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Tracking back and moving forward
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Published in:
Journal of Urban Management

Published: 01/12/2023

Document Version:
Final Published version, also known as Publisher's PDF, Publisher's Final version or Version of Record

License:
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Publication record in CityU Scholars:
Go to record

Published version (DOI):
10.1016/j.jum.2023.09.003

Publication details:

Citing this paper
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Research Article

Topic evolution in urban studies: Tracking back and moving forward

Hao Han, Chen Shen *, Kaiqin Li **, Alfred Tat-Kei Ho

Department of Public and International Affairs, City University of Hong Kong, Hong Kong

Abstract

This study is a bibliometric analysis of urban studies publications from 2001 to 2021 that unravels the evolution and growing complexity of the field. Although developed regions still dominate and lead this area of inquiry, urban studies led by Asian scholars have increased dramatically over the last decade. There is also topic diffusion from developed regions to less-developed regions despite some unique emphases within each region caused by their local socio-economic-ecological contexts. Climate change adaptation and sustainable development, inequality, and urban governance are receiving growing attention globally. The findings suggest the rising importance of cross-continent knowledge transfer and multi-disciplinary collaboration, particularly among urban studies, sustainability policies and management, public administration, and development studies. Also, urban researchers need to pay more attention to issues faced by many growing cities in developing economies in Asia and Africa as more of the world's population will reside in those urban settings in the coming decades.

1. Introduction

From the “polis” of ancient Greece to the modern metropolis, cities are spatial entities in human civilization that not only provide sheltering habitats, but also foster social-economical, cultural, and technological development. Over time, the spatial scale and the complexity that is embedded within the larger social-economic, ecological, and physical environments have grown (Ramaswami et al., 2012). By 2050, about 68 percent of the world’s population will live in cities (UN, 2015). Along with this trend, many challenges, such as human development, rising inequality, sustainability, and the desire to have peaceful and stable socio-economic and political development, have become daunting tasks for urban planners and policymakers.

Given these trends, it is important to review how the discipline of urban studies has been grappling with an increasing array of social, economic, technical, institutional, and environmental problems, and to reflect on what should be done differently in the future. Urbanization is the rising trend in many parts of the world outside the American and European contexts. Yet, comparative analyses of the issues studied by researchers on different continents are sparse. Since many past studies often rely on selective samples and case studies, there is limited understanding of the global blueprint of urban development (Acuto & Parnell, 2016).

Using more than 20,000 articles from the top urban studies journals published during the 2001–2021 period, this study systematically reviews the key topic trends. The following questions are also explored: a) Since urban development is connected to its social,
economic, cultural, and geographical contexts, are topics pursued by researchers in different continents and development stages significantly different? b) Given that urban studies have long been dominated by American and European scholars, and many urban scholars in non-western regions were trained in American and European institutions, do urban studies show a trend of isomorphic change from the west to non-western countries, and is there a global diffusion trend in research topics over time? c) Given the fact that many urban problems are not just physical infrastructural issues but also social, cultural, and governance concerns, how has the mix of technical and “soft” topics evolved over time, and are there significant differences between continents? d) What are the emerging topics of urban studies in recent years, and are there new possibilities for urban researchers to lead and foster more multi-disciplinary dialogues and collaboration so that urban studies can gain more attention in other fields of study?

2. Data and methods

2.1. Data acquisition

To provide a comprehensive picture of the topic trends in urban studies worldwide, journals in the first and second quartiles in the 2020 Journal of Citation Reports (JCR) and the Scimago Journal & Country Ranking (SJR) and three high-ranking journals (Nature Sustainability, Environment and Planning D-Society & Space, and Land Use Policy) were selected (see Table 1). Articles from these journals published from 2001 to 2021 were used in the analysis. We pulled the detailed article information such as authorship, key words, and abstracts from the SCOPUS database considering its comprehensiveness and superiority in journal coverage over other databases (i.e., PubMed and Web of Science). Non-article documents (e.g., editorial, notes, erratum, etc.), unpublished articles, and non-English articles (9 out of 32,727) were excluded. At the end, 29, 511 articles from the top 20 leading journals were included.

In the following analysis, we analyze the topics scholars in different continents or regions were most interested in and how their interests shifted over time. To do so, we used the geographical locations of authors’ institutional affiliations to label the country and continental affiliations of each article. Despite its limitations, this method is appropriate because institutional location is associated not only with the socio-economic and cultural contexts faced by an author, but also with the ideological tradition, policy priorities, and social emphases of an area to which an author belongs. All these may shape an author's interests in urban research. We also acknowledge the limitation that only English articles from the 20 top journals were included. In many countries, urban research written in non-English languages should be analyzed carefully. This issue and other methodological recommendations for future studies are discussed in the conclusion.

2.2. Bibliometric analysis

The bibliometric analysis employs basic to advanced statistical and mathematical techniques to systematically review and evaluate publications’ scientific impacts and contributions (Utkarsh & Sigala, 2021). Bibliometric analysis and data visualization were enabled in this review via the “Bibliometrix” package in R software (Ciani et al., 2022). The thematic evolution of urban studies worldwide and the topic trend of each region were analyzed to capture the overall thematic trend through an unsupervised machine learning technique. Bibliographic coupling based on the Local Citation Score was used to identify the most cited, therefore influential, papers in each region. The Local Citation Score was based on the Normalized Citation Impact (NCI), which can measure the quotient or impact of an observed citation rate (Bornmann & Marx, 2015). The quotients of observed citation rates must be calculated separately for each edition year as

<table>
<thead>
<tr>
<th>Journal Name</th>
<th>JIF_ Quartile</th>
<th>SJR_ Quartile</th>
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<th>5 Year JIF</th>
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<td>3.299</td>
</tr>
</tbody>
</table>

Table 1
Journal list and corresponding ranking.
there are differences in citation rates across time periods (Bornmann, 2019). Functions are as follows:

$$RCR_{i,t} = \frac{c_{i,t}}{p_{i,t}}$$  \hspace{1cm} (1)

$$NCI_i = \frac{\sum_j \sum_t p_{i,t} RCR_{i,t}}{\sum_j \sum_t p_{i,t}}$$  \hspace{1cm} (2)

Where $RCR$ refers to the Relative Citation Rate (also known as the quotient), $c$ refers to the number of citations, $p$ refers to the number of papers, $i$ refers to the data limited to the papers, $f$ refers to the data for a particular field, and $t$ refers to the data for a particular year.

3. Results

In this part, we distinguish all articles into the global south and global north based on the geographical location of authors’ affiliations. The classification basically follows the geographical division of different continents all over the world. However, in identifying topics of different continents, we find significant differences in research topics among Asia, with China, North Asia (including Hong Kong, Singapore, South Korea, and Japan), and South Asia (the rest of the countries) all presenting different foci. When viewing Asia as a whole, it is difficult to identify the internal research diversity of the continent. On the other hand, based on our initial classification of the global south and north, Asia includes both types of countries, and it is unreasonable to roughly view it as global south or north. Therefore, we divide Asia into South Asia, China, and North Asia, with South Asia and China belonging to the global south and North Asia in the global north. Details of our classification of countries in each region are shown in Appendix.

3.1. Global trend on publication and themes

Over twenty years, the publication volume of urban studies is leading by the Europe and followed closely by North America. The field bloomed in around year 2010, where Asian researcher started to publish vigorously and overtake North America at around 2020 (see Fig. 1).

The global thematic focus of urban studies had some significant changes. Before 2010, the field was primarily motivated by the urbanization and urban-sprawling process and related topics like urban planning, and housing issues (see Fig. 2). However, in around 2010, topics related to urban reorganization and management started to become more popular, including gentrification, and urban education. From 2016 to 2020, the topics were dominated by urban reorganization and management issues, and topics like smart city, land use and planning became the major themes. Traditional topics such as housing and urbanization were no longer highly featured.

Fig. 1. Publication volume of urban studies by regions.
3.2. Global south

3.2.1. South Asia

South Asian results presented a shift from “hard, physical issues” (e.g., land use and housing) to “soft, societal issues” (e.g., urban planning and governance, sustainable development, and climate-related research) (Fig. 3).

Over the past five years, Asian urban research themes have been primarily aggregated into three trends. Firstly, traditional research topics, including land use and urban planning, continuously presents its prominence, especially in combination with environmental and ecological conservation in these countries. Conflicts and solutions regarding the conjunction of urbanization, economic development, and environmental and social changes are continuously gaining attention (Fan et al., 2019; Hamza et al., 2021; Sahide et al., 2018). Secondly, the results presented a proliferating volume of papers regarding sustainable development, climate change, and related mitigation measures. The benefits and governance of urban forestry, urban green space, and ecosystem services for increasing public health and equity have been widely researched lately (Akpinar, 2017; Sugiyama et al., 2018). Thirdly, changes in urban forms associated with urbanization and economic development have gained greater attention (Mishra & Mishra, 2017; Narain & Singh, 2019). For example, studies in South Asia paid great attention to urban regeneration and informal settlements and related civic participation linked with urban growth (Mizakhani et al., 2021; Ökten et al., 2021).

3.2.2. China

China has experienced revolutionary urbanization, which has profoundly altered society’s socio-economic structure and urban-rural landscapes and made urban research prosperous since 2010. The topics evolved from urbanization and urban dynamics to sustainable...
development and social wellbeing (Fig. 4).

In the past five years, most urban research in mainland China came from scholars in developed coastal areas, and studies often focused on urban planning, housing, land use, and urbanization (Bao et al., 2019; Chen et al., 2017; Liu & Yang, 2018) as well as urban and rural sustainability, where urban greenspace (UGS) has played an important role. These studies usually analyzed the socio-economic impacts of UGS (Liu et al., 2020; Wu et al., 2017) or assessed its accessibility (Ye et al., 2019). Secondly, social and political issues have also received more attention in recent years, such as socio-economic (Bao et al., 2019) or political (Chen et al., 2017) reasons behind changes in the land use policy. For example, some studies examined the impacts of urbanization on farmlands protection (Cheng et al., 2017), citizens’ mental health (Liu et al., 2017), and related migrant problems (Tong et al., 2020). Thirdly, Chinese scholars gradually emphasized sustainable development issues with a particular focus on the land-use and associated policies that affect sustainable rural development, such as the necessity of urban-rural consolidated development (Liu, 2018) or rural revitalization (Liu and Yang (2018) and related social, economic, and ecological benefits of land planning; Zhou and Liu (2020). Rural sustainability and sustainable agriculture have also become more popular. For example, Zang et al. (2020) discussed the pathway toward rural sustainability via policy reform and others examined economic, institutional, and technological practices that are important to agricultural development and rural stability (Su et al., 2020; Wang et al., 2019).

3.2.3. Latin America and the Caribbean region

In top urban journals, there were only limited papers from Latin America and the Caribbean region, especially before 2013. Among these studies, the focus was on urban ecology, sustainable ecosystems, and urban expansion (Fig. 5).

UGS has also received some attention, with a particular focus on biodiversity, the richness of migrant species, urban sprawl, and deforestation (Leveau, 2021; Soares et al., 2021) and potential solutions (Amaya-Espinell et al., 2019; Vitorino et al., 2021) such as eco-friendly spatial designs (Alves et al., 2021; Baldassini et al., 2020; Barbosa et al., 2021; de Mello et al., 2021; Polizel et al., 2021). However, research on deforestation concerns and ecosystem conservation is still needed. Relative to other regions, Latin American and Caribbean scholars paid more attention to land use governance concerns, agricultural policies, and rural-to-urban transformation from unsustainable farming in the area (Morais et al., 2018) or family farm succession (Barbosa et al., 2020; Vasco et al., 2021; Moraes-Santos et al., 2021). Lastly, due to fast-growing cities and unevenly distributed socio-economic, researchers gradually look into informal settlements, inequality issues, and pathways to addressing them (Martins et al., 2021; Segura, 2021). Also, solutions have been discussed to reduce unequal accessibilities to public space, jobs, and public services (Bittencourt & Giannotti, 2021; Hurtubia et al., 2021).

3.2.4. Africa

Two themes have been most prominent (Fig. 6) among African studies, including urban inequality and governance, and those related to urban green infrastructure and ecosystems. UGS is often privately owned and managed in Africa, which easily gave rise to spatial inequity concerns (Shackleton et al., 2018) and studies on urban governance and collaborative management among different sectors, private stakeholders, and citizens (Mintah et al., 2021; Wessels et al., 2021). Additionally, the hazardous accumulation of informal settlements, shortage of urban planning, ineffective land-use management, and low public awareness that contributed to giant slums have also caught the attention of African urbanists (Isiani et al., 2021). Studies have explored potential solutions to building sustainable cities, improving life wellbeing, and reducing inequality from the instruments of plan implementation (Halligey, 2021). Other studies

Fig. 4. Trend topics in China.
suggested the significance of financial support policies, ethical policymaking, public participation, effective legislation, and policy implementation (Pernegger, 2021; van Greunen, 2021).

3.3. Global north

3.3.1. North Asia

Housing issues such as quality, policy, and price have long been a hot topic in North Asia. Furthermore, North Asian scholars focused on land use changes associated with urbanization from urban landscape to urban regeneration. In recent years, sustainable development related to environmental quality, social justice, and human well-being has gained more attention (Fig. 7).

Due to the common problem of expensive housing in North Asia, including Hong Kong, Singapore, Japan, and South Korea, scholars usually care about policies aiming at providing low-cost and affordable housing such as public housing (Chiang et al., 2006; Ha, 2002; Sim et al., 2003). Scholars have always been exploring better policy designs to better accommodate public needs (Yau, 2012). Recently, accessibility issues, environmental quality, human well-being, and justice related to housing quality have gradually attracted attention (Hu et al., 2020; Lee et al., 2019; Won & Lee, 2020; Xu et al., 2019). In addition, land use changes resulting from urbanization have also aroused discussion. Studies have shifted from traditional urban landscape design to more green ones, such as biodiversity, urban...
greenspace, and greenway (Honjo & Lim, 2001; Jim & Chan, 2016; Masoudi & Tan, 2019; Natsukawa et al., 2020).

3.3.2. Europe

European scholars were more interested in urban governance, institutions, and sustainability. There were more discussions about urban societal issues and socio-economic transformation. At the same time, topics including green space and ecosystem services have received continuous attention (Fig. 8).

European urban researchers tended to focus more on technological innovations and novel approaches to improving urban governance and sustainability (Swyngedouw, 2005). For example, smart city strategy and planning have become more popular (Högström et al., 2018; Neirotti et al., 2014; Raven et al., 2019). Some also examined the accessibilities of urban green infrastructure, the impacts of urban green infrastructure in tackling climate change, and the contributions to social-economic development and community well-being (Carrus et al., 2015; Chiesura, 2004; de Groot, 2006; Zwierzchowska et al., 2019). Given the national complexity and regional differences in Europe, spatial planning and municipal and cross-country governance were also popular among European urban researchers. For example, Lucarelli and Heldt Cassel (2020) highlighted regionalization's dialogical relationship with regional strategic policy and
pointed out its spatial and political evolutionary features.

Moreover, relative to other continents and regions, cross-country comparative studies were more common among European scholars. For example, Granqvist et al. (2019) and Antrop (2004) analyzed the widely applied normative concept of polycentricity and emphasized persuasive performativity and fluidity as spatial imagery in multi-scalar planning settings. Hermoso et al. (2020) investigated how spatial planning tools could be used for designing a network of green infrastructure across the EU. Varró and Faragó (2016) discussed how spatial policy change is inherently interlinked with the political contestation of nation-state spaces and proposed combining insights from political-economic work on state spatial restructuring and discourse theory.

3.3.3. North America

Similar to Europe, urban researchers in North America tended to focus more on socioeconomic concerns and inequality (Fig. 9). In addition, sustainability issues have become more prevalent in recent years. Relative to other regions, urban scholars in North America tended to pay more attention to issues related to the indigenous community, such as their rights to and ecological conservation concerns about indigenous land (Blackmore et al., 2021; Garnett et al., 2018).

Moreover, research on race and inequality has gained more attention among North American scholars. This line of research clustered around two major issues. One focused on equal access to public space and green space (Heckert & Kondo, 2017). The second cluster examined inequity issues in urban settings, such as gentrification, urban renewal, and urban consumption inequality among economic classes (Kharas, 2010). Neighborhood revitalization, urban education concerns, and group conflicts were also important (Ehrenfeucht and Nelson (2020); Pearman, 2019). For example, Rigolon and Nemeth (2018) revealed that disadvantaged neighborhoods with older housing stock, more renters, lower incomes, lower rents relative to home prices, and higher populations of minority ethnicities were more vulnerable to inner-suburban redevelopment.

3.3.4. Oceania

Oceania’s urban researchers emphasized land use and landscape planning, housing, conservation, and management of natural resources. Also, like other developed regions, topics related to sustainability, especially in the context of the global South and climate change, have increased in importance in recent years (Fig. 10).

Due to locational factors and the geographical features of the region, urban scholars in Oceania were also very interested in coastal urbanization and its socio-ecological impacts on marine habitats and shallow-water ecosystems (Floerl et al., 2021). For example, Bell et al. (2021) discussed the pathways to sustain tuna-dependent Pacific Island economies. Maseyk et al. (2017) argued that riparian margin plantings are important ecological infrastructure investments, extending beyond the mitigation of a single negative externality generated by land-use practices and contributing to a multi-functional landscape. Meanwhile, sustainability and UGS issues were widely discussed in Oceania. For example, Ghosh (2021) used land utilization scenario modeling to demonstrate the importance of urban agriculture in home gardens, food security, and public health. Maes et al. (2021) discussed the potential benefits of ecosystem services in
cognitive development and reducing the risk of emotional and behavioral problems for adolescents.

Housing issues, such as gentrification, affordability concerns, and homeownership, were also popular in Oceania (Greenaway-McGrevy et al., 2020). With changes in the housing market and ongoing urban contention, the processes by which disproportionately high levels of household investor purchases occur in disadvantaged suburbs are becoming increasingly common (Hulse & Reynolds, 2018). In addition, research on renters' lifestyle choices and physical and mental health regarding the prospect of long-term renting is becoming a hot topic. For example, Pawson et al. (2017) suggested that renting in a “desirable” area may be preferred over owning elsewhere in Australia's major cities. Raynor and Fanza (2021) suggested that young casual workers and immigrants are more likely to be negatively impacted by COVID-19.

4. Discussion

4.1. Topic expansion and current focuses

One question in this study is to see whether urban research has been gradually broadened to cover topics beyond technical planning and infrastructural concerns. Our findings confirm this trend, as summarized in Table 2. The themes extended beyond the physical- and infrastructure-centered research to incorporate more governance- and equity-based disciplines into the traditional themes. For example, housing and urban planning have been traditional urban research topics for decades, but more recent coverage of these topics includes more gentrification and governance concerns (Greenaway-McGrevy et al., 2020; Raynor et al., 2017; Wetzstein, 2017). Others also pay more attention to social inequality, racial discrimination, and community well-being (Halligey, 2021; Walter et al., 2017). Similarly, many land use studies, another traditional urban research topic that can be highly technical, have begun to cover many governance concerns, such as participation, inequality, and gentrification issues.

In addition, sustainability issues have been underscored by urban studies worldwide given the rising awareness of the increasing risks and uncertainties associated with climate change, environmental degradation, and global instabilities (Mahdiyar et al., 2021; Chen et al., 2019). For the past five years, researchers worldwide have also expanded the coverage of sustainability issues beyond environmental concerns to include many governance and social concerns, including socio-economic benefits, community well-being, technological innovations, public accessibility, and food security (Mintah et al., 2021; Monzon et al., 2021; Shackleton et al., 2018). Also, the research on the ecosystem, biodiversity, and environmental conservation emphasized socio-economic benefits, holistic community well-being, and governance design and best practices such as the use of multi-sectoral and multi-jurisdictional coordination (Gwedla & Shackleton, 2019; Wessels et al., 2021).

The bloom of society and governance issues could be attributed to the urgent need for inter-disciplinary research for solving the increasingly complex problems. Fig. 2 shows that “urban development” and “urban planning” have undergone a systematic shift, wherein the foci extended beyond pure modeling, architecture, and technical skills. Holistic thinking and interdisciplinary dialogue are now more common in addressing the complex challenges embedded in the urban social, economic, cultural, political, and ecological systems. For example, more urban scholars are incorporating ecological concerns into urban design and development as the surrounding ecosystem can provide critical services for anthropogenic development (Costanza et al., 2014). Researchers, especially those in Latin America and the Caribbean region, are advocating that higher urban biodiversity is beneficial and are eager to raise “local” urban species diversity (Beninde et al., 2015; Botzat et al., 2016). There is also more interest in taking other non-human taxa into consideration in urban policy and management. All of these show that interdisciplinary dialogues are more important in urban research, and that knowledge sharing and collaborative work among physical scientists, policy analysts, data scientists, architects, and engineers is a trend.
In summary, our findings show that the progress of urban research over the past two decades has much to celebrate. It has not only soared in volume but also shown more intellectual breadth and depth. This surge is especially clear among Asian urban scholars, who are now claiming an increasing share of publications in top urban journals. Moreover, although understanding emerging research hotspots in urban studies allows for in-depth exploration of the challenges, opportunities, and innovative solutions in urban development, it is important to incorporate previous theoretical and foundational research to provide a solid foundation for current and future urban studies. For example, understanding previous urban planning research helps to grasp the development context and core concepts of urban planning (Allmendinger, 1997, 1998; Allmendinger & Tewdwr-Jones, 1997); understanding previous urban education research can better describe the historical context of urban education development, from which lessons can be learned to improve existing urban education policies and practices (Friedmann, 1995, 1996). Whether in the field of urban planning, urban education, or other urban research domains, previous theories and foundational research provide valuable knowledge and experience. Therefore, while studying the emerging research hotspots, it is necessary to engage in dialogue and integration with classical research to promote the further development of urban study.

4.2. Cross-region comparison and global south

One of the motivating factors for this study is the need to analyze how urban researchers balance differentiated local focus and global isomorphic pressure in the field. Because local socio-economic contexts and physical landscape matter to urban development, it is not surprising to find that urban scholars from different regions have their unique local emphases. For example, urban researchers in Europe and North America tend to focus more on societal inequalities, race, urban transformation, and sustainability concerns because urbanization in these regions has largely been completed, and urban challenges are more about complex socio-economic and governance issues. On the other hand, for less developed regions like China, South America, and Africa, urban researchers still largely focus on urban dynamics, such as urbanization, urban-rural coordination, and land-use issues.

At the same time, there is a subtle hint of global isomorphic changes in the field. For example, research themes related to sustainability, UGS, and climate change were initially concentrated in North America, Europe, Northern Asia, and Oceania. Later, these topics were widely adopted in China, South Asia, South America, and Africa due to cross-continental collaboration and increasingly similar regional challenges. However, differences can be seen within the same topic due to the regional differences and various takes on addressing urban problems and sustainability issues. Table 2 presented the comparison of the primary motivation of urban studies by...
region. The northern regions hold clear differences compared to the southern regions. Issues related to governance, equity, regeneration, and technological advancements dominate the North. In contrast, southern regions focused more on landuse, urban planning, housing, and ecological issues. The reason might be, unlike the northern regions, southern regions are still undergoing urbanization and rapid urban sprawling processes. Such processes might lead to inappropriate planning and cause tension between cities and surrounding ecosystems, which motivates researchers to investigate accordingly. Compared to the South, the northern regions have essentially completed the urbanization and uncontrolled urban sprawling, which might help to shift the research focus more to the regeneration and equity issues within the urban environment, and advancing urban management.

Other than the development-related research differences between the northern and southern regions, differences can be seen within each region due to the regional social-ecological varieties. For example, Chinese urban studies hold great interest in coastal urban planning given the majority of Chinese cities are located in coastal regions. South Asia, threatened by climate change, limited land, and lower altitudes, is focusing more on climate change and ecosystem services to achieve sustainability. Latin America and the Caribbean regions emphasize biodiversity and ecological conservation due to the enormous forestry coverage. African urban studies are largely motivated by the less-developed social-economic status, therefore, investigate heavily informal settlements and urban poor. Other than the development-related research differences between the northern and southern regions, differences can be seen within each region due to the regional social-ecological varieties. For example, Chinese urban studies hold great interest in coastal urban planning given the majority of Chinese cities are located in coastal regions. South Asia, threatened by climate change, limited land, and lower altitudes, is focusing more on climate change and ecosystem services to achieve sustainability. Latin America and the Caribbean regions emphasize biodiversity and ecological conservation due to the enormous forestry coverage. African urban studies are largely motivated by the less-developed social-economic status, therefore, investigate heavily informal settlements and urban poor.

The northern regions, however, present a somewhat thematic convergence, except for some minor differences. The major themes converge on issues regarding urban regeneration and equity, technological advancements, and advancing urban management. Topics like smart city, justice, and urban green space received great attention. The minor differences lie in Oceania countries which looked at coastal ecological conservation and indigenous communities given the colonial history and long-term interactions with the ocean (Table 2).

Similarly, the field seems to have paid insufficient attention to the urban struggles in the South and less developed economies. The fast-growing urban populations and uncontrolled urbanization in southern cities, many of which are megacities, often result in unsustainable urban expansion. Unstopable urbanization without accompanying economic growth, social welfare systems, and industrialization can lead to increasing urban poverty, bastardized urban planning, slums, and inequities (Gollin et al., 2016). Yet, the current research trajectories and theories are still popularized and dominated by northern cities, which are usually small and medium-sized cities by global standards (Nagendra et al., 2018). A northern-focused urban knowledge base may not be applicable to southern cities given their vastly different social, economic, cultural, and political contexts.

Still, when one analyzes the aggregate volume of publications in top urban journals, most studies are still based on cities located in Northern regions. Comparative studies between the global North and South that take the significant differences of contexts into consideration are seldom found (Dados & Connell, 2012). Given that the urban population in Southern regions already exceeded those in the northern regions in the 1970s, and ninety percent of the projected world population growth over the next couple of decades will occur in African and Asian cities (UN, 2015), top urban journals should consider giving more coverage to the urban policies, management, and governance concerns in these rising regions.

4.3. Urban-rural agglomeration

The field may also benefit from focusing more on the urban-regional relationships and urban-rural transformation in the South. Cities and rural areas in the North typically have distinctive functions, and the urban-rural gap is often less severe (Henderson, 2010). However, in southern regions, the city-rural boundaries are often blurry due to the accelerating urban expansion. Being the socio-economic, political, and cultural focal points for their regions, southern cities are likely to draw massive populations and resources from the surrounding areas. Therefore, the “urban problem” in the South is never isolated to cities but related to the integrated urban-region nexus. Southern megacities often have to face significantly more complex, multiple-level challenges, such as over-concentration of urban population and capital, increasing urban informal settlements, chronic poverty, environmental degradation, farmland depletion, and inefficient land use. These challenges threaten urban and regional sustainability, food security, and ecological conservation (Liu & Yang, 2018). Hence, research about large cities in the south cannot ignore the complex urban-rural relationship that is very different from that in cities in more developed economies, and such neglect may suffocate a region’s sustainable development (Monzon et al., 2021; Oldekop et al., 2019). The unprecedented rapid pace of urbanization in China is a good example, which has led to rural recession, depletion of arable lands, and “hollowing villages” (Liu et al., 2018). The problems of imbalanced development between urban and rural areas in China show that urban studies in less developed economies need to integrate cities, peri-urban areas, rural areas, and the natural environment as a holistic complex system. Isolated city-oriented research may lead to a biased and incomplete understanding of the urban issues faced by cities in the South.

4.4. Future research

Future research should be paid to urban development issues in less developed economies. Much can be learned from the innovative practices and reforms of cities in the South, especially in areas such as sustainability policy and management (Nagendra et al., 2018). Also, in the era of big data, more efforts and investment are needed to collect data and detailed information on human interactions and
geographical processes in cities located in less developed regions so that researchers can do more interesting empirical research about the urban dynamics and governance of those regions (McDonald et al., 2014; Ramaswami et al., 2012). In other disciplines, such as public administration, there is already louder advocacy for decolonization in academic research and the need for more context-sensitive policy studies (McDonald et al., 2022). We see a similar need in urban research, requiring more caution in generalizing north-based urban knowledge onto cities that have very different socio-economic and governance contexts.

5. Conclusion and limitations

This research provides a holistic synthesis of the topics published in the leading urban journals from 2001 to 2021. We show the evolving themes of the field over time, the unique focus areas of different geographic regions, the convergence of global topics as well as highlight the rising importance of interdisciplinary collaboration and integration of urban science with social and governance thinking. Our findings confirm that urban studies have extended beyond the traditional urbanization-centered research and northern-based knowledge systems. Therefore, we call for more future urban research to focus on less developed regions and more comprehensive coverage of urban policy and management challenges in the world, given the fast-growing population and the surge of megacities in Asia, Africa, and Latin America.

This study has the following identified limitations. First, we only used journal articles written in English and published in top urban journals. Many urban topics discussed by non-English journals, especially the huge volume of urban studies published in Chinese, Spanish, and French, were not included. Hence, this review only provides a snapshot of urban research trends, and more comprehensive international analysis is needed. Finally, even though we have pointed out the rising importance of inter-disciplinary work in urban studies, our analysis is drawn only from the top urban journals, not from multiple disciplines. It is interesting and perhaps important for researchers to examine how other fields, such as public administration, policy analysis, and science and engineering analyze urban development and challenges. Urban researchers can help identify areas of common interest and complementary strengths so that more interdisciplinary and multi-sectoral solutions can be developed to address urban problems and sustainability concerns.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix

table 1 Journal list and corresponding ranking

<table>
<thead>
<tr>
<th>Region</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global South</td>
<td>South Asia: India, Iran, Turkey, Malaysia, Indonesia, Pakistan, Thailand, Bangladesh, Nepal, Vietnam, Saudi Arabia, United Arab Emirates, Lebanon, Macao, Jordan, Sri Lanka, Palestine, Qatar, Oman, Myanmar, Brunei Darussalam, Laos, Bhutan, Yemen, Afghanistan, Iraq, Kuwait, Bahrain, Azerbaijan, Uzbekistan, Kazakhstan, Armenia, Kyrgyzstan, Mongolia, Philippines, Cambodia</td>
</tr>
<tr>
<td>China</td>
<td>Brazil, Argentina, Chile, Colombia, Ecuador, Peru, Uruguay, Bolivia, Paraguay, Venezuela, Suriname, Guyana, Cuba, Jamaica, Dominican Republic, Puerto Rico, Haiti, Guadeloupe, Barbados, Aruba</td>
</tr>
<tr>
<td>Latin America and the Caribbean region</td>
<td>South Africa, Ghana, Kenya, Ethiopia, Nigeria, Tanzania, Egypt, Morocco, Zimbabwe, Zambia, Burkina Faso, Botswana, Rwanda, Sudan, Cameroun, Benin, Senegal, Congo, Niger, Mali, Sierra Leone, Mozambique, Cote d'Ivoire, Algeria, Madagascar, Democratic Republic Congo, Mauritius, Libyan Arab Jamahiriya, Lesotho, Cape Verde, Angola</td>
</tr>
<tr>
<td>Global North</td>
<td>North Asia: Hong Kong, Singapore, South Korea, Japan</td>
</tr>
<tr>
<td>Europe</td>
<td>United Kingdom, Netherlands, Germany, Italy, Spain, Sweden, France, Belgium, Switzerland, Denmark, Finland, Norway, Poland, Portugal, Austria, Ireland, Greece, Czech Republic, Hungary, Estonia, Romania, Slovenia, Serbia, Luxembourg, Lithuania, Slovakia, Croatia, Latvia, Cyprus, Iceland, Bulgaria, Ukraine, Albania, Malta, Bosnia and Herzegovina, North Macedonia, Belarus, Montenegro, Georgia, Russia</td>
</tr>
<tr>
<td>North America</td>
<td>United States, Canada, Mexico</td>
</tr>
<tr>
<td>Oceania</td>
<td>Australia, New Zealand, Fiji, Solomon Islands, Samoa, New Caledonia, Marshall Islands</td>
</tr>
</tbody>
</table>

References
