7	Engineering	7
8	Medicine	6
9	Energy	3
10	Computer Science	1
11	Materials Science	1
12	Nursing	1
13	Psychology	1
	Total	105

Source: Scopus Database

Table 2 illustrates the publication trends by subject area for publications focused on “private city.” The data reveals the following distribution of publications across different subject areas: Social Sciences: 37 publications (34.9%), Environmental Science: 13 publications (12.3%), Arts and Humanities: 12 publications (11.3%), Business, Management, and Accounting: 10 publications (9.4%), Economics, Econometrics and Finance: 8 publications (7.5%), Engineering: 7 publications (6.6%), Earth and Planetary

Sciences: 6 publications (5.7%), Medicine: 6 publications (5.7%), Energy: 3 publications (2.8%), Computer Science: 1 publication (0.9%) Other fields (Materials Science, Nursing, Psychology): 1 publication each, totaling three publications (2.8%).

The distribution across various subject areas indicates that private cities attract attention from a diverse range of disciplines. This interdisciplinary interest suggests that private cities are multifaceted, requiring insights from different academic perspectives.

Most publications in the Social Sciences category (34.9%) underscore the socio-political and cultural dimensions associated with private cities. Researchers in this field explore governance structures, societal impacts, and cultural aspects related to private urban development.

The significant representation in Environmental Science (12.3%) implies a recognition of the environmental implications and sustainability aspects of private cities. This suggests that researchers are examining the ecological footprint and environmental consequences associated with establishing and functioning private cities.

The presence of publications in Business, Management, and Accounting (9.4%) and Economics, Econometrics, and Finance (7.5%) indicates an interest in private cities' economic and financial aspects. Researchers may investigate investment models, economic viability, and financial structures associated with private urban developments.

Including Engineering (6.6%) and Computer Science (0.9%) signifies an exploration of the technological and engineering aspects of private cities. This may include urban planning, infrastructure development, and technology integration in private city projects.

The presence of publications in Medicine (5.7%) and Energy (2.8%) suggests public health and energy sustainability considerations within private urban contexts. Researchers may be examining healthcare infrastructure and energy-efficient practices in private city planning.

The distribution across different subject areas highlights the multifaceted nature of research on private cities. The interdisciplinary approach reflects the complex interactions and diverse dimensions associated with private urban developments. Researchers and policymakers can benefit from this comprehensive understanding to address the challenges and opportunities private cities present.

4.2 Global perspectives on researching private city

Table 3. Top 10 Publication by country

No.	Country	Total
1	United States	13
2	United Kingdom	7
3	India	5
4	Brazil	4
5	Germany	4
6	Indonesia	4
7	China	3
8	Australia	2
9	Chile	2
10	France	2

Source: Scopus Database

The top 10 countries of origin for researchers publishing on the theme of “private city” in reputable international publications are as follows: United States, United Kingdom,

Germany, India, Brazil, Indonesia, China, Australia, Chile, and France (see Table 3). These rankings are based on the number of publications and reflect the global distribution of research contributions.

The dominance of the United States, United Kingdom, and Germany in the top three positions suggests their leadership in research on private cities. This could indicate well-established research ecosystems, extensive academic networks, and substantial financial support for studies related to this theme.

Including countries like India, Brazil, Indonesia, China, Australia, Chile, and France underscores the global nature of research on private cities. This diversity reflects perspectives, experiences, and challenges concerning private urban development across different regions.

The presence of countries like India, Brazil, and Indonesia in the top 10 signifies the emergence of these nations as significant contributors to the discourse on private cities. This may indicate a growing interest and capacity for research in urban development within these regions.

The global distribution of researchers highlights opportunities for international collaboration in private cities. Collaboration between researchers from different countries can lead to a more comprehensive understanding of the subject, incorporating diverse viewpoints and experiences.

Countries with a strong presence in the top 10 may find the research findings particularly relevant for informing policy decisions and practical applications related to private urban development. Insights from these studies could influence urban planning strategies and governance structures at both local and national levels.

The diversity in the top 10 indicates the potential for knowledge exchange and learning between countries with varying levels of economic development, urbanization rates, and governance models. Lessons from successful private urban projects in one country could benefit others facing similar challenges.

The analysis of the top 10 countries contributing to research on "private city" reveals the global reach of this topic and opportunities for collaboration and shared learning. The findings from these countries can collectively contribute to a more nuanced and comprehensive understanding of private urban development, influencing policies and practices on a global scale.

Table 4. Publication by affiliation

No.	Affiliation	Total
1	Universitas Pembangunan Jaya	3
2	The University of Sheffield	2
3	The University of Hong Kong	2
4	Universidade de São Paulo	2
5	University of Leeds	2
6	University of Ghana	2
7	Tata Institute of Social Sciences	2
8	University of Michigan, Ann Arbor	2
9	Indian Institute of Technology Roorkee	2
10	National Institute for Biomedical Research	1

Source: Scopus Database

Table 4 illustrates the top affiliations of researchers publishing on "private city" according to the Scopus database in 2023. The ranking is based on the number of publications affiliated with each institution. The top 10 affiliations are as follows: Universitas Pembangunan Jaya, The University of Sheffield, The University of Hong Kong, Universidade de São Paulo, University of Leeds, University of Ghana, Tata Institute

of Social Sciences, University of Michigan, Ann Arbor, Indian Institute of Technology Roorkee, and National Institute for Biomedical Research. These rankings provide insights into the academic institutions actively contributing to research on the "private city."

The inclusion of Universitas Pembangunan Jaya in Indonesia as the top affiliation suggests a global representation of institutions involved in research on private cities. This indicates that impactful contributions to the field can come from various regions, not solely from traditional research hubs.

The presence of institutions from different countries, including Brazil, the United Kingdom, Ghana, India, and Chile, highlights the diversity of research perspectives and approaches to private cities. This diversity can enrich the discourse by incorporating varied cultural, social, and economic contexts.

The ranking showcases the emergence of research centers in countries such as Indonesia and Ghana as leaders in the study of private cities. This suggests a growing recognition of the importance of local perspectives in understanding and addressing issues related to private urban development.

Multiple international institutions in the top 10 provide opportunities for collaborative research endeavors. Collaborations between institutions from different regions can foster a more comprehensive understanding of private cities, taking into account global variations in urban contexts.

The high ranking of specific institutions, such as The University of Sheffield and The University of Hong Kong, indicates their significant contributions to the scholarly discourse on private cities. This may positively influence their academic rankings and reputation in urban studies.

Research output from these top institutions can influence policies and practices related to private urban development. Policymakers and practitioners may look to these institutions for insights and guidance in shaping effective urban planning strategies.

The analysis of top affiliations in the research on "private city" offers a snapshot of the global distribution of academic contributions. It highlights the importance of diverse perspectives, the emergence of local research centers, and the potential for collaborative efforts among institutions worldwide in advancing knowledge on private urban development.

Table 5 presents the researchers who have published research on "private city." These researchers are Ablo [9, 31], Barbieri [32, 33], Bettiol [32, 33], Biswas [34, 35], Datta [36, 37], Dev [34, 35], Muccillo [32, 33], Murray [38, 39], Purwanto [5, 40], and Tafriidj [5, 40]. The ranking is based on the number of publications within the Scopus database.

Table 5. 10 Authors

No.	Author Name	Total
1	Ablo, A.D.	2
2	Barbieri, M.A.	2
3	Bettiol, H.	2
4	Biswas, A.	2
5	Datta, A.	2
6	Dev, M.	2
7	Muccillo, G.	2
8	Murray, M.J.	2
9	Purwanto, E.	2
10	Tafriidj, I.S.I.	2

Source: Scopus Database

Including these researchers in the top 10 suggests that they have made substantial contributions to the field of private cities. Their work may be characterized by depth, quality, and influence within the academic community.

The presence of researchers with potentially diverse backgrounds suggests a global representation of expertise in private cities. This global perspective is valuable for capturing the nuances and challenges associated with private urban development in various contexts.

Researchers listed in the top 10 may find opportunities for collaboration with each other, fostering an environment of knowledge exchange and joint exploration of research questions related to private cities. Collaborative efforts could lead to more comprehensive and impactful research outcomes.

The work of these researchers may have played a role in shaping research trends within the domain of private cities. Their collective contributions could influence the focus of future studies, guiding the academic community toward relevant and pressing research questions.

Including these researchers in the top 10 may enhance their recognition within the academic community. It could positively impact their academic standing, increasing opportunities for collaboration, funding, and involvement in influential projects.

Table 5 highlights the individuals who have emerged as leading contributors to private cities. Their inclusion in the top 10 suggests their collective influence on the discourse, with potential implications for future research directions, collaborations, and the practical applications of knowledge in private urban development.

The concept of private cities has garnered increasing attention in scholarly discourse, reflecting a growing interest in alternative urban development and governance models. To understand the evolving landscape of research in this domain, bibliometric analysis offers a valuable approach. By visualizing the network of scholarly publications and identifying thematic clusters, researchers can gain insights into prevalent themes, emerging trends, and density areas within the literature.

Bibliometric analysis was conducted using VOSviewer version 1.6.19, a widely utilized software tool for visualizing and analyzing bibliographic data. The study encompassed a comprehensive collection of scholarly publications on private cities from reputable databases.

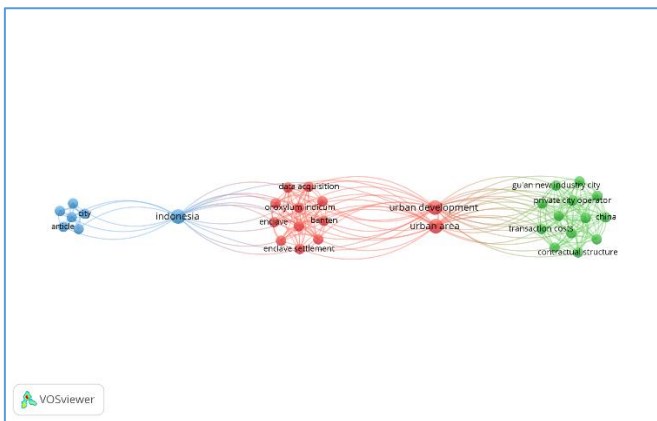


Figure 3. Network visualization

Figure 3 presents the network visualization derived from the bibliometric analysis, revealing three distinct clusters of

research on private cities. Cluster 1, represented by red items, encompasses emerging topics within the field. In contrast, Cluster 2, depicted in green, comprises relatively newer areas of inquiry compared to those in Cluster 3, which is characterized by blue items.

Cluster 1 encompasses emerging topics in private city research, as highlighted by the yellow items in Figure 4. Conversely, Cluster 2 comprises relatively newer topics than Cluster 3.

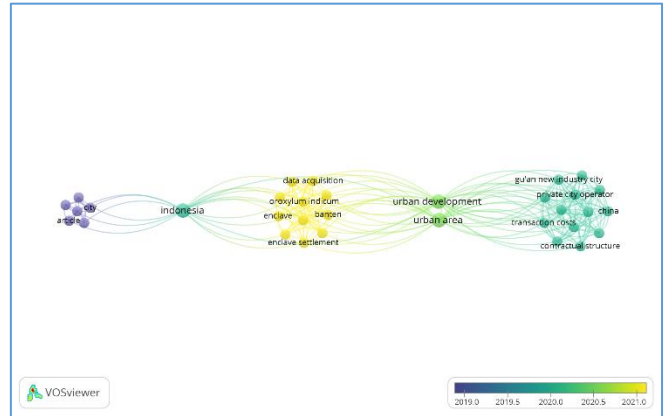


Figure 4. Overlay visualization

Figure 5 reveals that the density level associated with private city research predominantly pertains to topics within Cluster 3.

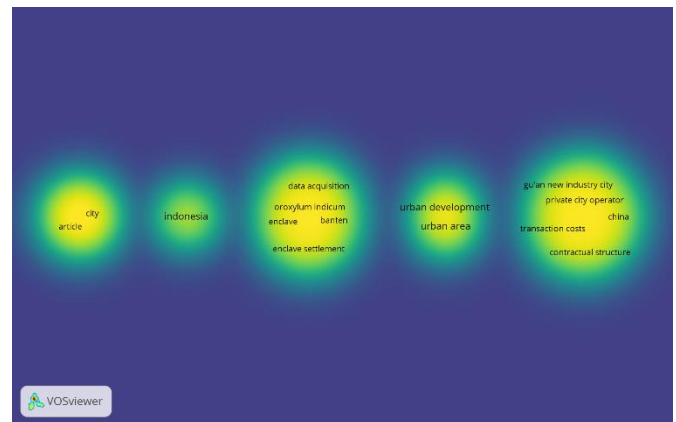


Figure 5. Density visualization

The identified clusters and their temporal dynamics provide valuable insights into the trajectory of research on private cities. The emergence of new topics within Cluster 1 signifies evolving interests and intriguing potential avenues for future investigation. However, the predominance of density within Cluster 3 underscores the enduring relevance and depth of established themes in the literature.

The primary themes investigated within Cluster 1, as depicted in Figure 6, encompass various topics pertinent to urban development and residential patterns. Here is a detailed analysis of each theme: First, settlement patterns. This theme likely explores human settlements' spatial arrangement and distribution within urban areas. It may encompass studies on settlements' morphology, structure, and dynamics, including their spatial organization, density, and form.

Settlement patterns are vital for understanding private cities' dynamics, often showing fractal characteristics like those in

Sixth is urban residence. Urban residence focuses on the housing arrangements and living conditions of urban dwellers. Research within this theme may investigate housing affordability, quality, accessibility, and tenure arrangements in urban areas.

Urban residence in private cities is intricately linked to challenges and opportunities, shaped by various socio-economic and infrastructural dynamics. One primary challenge is managing water, sanitation, and hygiene, especially in profit-oriented models [44]. Rapid urbanization in developing countries offers economic opportunities through agglomeration benefits but poses challenges like contagious diseases and congestion, requiring effective infrastructure spending and public-private partnerships [48]. Urban managers' housing resource allocation influences cities' socio-spatial structure, potentially reinforcing or mitigating social inequalities, highlighting the importance of institutional roles in urban planning [55]. These factors underscore the complexity of urban residence in private cities, where the interplay between economic opportunities, infrastructural challenges, and institutional management determines the quality of urban life and the sustainability of urban growth.

Seventh is residential development. Residential development encompasses constructing and managing housing units within urban areas. Studies in this area may explore trends in housing construction, land use patterns, housing market dynamics, and housing policies.

Residential development in private cities presents significant challenges and opportunities, intricately linked to various physical, economic, social, political, and cultural dimensions. One primary challenge is the environmental impact. New residential constructions often lead to substantial greenhouse gas emissions, which city-level assessments tend to underestimate, necessitating more granular, community-level evaluations to mitigate climate change effectively [56]. Residential development drives land-use changes that can adversely affect biodiversity and ecosystem processes, threatening sustainability goals [57]. However, opportunities exist to enhance residential satisfaction through thoughtful planning and optimization of the physical environment. Improving ventilation, privacy, and property maintenance can significantly enhance the living experience in densely populated areas [58]. These developments offer enhanced security and amenities, contributing to higher residential satisfaction. Furthermore, understanding the specific needs of different age groups, such as the importance of green spaces for young and elderly residents, can guide real estate planners in creating more inclusive and satisfying living environments [58].

Eighth is urban development. Urban development encompasses the transformation and growth of urban areas over time. Research in this area may analyze the drivers, processes, and outcomes of urban development, including issues related to land use planning, infrastructure development, and sustainability.

Then the ninth is urban areas. This theme broadly encompasses studies on urban areas, including their spatial extent, population dynamics, economic activities, and socio-cultural characteristics. Research may focus on understanding urban areas' structure, functions, and challenges within the broader context of regional development.

Urban areas and development present complex challenges and opportunities, particularly in private cities. Rapid urbanization in developing countries brings significant

economic opportunities through agglomeration benefits, fostering productivity and economic growth comparable to developed nations [48]. However, this urban density also exacerbates negative externalities such as congestion, crime, and contagious diseases, necessitating robust governance and infrastructure to manage effectively [48]. Governance challenges are particularly acute in poor mega-cities, where weak institutions need help to address these issues, sometimes requiring draconian policies to maintain order [59]. Private cities, often driven by profit-oriented models, face the dilemma of balancing economic efficiency with the provision of universal services like clean water and sanitation, which are critical for sustainable urban living [44]. Public-private partnerships can be crucial in overcoming these challenges by leveraging private resources while ensuring public welfare [44]. Ultimately, the success of private cities hinges on their ability to integrate economic, social, and environmental strategies to create livable, sustainable urban environments that can harness the benefits of urbanization while mitigating its inherent challenges.

The themes identified within Cluster 1 reflect a comprehensive exploration of various aspects of urbanization, residential dynamics, and urban development, highlighting the interdisciplinary nature of research on private cities and related phenomena.

The themes identified within Cluster 2, as illustrated in Figure 7, encompass a range of topics related to urbanization, economic development, and governance structures, mainly focusing on the emergence of new industry cities and innovation-driven urban growth. Here's a detailed analysis of each theme: First is New Industry City. This theme likely pertains to developing specialized urban areas designed to accommodate emerging industries or economic sectors. Research within this theme may explore the planning, infrastructure, and policy interventions associated with establishing new industry cities, aiming to stimulate economic growth and innovation.

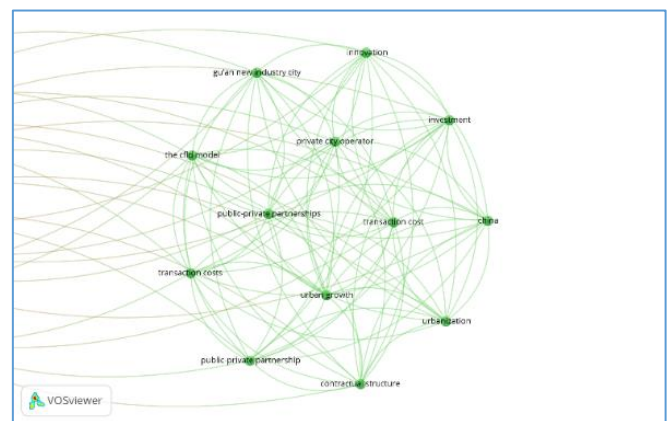


Figure 7. Cluster 2 - Network visualization

The New Industry City concept, transforming former industrial areas into multifunctional urban spaces, tackles several challenges and opportunities in private cities. De-industrialization, as seen in Praga, Poland, requires coherent municipal policies to leverage socio-economic potential [60]. This transformation aligns with urbanization benefits and challenges in developing countries, such as infrastructure issues and congestion [48]. Post-industrial landscapes offer environmental management and biodiversity conservation opportunities, crucial for sustainable development [61]. The

dynamic nature of cities necessitates addressing employment, sustainability, and quality of life, which are central to New Industry Cities [62]. Path creation in economic geography emphasizes innovation and adaptation in urban transformation [63]. Thus, New Industry City themes encompass economic revitalization, environmental sustainability, social inclusion, and infrastructural development, requiring public-private collaboration to achieve their potential.

The second is innovation. Innovation is a central focus within urban studies, encompassing the creation, adoption, and diffusion of new ideas, technologies, and practices within urban environments. Research in this area may examine innovation ecosystems, knowledge networks, and the role of innovation in driving economic development and urban competitiveness.

Innovation is crucial for private cities in addressing sustainability, economic development, and public service improvement. Cities like London and Copenhagen highlight the need for collaborative platforms and private-sector involvement [64]. Rotterdam's open innovation and diverse city structures support R&D and commercialization [65]. Technological advancements, such as clean energy in central China [66] and social innovation in São Paulo [67], further illustrate innovation's multifaceted role in overcoming challenges and seizing opportunities.

The third is investment. Investment relates to allocating financial resources towards urban development projects, infrastructure, and economic activities. Studies on investment may analyze patterns of capital flows, investment strategies, and the impact of investment on urban growth, employment, and quality of life.

Investment themes in private cities connect to their challenges and opportunities. Deindustrialization in cities like High Point demands reinvestment for economic renewal [68]. Rapid urbanization in developing cities creates economic opportunities and challenges requiring strategic investments [48]. In cities like London and Copenhagen, private sector involvement in sustainable development faces policy gaps [64]. The revival of private-rental housing markets affects affordability based on investment management [69]. Balancing economic growth with social and environmental needs is essential.

The fourth is private city operator. This theme likely pertains to private entities or companies responsible for managing and operating private cities or urban developments. Research may explore the role, functions, and governance structures of private city operators and their interactions with public authorities and local communities.

Private city operators face challenges and opportunities linked to resource efficiency and sustainable urban living. The sharing economy impacts governance, requiring public-private partnerships to address power dynamics and ensure effective engagement [70]. In Rio de Janeiro, balancing profit with universal access to water and sanitation necessitates collaborative efforts [44]. In London and Copenhagen, private sector involvement in climate adaptation highlights the need for city leadership and collaborative frameworks [64]. In China, private healthcare faces challenges and opportunities for innovation and market vitality [71]. Private city operators must balance governance, policy, and market dynamics while driving innovation and sustainability.

The fifth is public-private partnerships. Public-private partnerships involve government entities and private sector actors collaborating to provide public services, infrastructure,

or urban development projects. Research within this theme may examine the effectiveness, challenges, and governance arrangements of PPPs in fostering urban development and service delivery.

Public-private partnerships are vital for tackling challenges in private cities, including resource management, health, and governance. Ensuring universal access to clean water and sanitation, as seen in Rio de Janeiro, often requires blending public efforts with market mechanisms [44]. The sharing economy introduces governance dilemmas addressed through collaborative governance [70].

The sixth is transaction cost. Transaction costs refer to the economic costs of conducting transactions or exchanges, including negotiation, contracting, and monitoring expenses. Research on transaction costs in the context of urban development may analyze their implications for investment decisions, property markets, and the efficiency of urban governance structures.

Transaction cost theory offers insights into challenges and opportunities in private cities, particularly in managing high transaction costs among stakeholders like residents, firms, and governments. Local governments face challenges in choosing efficient service delivery mechanisms to manage these costs [72]. However, private cities can leverage transaction cost considerations to enhance efficiency by selecting appropriate governance mechanisms and aligning them with local conditions [73]. New contractual alternatives to traditional foreign direct investment provide innovative ways to attract investment while managing risks [74]. Understanding transaction costs helps private cities improve stakeholder coordination, service delivery, and investment.

The seventh is urban growth. Urban growth refers to the expansion and densification of urban areas over time, driven by population growth, economic development, and migration. Research within this theme may analyze patterns, drivers, and consequences of urban growth, including issues related to land use, housing affordability, and environmental sustainability.

Urban growth themes are linked to multiple dimensions of private cities' challenges and opportunities. Rapid urbanization in developing countries brings economic opportunities and challenges like diseases and congestion, necessitating robust infrastructure [48]. Managing urban growth involves complex public-private networks [75], and the debate on slums highlights the need for effective planning and investment for sustainable growth [48]. Attracting skilled labor through appealing living conditions is crucial for economic vitality [76]. Innovative urban planning and infrastructure development are essential for harnessing urban growth potential.

The eighth is urbanization. Urbanization entails the process of population concentration and spatial expansion of urban areas, accompanied by socio-economic transformations. Studies on urbanization may examine its drivers, patterns, and impacts on society, economy, and the environment, as well as policy responses to urbanization challenges.

Urbanization presents a complex interplay of challenges and opportunities, particularly in developing private cities. The rapid and often chaotic urbanization in developing countries brings economic opportunities and significant challenges, such as contagious diseases and congestion, due to increased proximity and density [48]. This duality is mirrored in the health impacts of urban living, where the physical and social environments, along with access to health services, play crucial roles in shaping population health [77]. Private cities,

which often rely on Public-Private Partnerships (3Ps) for infrastructure development, face unique challenges in managing these urbanization effects [78]. However, these partnerships must navigate critical risk factors to ensure sustainable development.

And the ninth is constructional structure. This theme pertains to urban environments' physical and spatial structures, including built infrastructure, land use patterns, and urban form. Research within this theme may explore urban spaces' design, planning, and development, as well as their socio-economic implications and sustainability considerations.

The constructional structure of private cities is tied to their challenges and opportunities. High-density urban areas are economically efficient but face higher costs due to parking requirements, impacting land use and urban greenness [79]. Chaotic urbanization in developing countries offers economic benefits but also issues like disease spread and congestion [48]. The structure of cities influences disease spread, with hierarchical cities being more responsive to mobility restrictions than sprawled cities [24]. The green agenda poses challenges and opportunities, with firms committed to sustainability but needing clear government support for green ventures [80]. Low-density, car-dependent cities like Oran Park in Sydney highlight the difficulty of reducing car dependency and promoting alternative transport [16]. Thus, private cities must balance economic efficiency, sustainability, public health, and mobility to create resilient and livable environments.

So, the themes within Cluster 2 underscore the complex interplay between economic dynamics, governance arrangements, and spatial transformations in urban development, particularly emphasizing innovation-driven growth, investment strategies, and public-private collaboration in emerging urban contexts such as new industry cities.

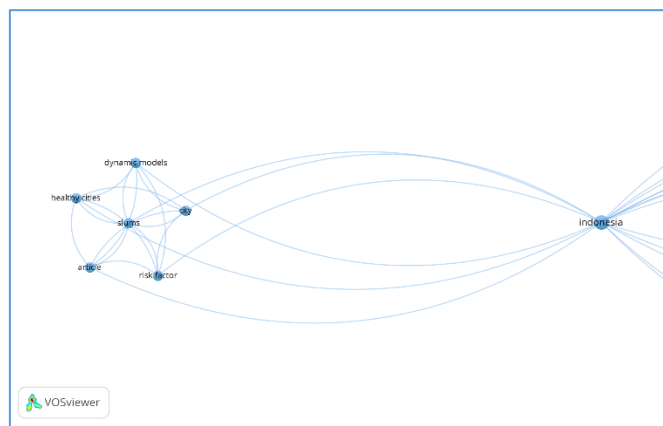


Figure 8. Cluster 3 - Network visualization

Cluster 3, as depicted in Figure 8, encompasses themes central to understanding urban dynamics, public health challenges, and risk factors in Indonesian cities. Here's a detailed analysis of each theme: The first is Indonesia. The theme of Indonesia suggests a focus on urban studies specific to the Indonesian context. Research within this theme may examine various aspects of urbanization, governance, socio-economic dynamics, and environmental challenges unique to Indonesian cities.

The second is dynamic models. Dynamic models refer to analytical frameworks or computational simulations used to

understand and predict changes in complex systems over time. Research within this theme may involve developing and applying dynamic models to study urban dynamics, including population growth, land use change, and socio-economic trends in Indonesian cities.

The third is healthy cities. The concept of healthy cities emphasizes the promotion of health and well-being through urban planning, design, and governance. Research within this theme may explore initiatives, policies, and interventions to create healthier urban environments in Indonesia, addressing issues such as air quality, access to healthcare, and urban green spaces.

Healthy city initiatives are intrinsically linked to the challenges and opportunities private cities present, particularly in urban development and sustainability. The primary challenge lies in integrating health considerations into urban planning, which is often dominated by private-sector interests focused on profit rather than public health outcomes. For instance, the UK's urban development industry recognizes the health challenges posed by poor-quality urban environments but struggles to factor health adequately into planning processes, highlighting the need for non-market economic valuation to improve decision-making [81]. Healthy Cities programs emphasize the need for coordinated action between city authorities, citizen groups, NGOs, and private enterprises to effectively improve urban health, reflecting the necessity of multi-sectoral collaboration to overcome the limitations of private city models [82]. These initiatives demonstrate that while private cities present significant challenges in prioritizing health, they also offer opportunities for innovative governance models and integrated approaches that can lead to healthier urban environments.

The fourth is slums. Slums represent areas characterized by substandard housing, inadequate infrastructure, and poor living conditions, typically inhabited by marginalized populations. Research on slums in the Indonesian context may examine their prevalence, spatial distribution, socio-economic characteristics, and implications for urban development and poverty alleviation efforts.

Slums are intrinsically linked to the key challenges and opportunities of private cities, reflecting broader issues of urbanization, poverty, and infrastructure. The rapid growth of slum populations, driven by factors such as war, adverse weather, and the pursuit of economic opportunities, underscores the inadequacies in urban planning and resource allocation in many cities, particularly in less economically developed countries [83]. The existence of slums manifests poverty and mismanaged urban planning, highlighting the need for better urban management and innovative solutions to accommodate the influx of new residents [84]. Slums present significant challenges, including lacking essential services like water, sanitation, and safe housing, which are critical for sustainable development [85]. Thus, the relationship between slums and private cities is complex, involving significant infrastructure and service provision challenges, opportunities for innovative solutions, and improved urban planning to enhance the quality of life for slum dwellers.

The fifth is a city. The “city” theme encompasses a broad range of urban-related topics, including urban morphology, governance structures, socio-economic dynamics, and cultural identities. Research within this theme may explore the multifaceted nature of Indonesian cities and address issues such as urban growth, inequality, and sustainability.

The sixth is the risk factor. Risk factors refer to variables or conditions that increase the likelihood of adverse outcomes or negative events within urban contexts. Research on risk factors in Indonesian cities may investigate various dimensions of urban risk, including natural hazards, environmental pollution, social vulnerability, and public health risks.

So, the themes within Cluster 3 highlight the complexities and challenges inherent in Indonesian urban environments, including issues related to health, socio-economic disparities, and urban informality. By addressing these themes, researchers can contribute to developing evidence-based policies and interventions to foster sustainable and inclusive urban development in Indonesia.

5. CONCLUSIONS

Analyzing “private city” publications offers valuable insights into the evolving research landscape in this domain. The analysis of publications using the keyword “private city” in the Scopus database revealed a sustained interest in the topic, with 59 publications spanning from around 1985 to 2023. While showing fluctuations, the publication trend exhibited an overall increase from 2012 to 2023, indicating a growing significance and relevance of private cities in recent years.

These publications are predominantly journal articles (66.1%), with book chapters, conference papers, and books also contributing to the discourse. The distribution across various formats highlights researchers’ diverse approaches to communicating their findings, catering to different audiences and scholarly preferences.

Regarding subject areas, publications on private cities span various disciplines, including Social Sciences, Environmental Science, Business, Management, and Accounting. This interdisciplinary interest underscores the multifaceted nature of private urban development and the need for insights from various academic perspectives.

On a global scale, research on private cities emanates from diverse geographical locations, with the United States, United Kingdom, and Germany leading in research output. However, countries like India, Brazil, Indonesia, and China also make significant contributions, reflecting the global relevance of the topic and opportunities for international collaboration.

The analysis of publications on “private city” offers valuable insights into the evolving discourse surrounding alternative urban development and governance models. The increasing interest in private cities, as evidenced by the publication trends, underscores their growing significance in contemporary discussions on urbanization and development.

The interdisciplinary nature of research on private cities and contributions from diverse geographical locations and academic institutions highlight this topic’s complexity and global relevance. Collaborative efforts among researchers from different backgrounds and regions can lead to a more comprehensive understanding of private urban development and inform policies and practices in urban planning and governance.

This study has several limitations. Firstly, the analysis is based solely on publications indexed in the Scopus database, which may exclude relevant research from other databases and literature. Secondly, the keyword “private city” may not capture all applicable publications, as different terminologies or related concepts might be used in the literature. Thirdly, the

study focuses on quantitative analysis of publication trends and distributions, needing a deeper qualitative analysis of the content and themes of the publications. Additionally, the time frame of the study, extending from 1985 to 2023, might need to fully reflect the latest developments and emerging trends in the field. Finally, the geographical analysis is limited to the authors’ affiliations, which may not accurately represent the actual geographical focus of the research.

Future research should address these limitations by expanding the scope of the literature review to include multiple databases and literature, ensuring a more comprehensive understanding of the research landscape. Employing a broader range of keywords and related concepts will help capture a wider array of relevant publications. In-depth qualitative analyses of the themes, methodologies, and findings of the publications will provide richer insights into the discourse on private cities. Additionally, future studies should focus on the latest developments and emerging trends to keep pace with the rapidly evolving field. Comparative studies across different geographical regions and contexts will enhance the understanding of the global relevance and applicability of private city models. However, it is the fostering of interdisciplinary and international collaborations among researchers that will be crucial in developing more comprehensive and nuanced perspectives on private urban development and governance models.

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