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Research Article

Analyzing Academic Traces of Role of Small-Scale Industry in Urban Planning and its Impact on Urban Economy: A Bibliometric Perspective using Biblioshiny Application

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ABSTRACT

Small scale industries place a very crucial role, especially in developing economies where they are responsible for employment generation and an equitable distribution of wealth. This paper analyzes the research on "Importance of Small-scale industries in Urban planning" by using the dataset for the last 23 years, that is, from 2000 to 2023. A total of 750 papers and research articles were examined. R Software was used to perform the bibliometric analysis. The purpose of this paper on systematic literature analysis is to explore the research gap on integration of small-scale industries, which are usually informally developed into the formal town planning process, to further strengthen the economic base of cities. Therefore, this Paper provides an overall picture of the literature, which will help in identifying the research hotspots and gaps for future studies. This study used various performance measures to gather bibliometric data from the Scopus database. Based on the results of this analysis, the report suggests potential avenues for future research and highlights the importance of understanding the role of small-scale Industries in Urban Planning.

Keywords: Small Scale Industries, Urban Planning, Bibliometric Study, biblioshiny, Urban Economy.

1. Introduction

The world has urbanized tremendously, and the urbanization level of the world has nearly doubled from the year 1960 to 1955 percent in 2018, which is like the economic growth of the world. Cities are playing a significant role in the global economy as they are centers of trade, commerce, and industry (McDonald & Marcotullio, 2011). At the same time, the small-scale industry (SSI) plays a very significant role in the economic prosperity of a city, region, or a nation by infusing diversity in production and providing jobs to people (Subrahmanya & Pavan, 2011). In India, the industrial output in GDP, was around 9 percent in 1950–1951, and rose to 17 percent by 2023. The small-scale industry sector constituted ~95% of the country's industrial units, providing employment to more than 175 lakh individuals. SSIs contribute around 33.4% of the manufacturing output in India and over 30% of the industrial GDP. This has become the backbone of the Indian economy (Bhuyan, 2013). India is one of the fastest growing major economies of the world growing with the rate of 7.20 percent in year 2022-23 which has surpassed any other nation of the world especially during these uncertain times. Industries will play a very important role in India's transformation in the coming decade (Trading Economics, 2020). Large scale industries are capital intensive whereas Micro, Small and Medium Enterprises are more organic in growth requiring less capital, community centric and helps in equitable distribution of wealth.

MSMEs are playing a very significant role in India's development by, among other things, reducing regional imbalances, ensuring more equitable distribution of national income and wealth, and offering substantial employment opportunities at comparatively lower capital costs than large industries (Sari et al., 2022; Sonam & Nimesh, 2022). As per the Indian government small scale

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industry is defined as an industrial enterprise where investment on Plant and Machinery is not more that 100 million rupees and total annual turnover is not more than 500 million rupees. These types of industries are present throughout India in varied densities and specialization. As per 73rd round National Sample Survey (NSS) conducted in year 2015-16 by Ministry of Statistics & Programme Implementation there were about 63.38 million units on MSME in India. Out of these approximately half of the MSMEs i.e. 49 percent are present in urban India. According to Ministry of finance, India aims to become a USD 5 trillion economy by 2024; and USD 10 trillion economy by 2030 (MSME, 2020). To achieve this India will need to revamp its industrial output and urban infrastructure. India now has 4,400 statutory towns and cities with about 400 million residents and this is estimated to grow to 600 million by 2030 (United Nations, 2018; Hindustan Times, 2022). As per the last census India's population is about 31.1 percent urbanized It is expected to grow at a tremendous place. Hence the need to achieve the projected economic growth urban India and urbanization in India must be transformed and should be coupled with industrialization and industrial development (NITI Aayog, 2021). As of today Sixty-five percent of the 7933 urban centers lack a master plan and planned industrial development is majorly missing in these cities. Moreover, the rest 35 percent of the also has issues with integration of urbanization and industrialization (Chaudhary, 2023).

2. Literature Survey

2.1. Introduction to Small-Scale Industries and Urban Planning

According to the International Labor Organization, small-scale industries are defined as enterprises with a limited number of workers, usually less than 20 employees (Hassanpour, 2021).These industries have diverse sectors such as manufacturing, services, and agriculture, and are often characterized by their adaptability, flexibility, and innovation. Small-scale industries play a crucial role in the economic development of both developed and developing nations. They contribute to job creation, poverty reduction, and overall industrial growth (Asenge & Asue, 2020). One of the key reasons for the government's focus on small-scale industries is their potential for development and growth (Prabhakar and Nimesh, 2022). In urban planning, the focus is on designing and managing cities and urban areas in a sustainable and efficient manner. Urban planning involves various aspects such as land use, infrastructure development, transportation, and environmental sustainability. In recent years, there has been increasing recognition of the important relationship between small-scale industries and urban planning in achieving sustainable economic and social development. Hence it becomes imperative to look in urban planning in respect to small scale industries (Zikirya et al., 2021).

2.2. Global Context of Small-Scale Industries and Urban Planning

Small-scale industries and urban planning have gained attention worldwide due to their significant impact on economic growth, employment generation, and sustainable development (Aurick et al., 2017). According to a study conducted by the World Bank, small-scale industries contribute to over 90% of business worldwide and employ more than 70% of the global workforce. These industries are particularly important for developing countries, as they provide opportunities for self-employment and entrepreneurship, often in sectors that are critical for economic development such as manufacturing and services. They are drivers of economic growth and employment generation (Hoa & Khoi, 2017). For example, in the European Union, small and medium-sized enterprises, which include small-scale industries, account for around 99% of all businesses and employ approximately 67% of the workforce. According to a report by the United Nations Industrial Development Organization, small-scale industries play a crucial role in fostering innovation and technological development, as they often have the ability to adapt and respond quickly to market demands. They also contribute to the revitalization of local economies, promote social inclusion, and enhance community resilience (Vukičević, 2018).

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2.3. Indian on Small-Scale Industries

In an Indian context, small-scale industries have been a key component of the country's industrial landscape and economic development. According to the Ministry of Micro, Small and Medium Enterprises in India, there are over 63 million small-scale industries in the country, accounting for approximately (Rajeevan et al., 2015) 45% of India's total industrial output and employing more than 110 million people. (Rajeevan et al., 2015; Singh & Singh, 2019) Small-scale industries in India have also been instrumental in promoting inclusive growth, reducing inequality, and alleviating poverty. For example, the Small Scale Industries in India account for about 95 percent of employment and contribute to about 43 percent of the value added in the entire industrial sector (Sharma, 2017). As per the MSME, the Government of India has revised the classification of MSMEs into three major categories depend upon their investment and turnover budget as shown in Table-1 (MSME, 2020).

Table-1: The revised Classification Applicable w.e.f June 2020 (MSME, 2020)

CLASSIFICATION	MICRO	SMALL	MEDIUM
Manufacturing Enterprises and Enterprises rendering Services	Investment in Plant and Machinery or Equipment: Not more than Rs.1 crore and Annual Turnover; not more than Rs. 5 crores	Investment in Plant and Machinery or Equipment: Not more than Rs.1 crore and Annual Turnover; not more than Rs. 50 crores	Investment in Plant and Machinery or Equipment: Not more than Rs.50 crore and Annual Turnover; not more than Rs. 250 crore

2.4. Urban Planning and the Indian context

In the Indian context, urban planning has become increasingly important due to rapid urbanization and population growth. India is experiencing a significant shift from rural to urban areas, with the urban population projected to reach 590 million by 2030 (Bocquier, 2005). This rapid urbanization poses challenges in terms of infrastructure development, housing, and providing basic services to residents in urban areas. Furthermore, urban planning in India also needs to address issues such as traffic congestion, pollution, slums, and inadequate access to clean water and sanitation facilities. In the Indian context, the importance of urban planning becomes even more evident due to the rapid urbanization and population growth being witnessed in the country. According to the World Bank, India is expected to add 416 million urban residents by 2050, making it one of the most significant contributors to global urbanization. This surge in urban population calls for effective management of various aspects of urban development (Dobbs et al., 2010).

3. Objectives of the Research Work

The main objectives of this research work are to systematically analyze research published from 2000 to 2023 on the role of small-scale industries in urban planning, identify key trends and research gaps particularly regarding the integration of informal small-scale industries into formal planning processes and highlight their importance in employment generation and equitable wealth distribution. By synthesizing findings from 750 articles using bibliometric analysis, the paper aims to provide an overall picture of the literature, pinpoint research hotspots, and suggest future research directions to strengthen the economic base of cities.

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4. Material and Methods

Bibliometric analysis is a statistical method used to evaluate the characteristics of academic literature, such as patterns of authors, journals, countries, and institutes in a specific field.(Chen et al., 2016) It can also be used to examine the knowledge structure and development of research fields through analysis of related publications, such as keyword analysis.(Kofi Frimpong et al., 2021) Visual techniques are also used to display the results of bibliometric analysis in an intuitive and infographic way. Several software tools, including BibExcel, can be used to conduct bibliometric analysis and citation analysis, and to produce data for co-authorships and co-citations. Network analysis is used to evaluate relationships among interacting units, such as collaborations and influences among research papers, keywords, countries, institutions, or authors. This further can give a picture of trend of research the explored field, major contributors, thrust areas, etc. Furthermore, it can also be used to identify the research gaps for further research on the current topic. For the current topic a total of 750 papers and articles were analyzed. These papers were selected from the Scopus data base by using the following query: ((TITLE-ABS-KEY ("Small scale industry" or "Microenterprise" or "Informal sector" or "Local economic development" or "Small business") AND TITLE-ABS-KEY ("Urban planning" or "Urban development" or "Urbanization" or "City planning" or "Urban renewal")) AND PUBYEAR > 1999 AND PUBYEAR < 2023 AND (LIMIT-TO (LANGUAGE, "English"))). Different keywords are specifically chosen to have wider search base and in multiple places the see phenomena is addressed with different terminologies. The filter for language was used to restrict other papers except English language and the time-period of the research was from 2000 to 2023, to segregate old and obsolete researches. The result generated was downloaded in Bib-Excel format to be further analyzed by "R" Software using Bibliometric package. Some important parameters were judged and shown in the paper and some parameters were left as they were not contributing to the output of the paper.

4.1. R Software Package and Biblioshiny

Biblioshiny is a bibliometrics application software and shiny app providing a web-interface for bibliometrix. Biblioshiny has two fields namely 'ANALYSIS' and 'SYNTHESIS' which are father subdivided into 8 major heads namely overview, Sources, authors, documents, Clustering, conceptual structure, Intellectual Structure and Social Structure. These Heads further have 38 subheads under which the data is analyzed and results are produced to give the output (Thangavel & Chandra, 2023). The Figure-1 below gives the information about the parameters which can be used to give the gap analysis on the research topic and some other information that are necessary to understand the current state of scientific research in the field.

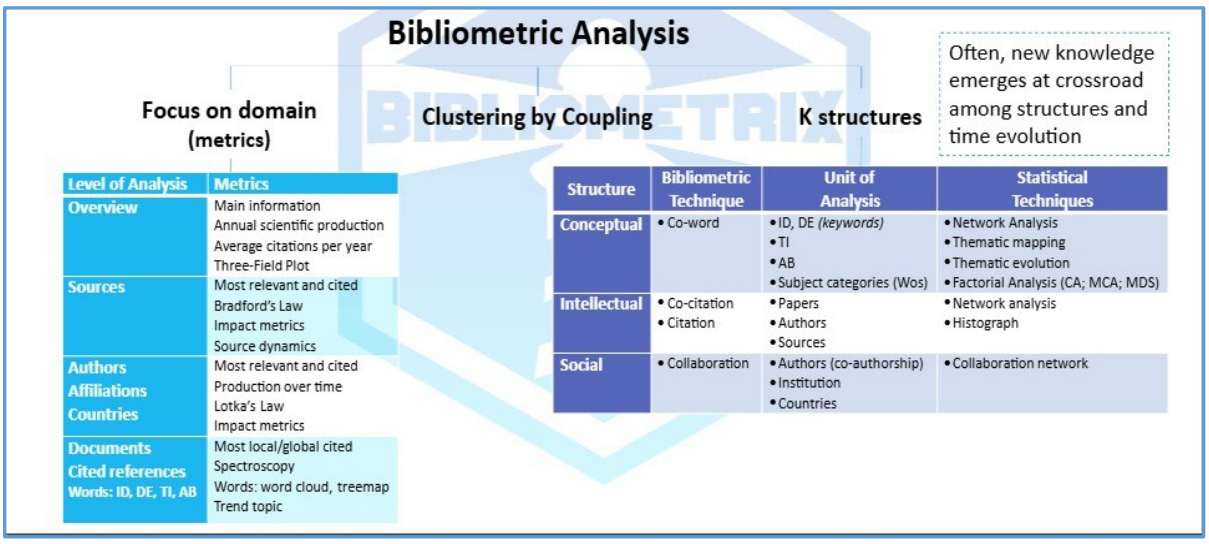


Figure-1: Overview and structure of Biblioshiny app for Bibliometrix

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4.2. The Data Sources and Keywords

The data was collected from Scopus metadata. To obtain the data following query ((TITLE-ABS-KEY ("Small scale industry" or "Microenterprise" or "Informal sector" or "Local economic development" or "Small business") AND TITLE-ABS-KEY("Urban planning" or "Urban development" or "Urbanization" or "City planning" or "Urban renewal")AND PUBYEAR > 1999 AND PUBYEAR < 2024 AND (LIMIT-TO (LANGUAGE, "English") was used. The search gave a total of 750 documents from 334 sources which had 1475 authors (as shown in Figure-2). The data collected had the time filter (2000-2023) and language filter (English). The data collected constituted Articles, Books, book Chapters, Conference Papers, Conference Review, Editorial and review Papers. Number of each document type is shown in the table (Table-2) below. Furthermore, the major Source type used for the data collection were journal, Books, Conference Proceedings and Book Series

Table-1: The classification or type of documents used

S. No	DOCUMENT TYPE	NUMBER
1	Article	541
2	Book	23
3	Book Chapter	89
4	Conference Paper	54
5	Conference Review	2
6	Editorial	2
7	Note	1
8	Review	38

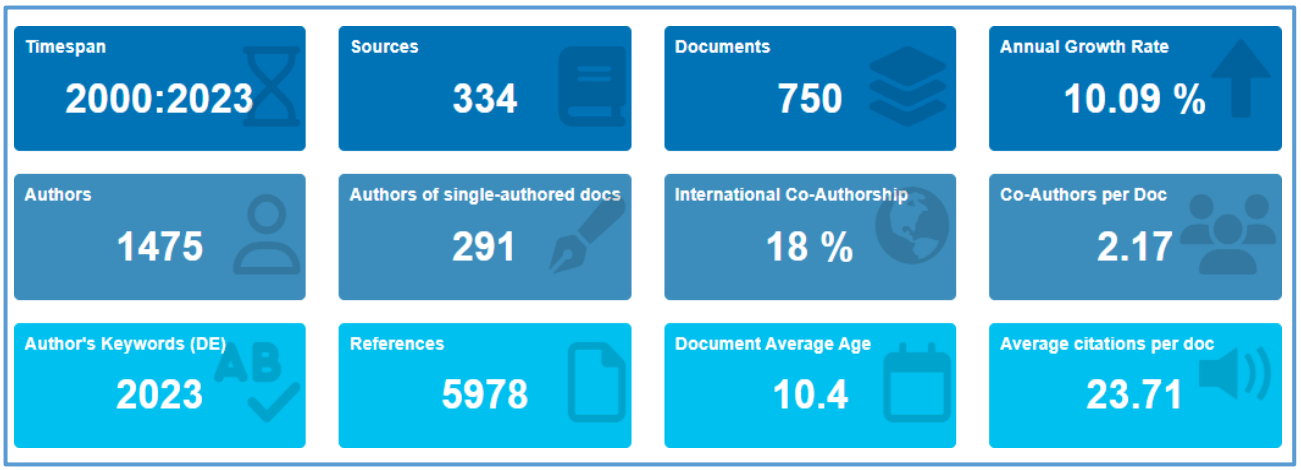


Figure-2: Main Information about the data analyzed

5. Results Analysis

5.1. Publication Characteristics

The Table-3 shows the sources having most publication throughout the last 23 years. The topic in discussion is a multidisciplinary topic hence we see that there no individual journal that publishes on the topic. CITIES journal has published most amount articles i.e, 23 which is lesser than 0.50% of the

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total publication. Top five journals are primarily publishing in the field urban studies and nine out ten sources are from urban studies.

Table-3: Table shows top souses with respect to publication

S. No	SOURCES	ARTICLES
1	CITIES	23
2	HABITAT INTERNATIONAL	22
3	URBAN STUDIES	19
4	INTERNATIONAL JOURNAL OF URBAN AND REGIONAL RESEARCH	16
5	ENVIRONMENT AND URBANIZATION	16
6	SUSTAINABILITY (SWITZERLAND)	14
7	INTERNATIONAL DEVELOPMENT PLANNING REVIEW	13
8	URBAN FORUM	12
9	JOURNAL OF URBAN AFFAIRS	9
10	LOCAL ECONOMY	23

5.2. Annual scientific production in small-scale industry in urban planning and its impact on urban economy

It refers to the research and scholarly output produced by researchers, academics, and institutions in the field of urban planning that focuses specifically on the role and impact of small-scale industries within urban areas over a one-year period. Evaluating the yearly scientific output in this field aids policymakers, urban planners, and researchers in comprehending the evolving dynamics of small-scale industries within urban contexts. It provides valuable insights into the current situation of the research in the field, is it in focus, either the scientific community is focusing on the subject or not, and ultimately helps us to finalize the gaps or limitations of the field.

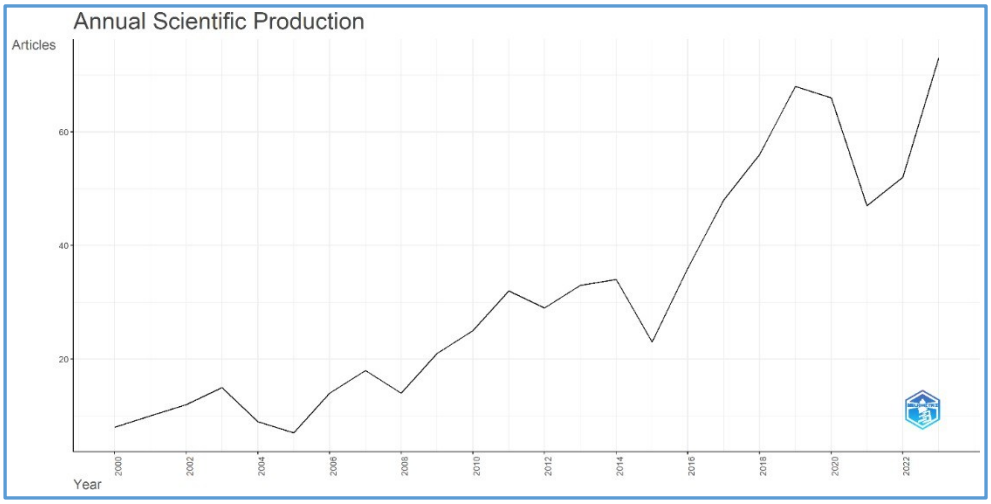


Figure-3: Annual scientific production from 2000 to 2023

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The above graph (Figure-3) clearly illustrates a fluctuation in annual scientific production related to small-scale industries starting from the year 2000. There was a significant increase in the number of articles published between 2016 and 2019, followed by a slight decrease in year 2020-2021 majorly due to covid outbreak where the focus shifted to the other domains and the again increased over the past four years in Figure-3. In total, 750 articles were published.

5.3. Average Citations per year

Average Citations per year in the context of small-scale industries and urban planning refers to the average number of research papers, articles, or publications related to these topics are cited in other scholarly works within a given year. This metric is used to assess the impact and influence of research in the field.

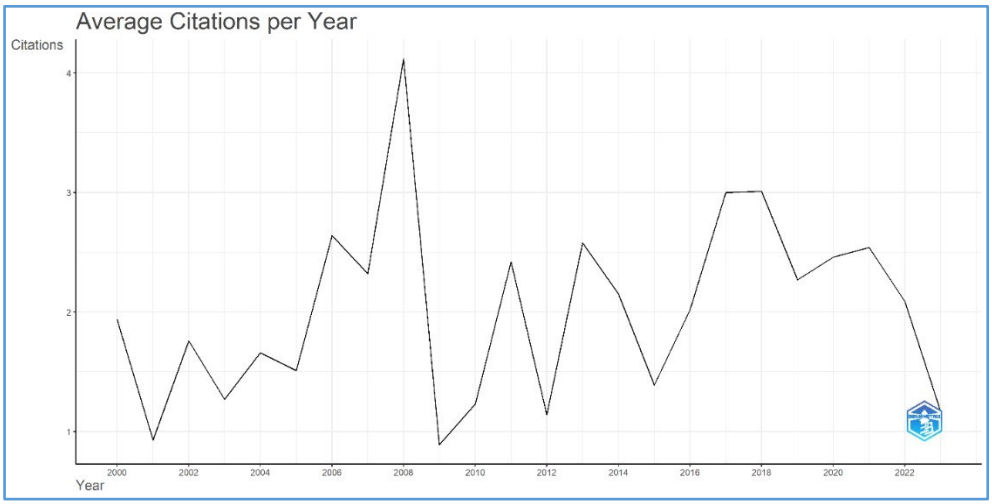


Figure-4: Average Citations per year from 2000-2023

When considering the average citations per year from 2000 to 2023, a general decrease in the number of citations is observed. However, a significant surge in citations is noted between 2006 and 2008. Subsequently, a continuous fluctuation can be observed in both the number of papers published and the citations received. Notably, between 2019 and 2023, there is a consistent decline in the number of citations, which can likely be attributed to the impact of the pandemic. Over the past four years, only on an average one citation per document have been recorded in the realm of small-scale industries and urban economics. The Fluctuations and the recent declines in average annual citations are a known bibliometric phenomenon which are caused by citation time-lag and publication volume effects and it does not mean that there is a reduced scholarly impact (Figure-4).

5.4. Life Cycle of Scientific Production

The Life Cycle of Scientific Production implements a model of logistic growth which analyzes the temporal undercurrents of the selected research topics. It allows to identify the current developmental stage of the research field, estimate the future trends, and estimate the maturity or saturation period. Life cycle of scientific production of the current topic indicates that the current field of research is rapid growth stage, which implies that currently a lot of research is happening under these topics. The model suggests that the topic will reach its peak in 2027 with nearly 71 research productions each year. It further projects that currently only 36.1 percent of the research work has been done on the topic. The high model fit i.e R^2 suggests that the results are robust and dependable and the topic is still expanding and has not reached to its maturity as shown in Figure-5 a, b and c.

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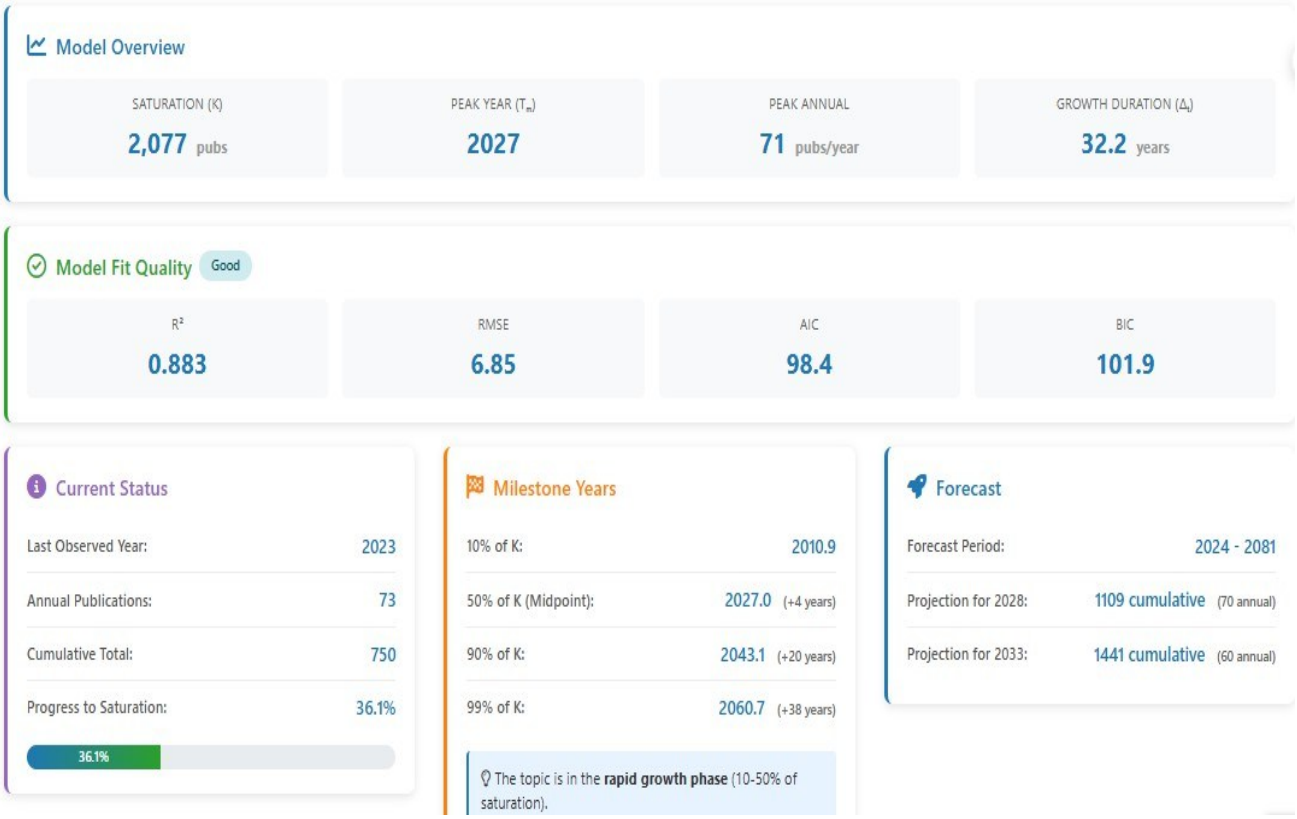


Figure-5a: The analysis of the scientific production of the topic and the maturity time

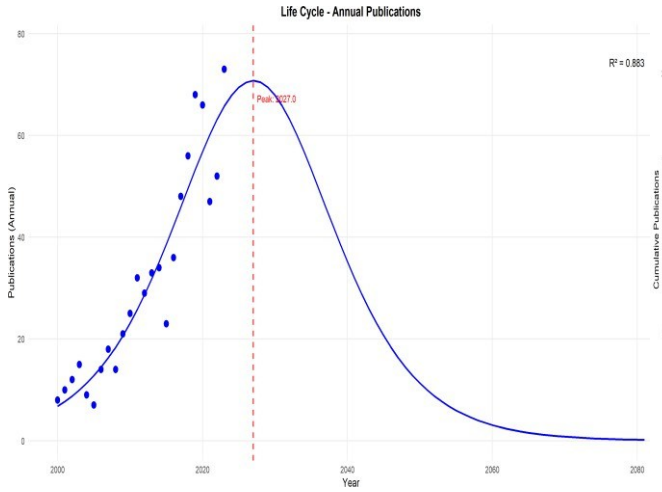


Figure-5b: Lifecycle annual production

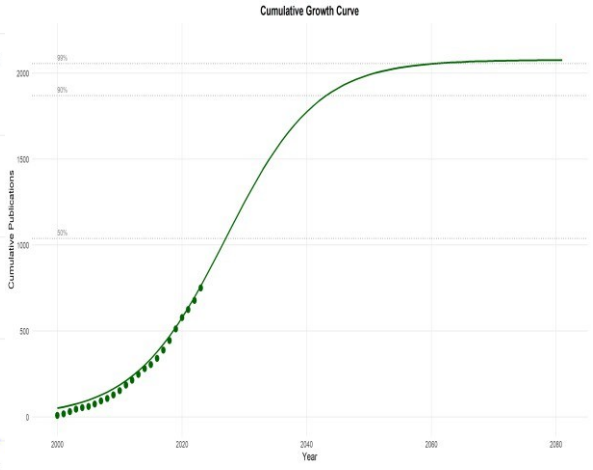


Figure-5c: Cumulative growth curve

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5.5. The Three-Fold Search: Key words, Authors countries and universities

The most frequently searched keywords on the topic include informal sectors, urbanization, local economic development, India, urban development, informal economy, urbanization, urban planning, and China. Authors who extensively employ these terms in their articles predominantly hail from USA, China and South Africa, affiliated with institutions such as university of the Witwatersrand, university college of London and Kawame Nkrumah university of California technology. At the same time the second-highest contributor of published articles and keyword used in these articles is from the china, especially The Henan University as a notable institution with its contribution. Following the USA, the South-Africa , Australia Germany, the Netherlands, and Ghana are some of the countries that stand out. Interestingly what it shows that there are no Indian university where the research is happening in the field where these topics overlap or integrate with each other shown above in the Figure-6.

5.6. Most Local Cited Sources

This analysis reveals a concentrated citation structure, where a small number of authors particularly Chen, Brown, Bayat, and Bromley defining the core intellectual foundation of the topic (Figure-7). These sources are cited across the dataset, indicating their main role in shaping theoretical and conceptual debates. Additionally, the presence of a secondary group of moderately cited authors suggests methodological and contextual diversification.

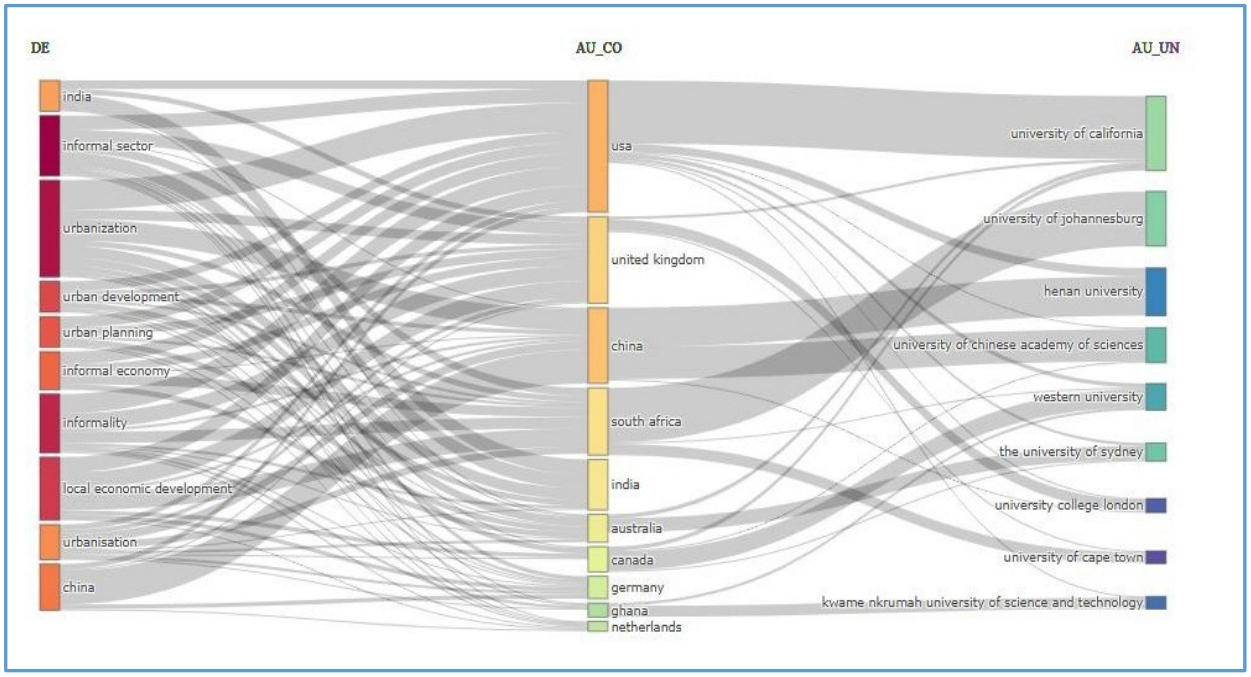


Figure-6: Relationship between keywords, author's country, and author's institution

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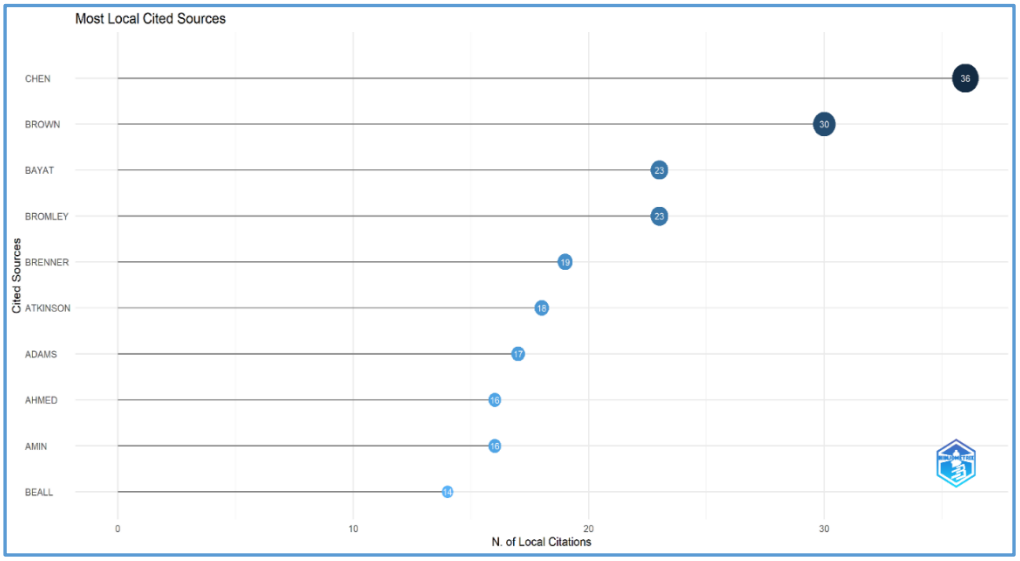


Figure-7: Most cited authors

5.7. Core Sources by Bradford's Law

Bradford law of scattering describes how the literature on a particular subject is scattered or distributed in the journals. In terms of Bradford's law, the core sources encompass 400 references on the topic, categorized into three zones: zone 1, zone 2, and zone 3. Zone 1, also known as the core source, comprises 29 sources, while zone 2 includes 140 sources, and zone 3 consists of 229 sources (Prabhakar et al., 2023). Cities hold the top position as the primary source with 22 journals and 22 citations, followed by Habitat International in the second position with 21 journals and 43 citations. The third-ranking source is the International Journal of Urban and Regional Research, featuring 19 journals and 62 citations. Examining the graph below, the core sources are emphasized, and Urban Geography holds the 29th rank with 4 journals and 234 citations. According to Bradford's Law, the graph below exhibits a decreasing trend from zone 1 to zone 3 as shown in Figure-8.

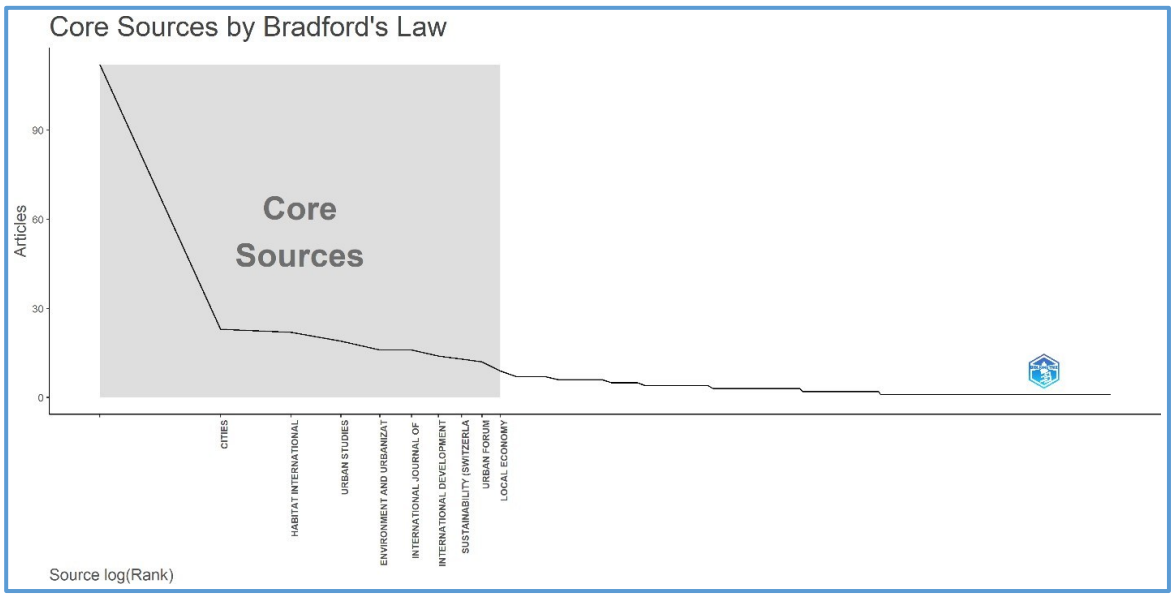


Figure-8: Braford's Law Graph

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5.8. Sources Local Impact

Several sources in articles related to small-scale industries are influenced by the H index. Cities journal has the highest impact by 18 whereas Urban Studies has an impact measure of 16, like Habitat International. The trend continues to decrease as Cities and the International Journal of Urban and Regional Research and Environment and Urbanization having an H index of 13 and 11 respectively. Similarly, the impact goes down as we move down with the journals (Figure-9).

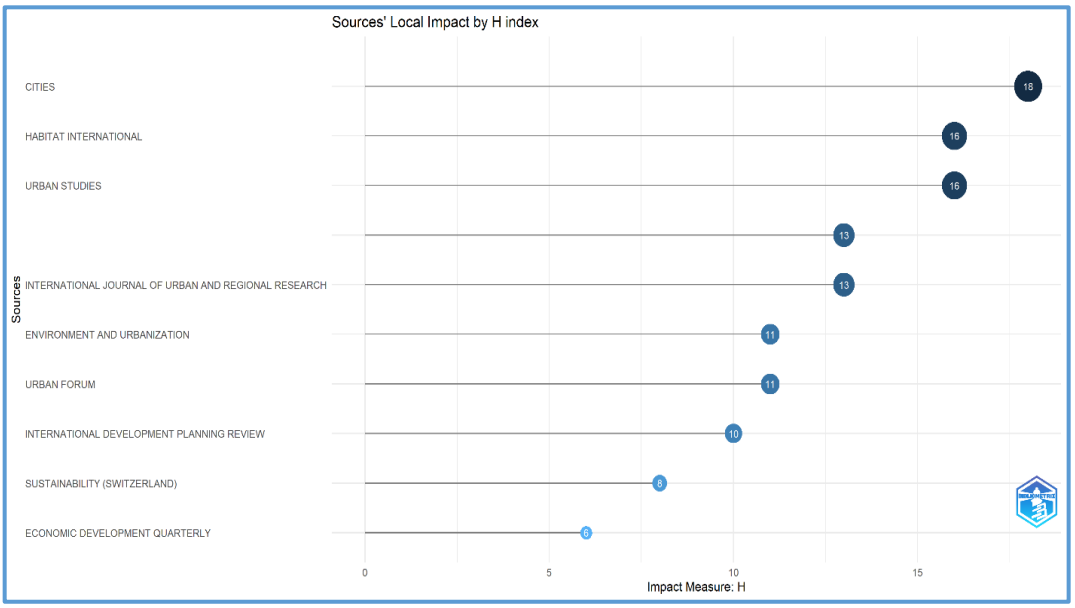


Figure-9: Sources Local Impact by H index

5.9. Most relevant Authors

Numerous authors have contributed articles on small-scale industries and urban economics, with Rogerson CM emerging as the most pertinent, having published six articles. Following closely, Abubakar IR and Chirisa I have each published four articles. Additionally, several authors, including Arku G, Bandauko E, Binns T, Brown A, Crush J, Huang P, and Lyons M, have made significant contributions, each having published three articles on the subject (Figure-10).

5.10. Most relevant Affiliations

The universities with the most relevant affiliations and published articles led by the University of California, with 16 articles. Following is the University of Johannesburg, contributing 12 articles. The University of Sydney then follows with 8 affiliated articles. Both university of Chinese academy of sciences and western university has 7 publications. Kwame Nkrumah University of Science and Technology, University College London Bucharest University of Economic Studies, Henan University other university have 6 publications each, showing their important contribution in the field (Figure-11).

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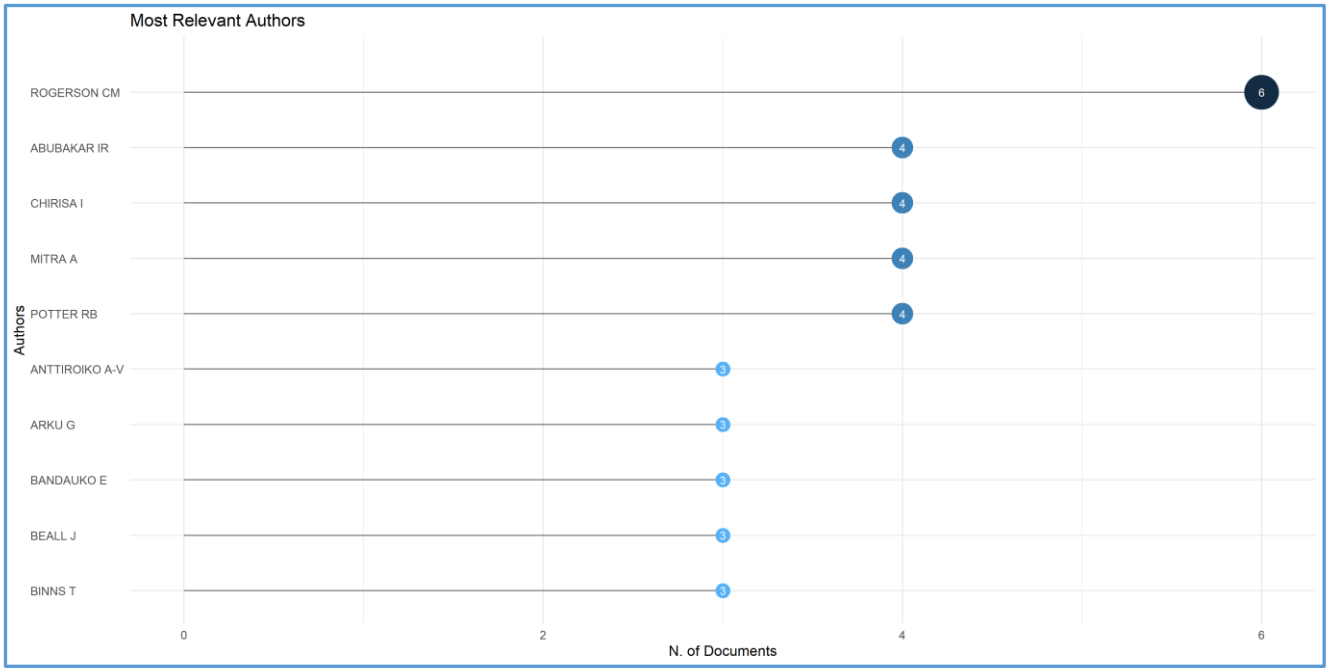


Figure-10: Most relevant Authors

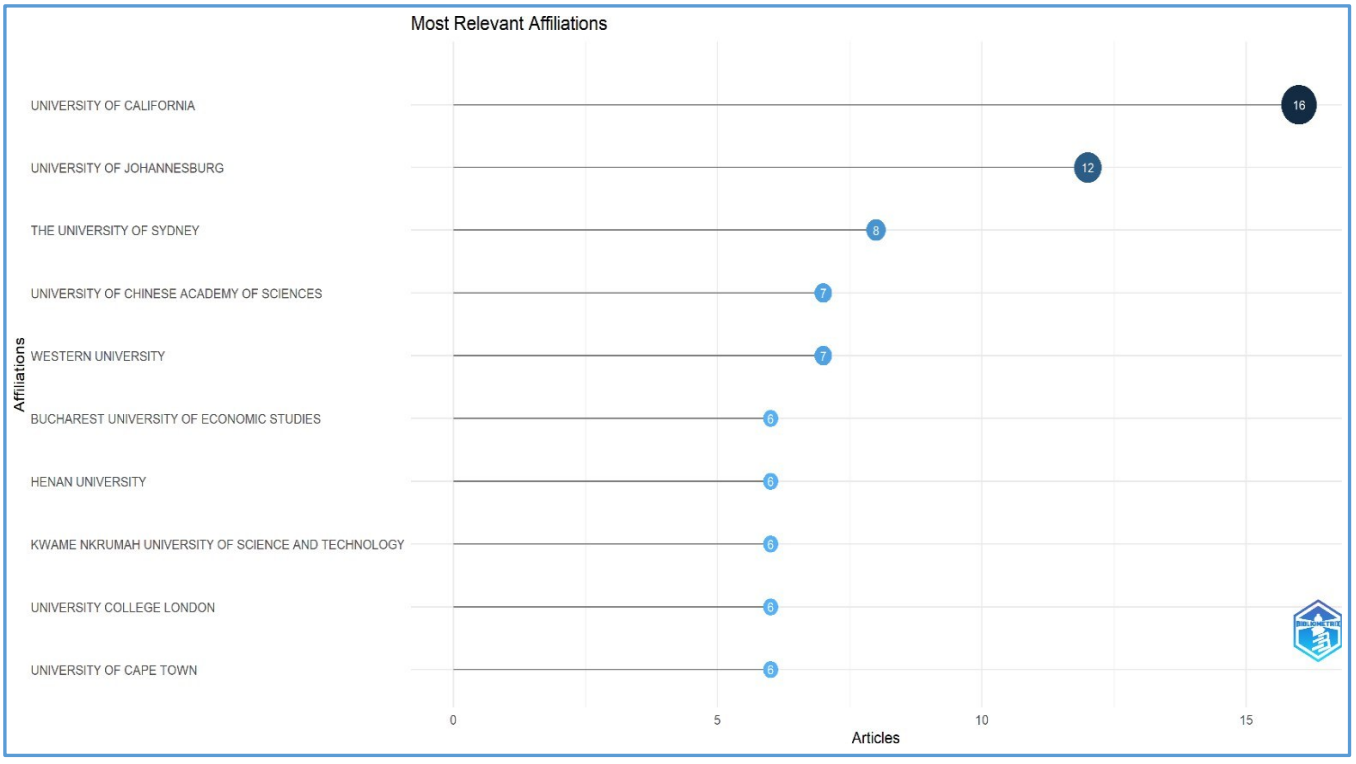


Figure-11: Most relevant Affiliations

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5.11. Affiliations Production over Time

The Affiliations' Production over Time analysis reveals an institutional concentration in terms of research output in the field, with the University of California emerged as the dominant contributor, especially after 2012. Early contributions appear limited and sporadic across these institutions, but a marked acceleration is visible in the years after 2015, which suggesting growing academic interest. However, this pattern also highlights a structural imbalance i.e. small cluster of universities accounts for a disproportionately high share of publications, indicating a very limited institutional diffusion of research capacity. Emerging contributors such as the University of Johannesburg and the University of Chinese Academy of Sciences show late but rapid growth, reflecting geographic diversification, yet their output still trails the leading institution. Overall, the trend signals expanding global participation but continued dominance by a few research-intensive universities, pointing to both maturation of the field and persistent concentration of scholarly influence (Figure-12).

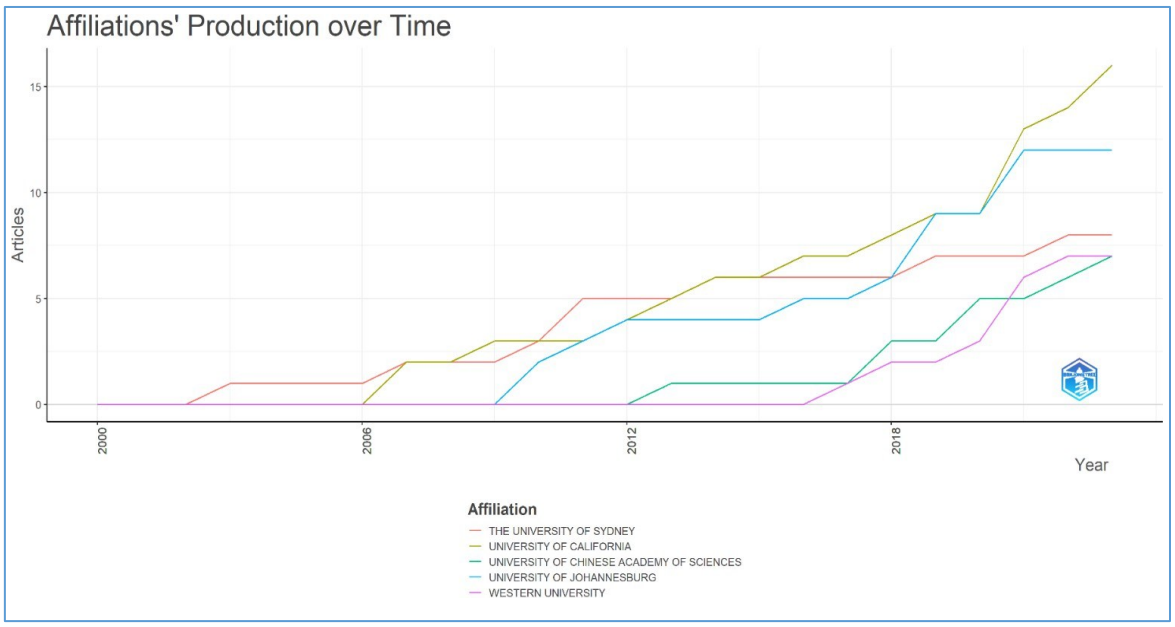


Figure-12: Affiliations Production over Time

5.12. Corresponding Authors Countries

The corresponding author country wise analysis highlights a very important and pronounced geographic concentration in the field and research leadership. United States of America and the United Kingdom are the major contributors to publication output. The United States exhibits both high single-country productivity and a strong international collaboration, depicting its structural centrality in the field. The United Kingdom demonstrates comparatively higher collaborative intensity, reflecting its globally networked research model. China ranks third, driven largely by domestically produced scholarship, indicating robust national capacity but relatively lower cross-border integration. Emerging economies such as India and South Africa show growing publication presence, though their outputs remain primarily single-country driven (Figure-13). Overall, the distribution reveals an asymmetrical global knowledge structure, where research production is concentrated in a few advanced economies while broader international participation occurs mainly through collaborative linkages rather than leadership roles.

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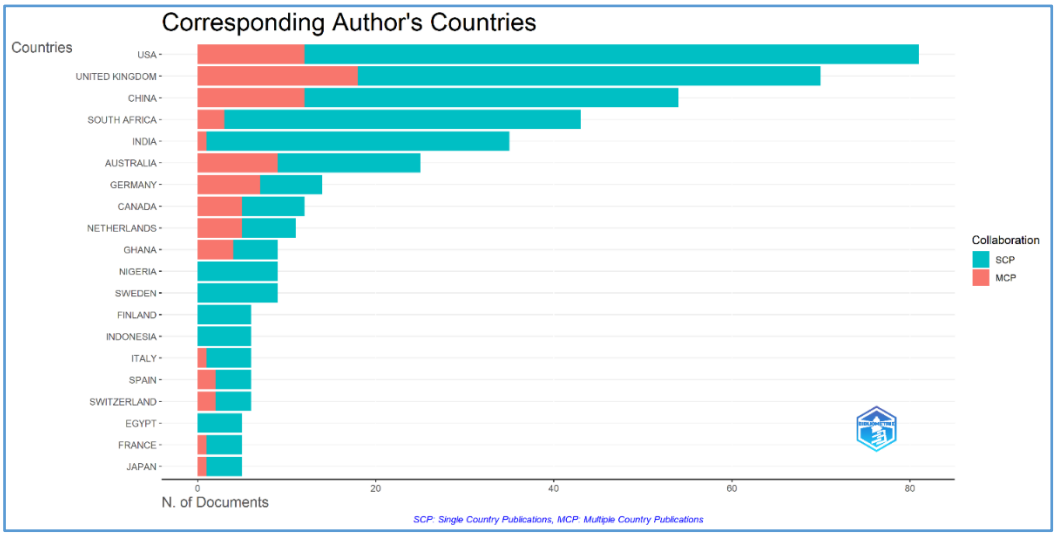


Figure-13: Corresponding Authors Countries

5.13. Most Global Cited Documents

The global citation distribution delineates the intellectual stratification of the field. Wang S-L (2013) in Marine Pollution Bulletin leads with 476 citations, establishing a foundational environmental knowledge base, followed closely by Henry RK (2006) in Waste Management (468 citations), reflecting sustained policy and systems relevance. Benjamin S (2008) in the International Journal of Urban and Regional Research (450 citations) serves as a key theoretical pillar in urban socio-spatial discourse. Power A (2008) in Energy Policy (327 citations) demonstrates strong interdisciplinary reach linking energy and urban transitions. Influential mid-tier contributions include Dovey K (2011) in Built Environment (257 citations) and Swanson K (2007) in Antipode (242 citations), advancing critical urbanism perspectives. Subsequent works by Dupont VD (2011) (227 citations) and Aparcana S (2017) (216 citations) extend governance and sustainability debates, while Parnell S (2014) (183 citations) and Scott AJ (2007) (180 citations) reinforce structural and socio-economic foundations as shown in Figure-14. Overall, the citation gradient reflects a consolidated yet evolving knowledge domain anchored in seminal works and expanded through interdisciplinary integration.

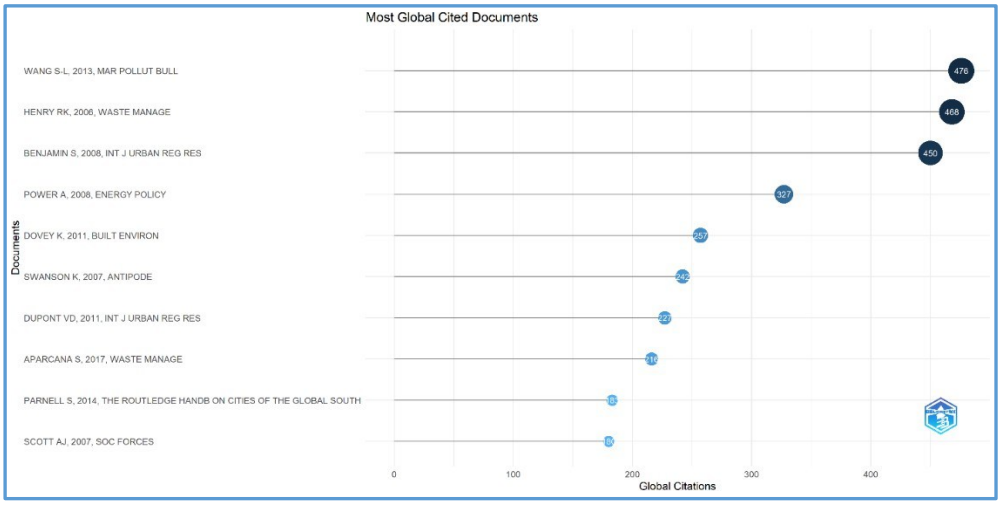


Figure-14: Most Global Cited Documents

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5.14. Most Relevant Words

The tree-map generated by Biblioshiny represents the thematic and keyword frequency in the bibliometric dataset. Each rectangle represents a keyword/theme, and its size corresponds to the number of publications associated with that topic. Larger blocks therefore indicate higher research concentration and thematic dominance. The predominant keywords in articles concerning small-scale industries and urban planning are noteworthy. "Informal sector" emerges as the most frequently occurring keyword, appearing 255 times in the published articles. Similarly, "urban planning" is used 193 times, while "urban development" is mentioned 159 times. Additionally, other terms like "urbanization," "economic development," "urban economy," and "China" are recurrent, appearing 158, 88, 90, and 52 times, respectively. The articles also feature keywords such as "urban area" (59), "sustainable development" (51), and "urban policy" (44). Collectively, the tree-map ant chart depicts a mature research landscape balancing structural theory, and applied policy inquiry as shown in Figure-15 and Figure-16.

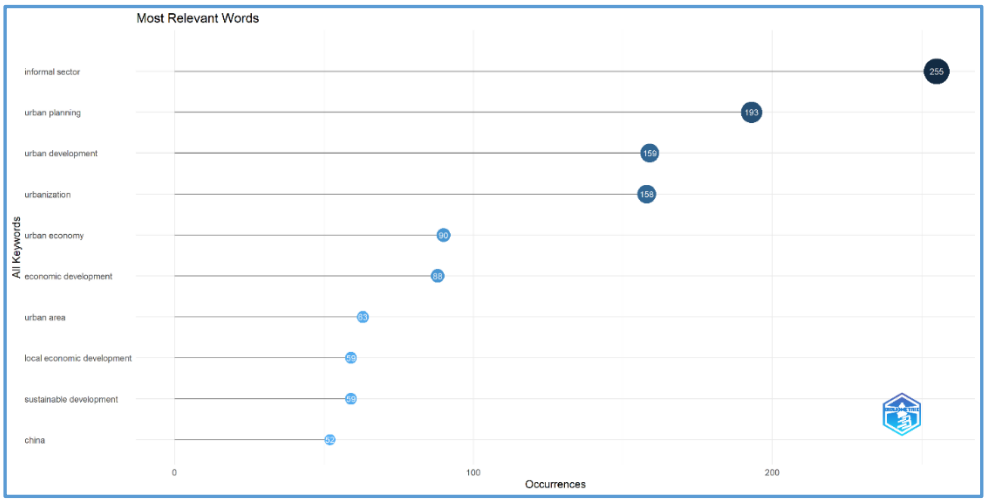


Figure-15: Most Relevant Words

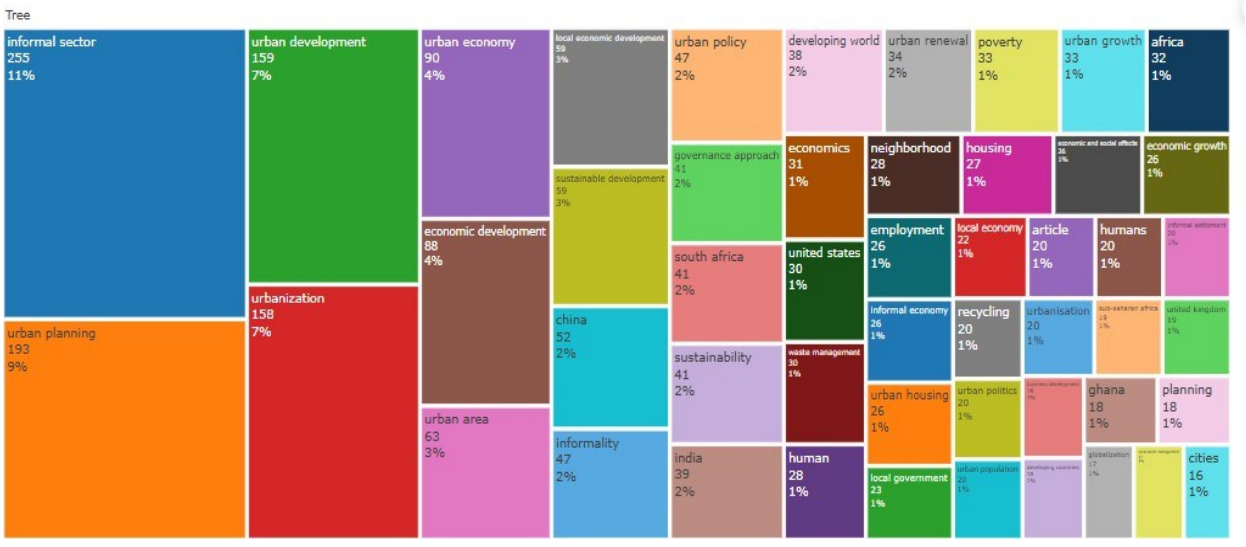


Figure-16: Percentage distribution of words in the articles keyword

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6. Gap Analysis and Future Scope

6.1. Words frequency over time

The Figure-17 below shows the search parameter which was restricted to author's keyword only to further refine the search and get a clear idea about the From. the figure below we can clearly observe that author's keyword like China, Informal Sector, and local economic development has seen a consistent and significant rise in number. Which clearly demonstrates that the research in the field is happening but separately. There is no significant overlap of the topics like urban planning and small-scale industries or local economic development.

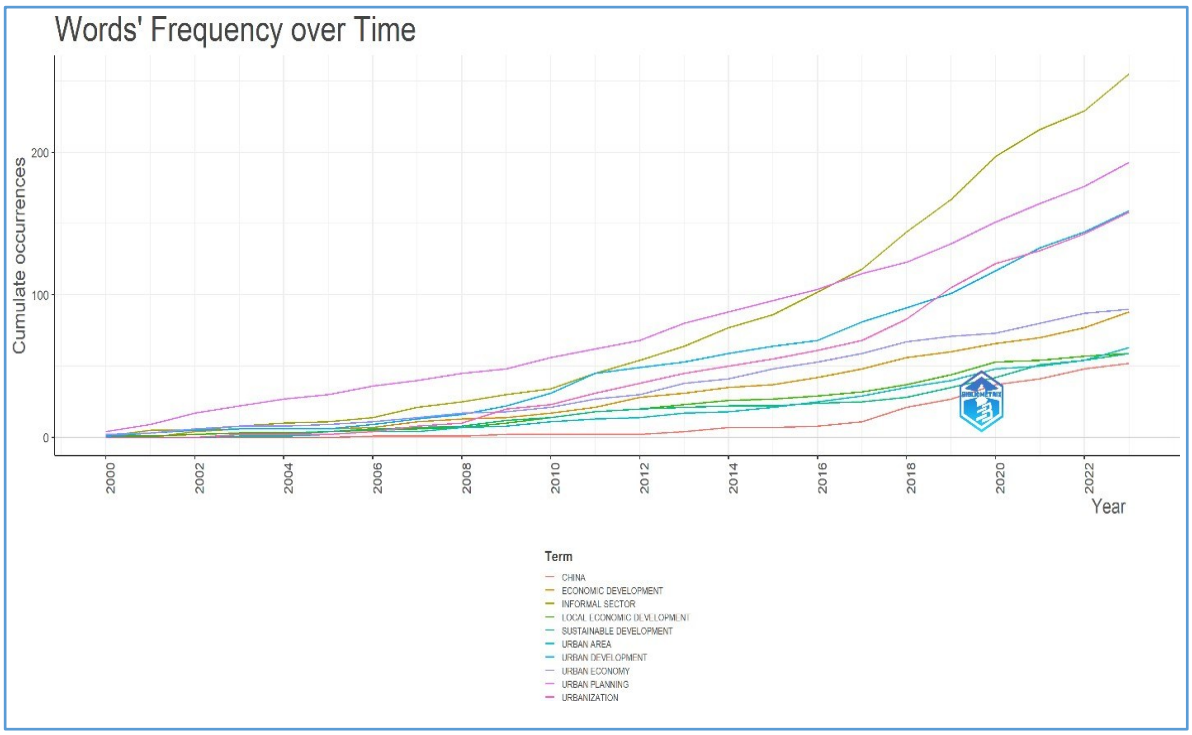


Figure-17: Words frequency over time

6.2. Trend Topics

Examining the Figure-18 below allows us to discern the predominant topics published between 2000 and 2022. In the initial period, from 2000 to 2006, noteworthy that there are no prominent. Subsequently, spanning 2006 to 2014, focus shifted to topics like sub-Saharan Africa, urban renewal, social policy, Europe, poverty alleviation, public space, housing, India, urban economy, urban planning, and the developing world. From 2014 onward, emerging trends encompassed waste management, urban policy, urban areas, urbanization, the informal sector, decision making, economic and social effects, sustainable development, environmental monitoring, China, rural areas, economic analysis, and climate change. Notably, in the last three years, COVID-19 emerged as the predominant topic with a frequency of 7.

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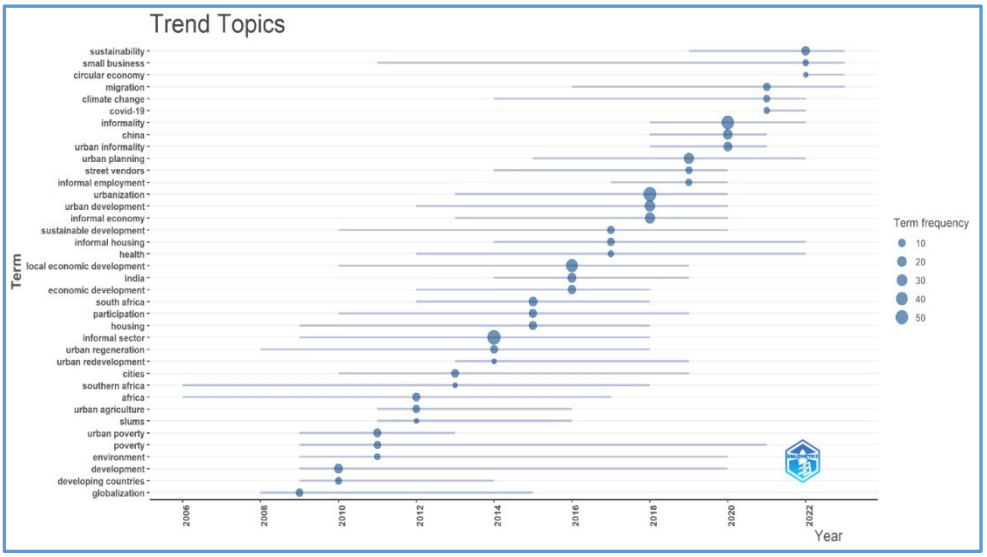


Figure-18: Trend topics

6.3. Co-Occurrence Network

Co-occurrence network gives us the information about how often the words specially keywords appear together in an article. Its gives us relationship between the topics and helps to identify that which two words are usually coming together and how often they are correlated. It identifies cluster of research and most dominant's themes within that cluster. It can help to identify gaps or finding the relation between topics. If the keywords of the search are missing, it means that there are gaps in the research. The figure given below here we see that the major cluster is, informal sector, Urban Planning and economic development. This gives us the research gap as the keywords used to find the result is not there in the graphs and hence shows that that they are usually not studied together and hence and be the research gap for it (Figure-19).

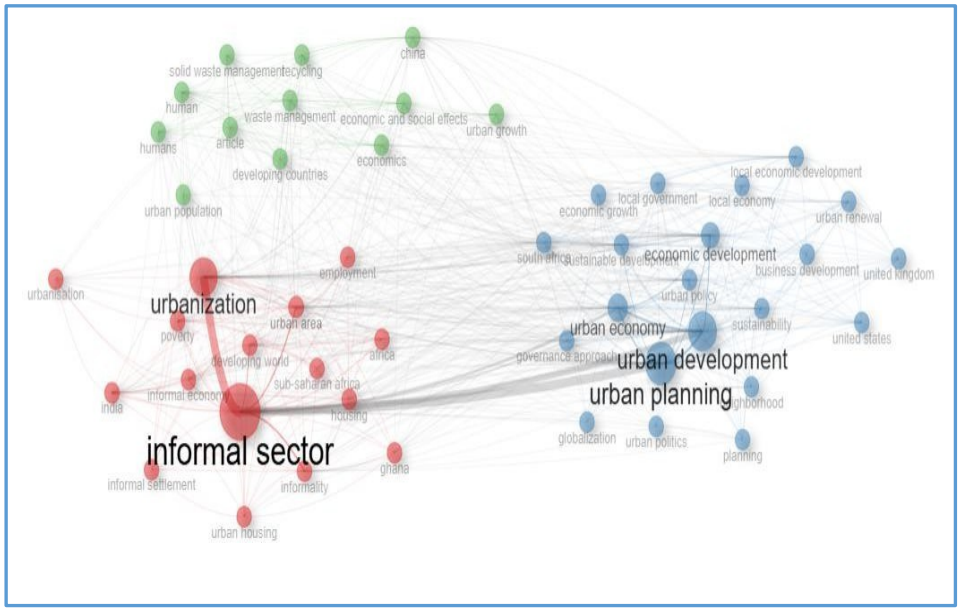


Figure-19: Co-Occurrence Network

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6.4. Thematic Map

It is a two-dimensional map showing information of cluster of topics-based om Density and centrality. It helps in identifying the themes that are well developed, or are emerging in the field of research. This further help to find research gap or focus on themes that are underdeveloped. The map consists of four quadrants. The upper right-side quadrant shows motor themes, which means the topic present are well understood and well researched by the scientific community. The upper left quadrant shows that it is a highly researched themes but not related to the broader context. The bottom left quadrant shows themes, which has less relevant to the topic and are also not well researched. The bottom right quadrant shows that the topic are very relevant to the field but are not well researched. In the graph below we find that most of the topics lies in the upper right quadrant hence reveals a structurally consolidated research domain anchored by the informal sector–urban planning cluster, which functions as the principal motor theme due to its high centrality and density. Urban development and economic development operate as basic yet indispensable pillars, indicating strong macro-structural integration within the field, signifying that they are important but are not well researched, which shows that there is a lot research gaps and further research can be done on the topic we are considering (Figure-20).

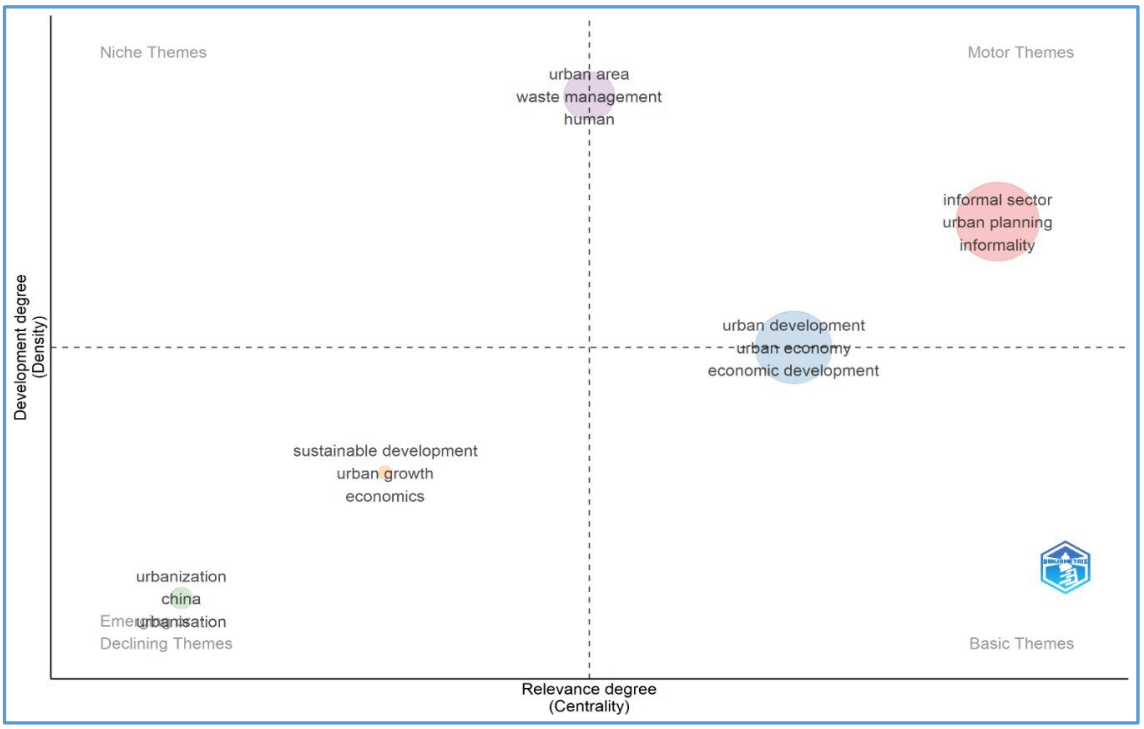


Figure-20: Thematic map

6.5. Thematic Evolution

The current graph clearly shows the evolution of the topic, where it started with core topics like urbanization, urban planning, and informal sector, but has now become a much more diverse with respect to fields it touches, ranging from informal sector, sustainable development to governance approach. The region has also shifted from Eurasia to India, China and south Africa; clearly indication the current need and study on this topic in this region (Figure-21).

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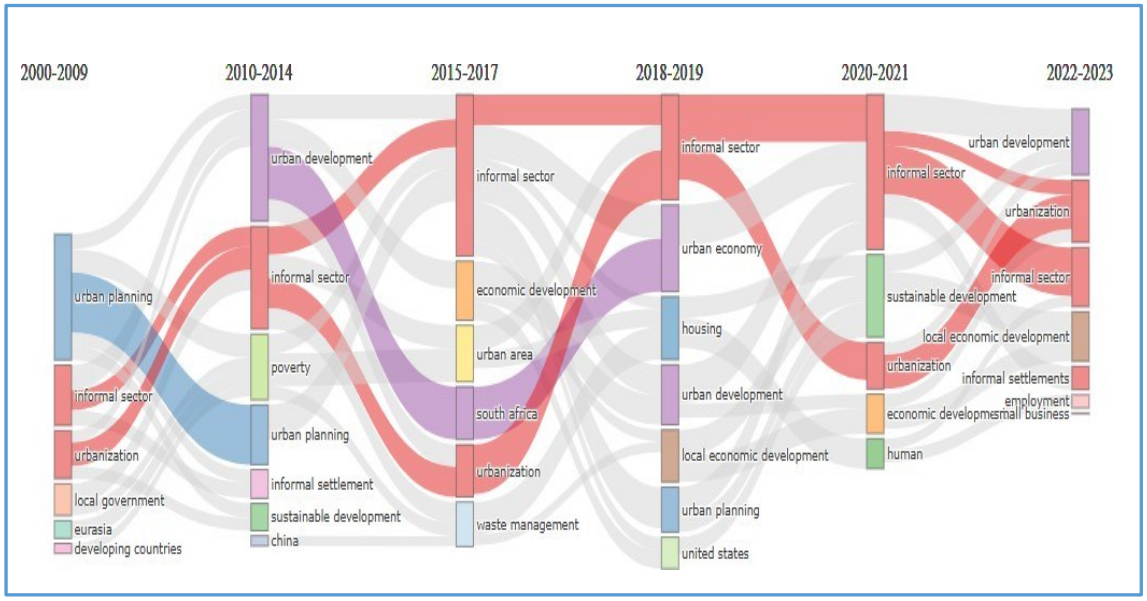


Figure-21: Evolution of themes in last 60 years

7. Discussion

The bibliometric analysis conducted in this study provides a comprehensive understanding of the research landscape at the intersection of small-scale industries and urban planning. The findings reveal that although both areas are individually well-studied, their integration remains limited and scattered. The research output has been inconsistent, with noticeable growth between 2016 and 2020, followed by a decline in both the number of publications and average citations per year, particularly after 2020. This fluctuation indicates that while the topic has gained attention in certain periods, it has not yet established itself as a sustained research priority within the global academic community. The dominance of countries like China, the USA, and the UK in this field reflects the broader trends in urban economic research, while India, despite its significant small-scale industry base and rapid urbanization, remains underrepresented. Keyword and thematic analyses further highlight this disconnect, showing that while topics such as the informal sector, local economic development, and urbanization are actively explored, they rarely overlap with structured urban planning discussions. Thematic mapping reveals that many topics related to small-scale industries in urban settings are highly relevant but underdeveloped, indicating substantial gaps in existing literature. The co-occurrence network also shows limited clustering between key concepts like small-scale industries and urban planning, which confirms the fragmented nature of research in this domain. Additionally, the analysis of affiliations and author networks suggests that research on this topic is highly localized, with limited international collaboration, especially from Indian institutions, which underscores the need for broader, multidisciplinary, and cross-regional research partnerships. The results point to a significant opportunity for scholars, policymakers, and planners to bridge this gap and develop integrated urban frameworks that recognize and support the role of small-scale industries in shaping sustainable, inclusive urban economies.

Based on the findings of this analysis, several important areas for future research have been identified. Firstly, there is a pressing need to integrate small-scale industries within formal urban planning processes, especially in fast-urbanizing countries like India. Localized, city-specific studies could explore how small industries influence land use patterns, infrastructure planning, employment generation, and economic resilience in urban areas. Secondly, future research should evaluate the impact of government policies, urban renewal schemes, and smart city initiatives on small-scale

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industries, focusing on how these businesses can be better incorporated into structured urban development. Additionally, studies examining the post-pandemic transformation of SSIs in urban economies would provide valuable insights into their adaptability and resilience. International comparative studies, involving cross-country collaborations, could further enrich understanding by comparing global best practices for integrating SSIs into urban planning. Lastly, thematic priorities such as sustainable development, climate adaptation, waste management, and informal economies should be studied in closer connection with urban planning and policy frameworks to fill existing gaps and support inclusive, balanced urban growth.

8. Conclusion

This research work presents a detailed bibliometric analysis of the role of small-scale industries (SSIs) in urban planning and their impact on the urban economy over the past 23 years. The findings reveal that while both small-scale industries and urban planning are widely researched independently, there is a notable lack of integrated studies addressing their relationship. Most of the existing research is concentrated in countries like China, the United States, the United Kingdom, and South Africa, while India, despite having one of the world's largest small-scale industrial sectors and rapidly growing cities, has limited academic contributions in this overlapping field. The study also shows that although topics such as informal sectors, local economic development, and urbanization are receiving attention, they are often researched in isolation from urban planning frameworks. Furthermore, annual publication trends highlight a peak between 2016 and 2020, followed by a decline in research output and citations, suggesting a shift of academic focus away from this crucial area in recent years. The thematic mapping and co-occurrence network analyses clearly demonstrate that most important topics remain under-researched in the context of urban planning, indicating a significant research gap and the need for deeper exploration in this area.

9. Conflict of Research Interest

Authors declare no conflict of research interest.

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