INVESTIGATING THE COMPLEX DYNAMICS OF RURAL-URBAN MIGRATION: A BIBLIOMETRIC ANALYSIS

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Abstract: In developing countries, migration results from origin push factors like unemployment, poverty, natural disasters, and underdevelopment. However, migration from rural to urban areas in developing countries contributes to urbanisation and is viewed as an investment to secure improved and higher-paying employment opportunities. The scope of the rural-urban migration area is mapped in this study in relation to employment and the development of new factors. To map the field, first systematic literature review was performed on the retrieved literature from a chosen database (SCOPUS). Further, using the bibliometrix R package and VOSviewer, descriptive and content analysis were carried out as part of the bibliometric analysis. The analysis focuses on the various viewpoints on the topic, including the literature's descriptive details, the authors' and sources' relevance, their contributions, and the countries' contributions. It also looks at the topic's driving themes and any newly discovered factors that may be contributing to rural-urban migration.

Keywords: Rural-Urban Migration, Employment, Population Dynamics, Residential Mobility, Demographic Factors.

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Investigando la compleja dinámica de la migración rural-urbana: un análisis bibliométrico

Resumen: En los países en desarrollo, la migración es resultado de factores de origen como el desempleo, la pobreza, los desastres naturales y el subdesarrollo. Sin embargo, la migración de las zonas rurales a las urbanas en los países en desarrollo contribuye a la urbanización y se considera una inversión para garantizar oportunidades de empleo mejores y mejor remuneradas. En este estudio se mapea el alcance del área de migración rural-urbana en relación con el empleo y el desarrollo de nuevos factores. Para mapear el campo, se realizó una primera revisión sistemática de la literatura recuperada de una base de datos elegida (SCOPUS). Además, utilizando el paquete bibliometrix R y VOSviewer, se llevaron a cabo análisis descriptivos y de contenido como parte del análisis bibliométrico. El análisis se centra en los diversos puntos de vista sobre el tema, incluyendo los detalles descriptivos de la literatura, la relevancia de los autores y las fuentes, sus contribuciones y las contribuciones de los países. También analiza los temas que impulsan el tema y cualquier factor recientemente descubierto que pueda estar contribuyendo a la migración rural-urbana.

Palabras clave: Migración rural-urbana, empleo, dinámica poblacional, movilidad residencial, factores demográficos.

1 INTRODUCTION

Migration is a facet of human history and critical to social and economic development and transformation. Given that, in 2020, 3.6% (281 million) of the global population was categorised as a migrant, a figure that will likely increase in the future (McAuliffe & Triandafyllidou, 2022). Migration affects millions of individuals worldwide in fundamental economic, legal, and ethical ways (Koczan et al., 2021). In 2020, there were 26 million refugees, a 14 million increase from the previous two decades (Dennison, 2022).

The socioeconomic aspect is one factor that inspires or persuades any person or immigrant to remain in or leave the area (Bryer et al., 2020). One of the main reasons for internal migration is the employment opportunity, which has costs and advantages outside of the place of origin (Galos, 2022). Also, the development status of any place has an impact on migration.

In developing countries, migration occurs due to push factors at the origin, such as unemployment, poverty, natural catastrophes, and underdevelopment, rather than pull factors at the destination (Nagla, 2021). Migration is still seen as a survival tactic in developing nations. Both sources of wealth and causes of poverty have an impact on migration (Jha et al., 2018).

There are over 740 million rural-urban migrants worldwide, four times as numerous as those who migrated outside their origin countries (Al-Maruf et al., 2022). Rural-urban migration is the term for temporary or long-term immigration from rural areas to urban areas, invariably within a national frontier.

The push-pull theory developed by (Lee, 1996; Niu, 2022) states that migration is a result of both push and pull factors, including the push factors of the place or countries of origin—such as unemployment, poverty, landlessness, population growth, low social status, etc.—and the pull factors of the place or countries of destination—such as better income, welfare systems, better education, good environmental and living conditions and political freedom, etc.

While according to (Harris & Todaro, 1970; Busso et al., 2021), rural-urban migration contributes to the urbanisation of emerging nations. Migration is viewed as an investment in the individual, boosting the opportunity to find a better job with a higher wage rate. Other researchers also discovered that reasons people decide to move out include significantly larger work possibilities, higher living standards, better environmental factors, access to health care, and survival etc (Van Hear et al., 2017; Libanova, 2019; De Haas, 2021).

The overall concept aligns with the idea that potential immigrants view the urban informal sector as a source of financial prospects rather than a possible risk on par with unemployment. Since a lack of economic growth primarily causes rural-urban migration, thus creating employment and other options for earning a livelihood in rural areas can be

considered a current problem. In this context, the study focuses on "rural-urban migration" and "unemployment" using bibliometric analysis.

Bibliometric analysis can assist in understanding the existing literature and finding the gaps, as well as the researchers and institutions actively engaged in collaborative networks that are relevant to the topic (Benomar et al., 2022). Bibliometric analysis is a series of quantitative investigations that provide insight into a field's history, detect research gaps, and describe the collaboration structure between affiliations or countries (Zupic & Cater, 2014). Additionally, it enables the identification of authors who are actively advancing a field of study and those who have built a strong foundation for collaboration (De Oliveira et al., 2019).

Three categories of bibliometric studies are distinguished: a review of literature, evaluations, and relational investigations (Johnson & Samakovlis, 2019). Meta-analyses or literature reviews, also called "review methods," are frequently used in the review (Zupic & Cater, 2014). Various criteria are used in evaluative studies to assess the academic influence of research articles or authors connected to a particular study subject (impact metrics, hybrid metrics, productivity index, and collaboration index) (Aria & Cuccurullo, 2017). Relational studies analyse the connections between different units of analysis (such as articles, authors, institutions, journals, references, and keywords) within a particular field of study (Benomar et al., 2022).

Additionally, the bibliometric study is divided into four sections: the temporal network, the source network, the spatial network, and the lexical network (Priovashini & Mallick, 2022). The temporal network depicts how a specific research field has evolved through time. In demarcation, the source network assists in identifying the sources that contribute the most to the growth of a particular topic area by focusing on the most prolific authors, highly cited papers and sources of the most influential documents. Next, the geographical distributions of scholarly works, including their authors, affiliated institutions, and the nations where they were produced, are observed using a spatial network. This further aids in the identification of co-collaboration and co-citation network patterns among the researchers of the contributing institutions and nations. The lexical network determines the most pertinent terms and ideas that shape specific themes in that research domain. On the basis of keywords employed and utilising co-word analysis in that research domain. It is also beneficial to comprehend the conceptual connections between the ideas of a specific topic (Ghosh et al., 2022).

The bibliometric analysis has two major techniques i.e., descriptive analysis and content analysis (Castillo-Vergara et al., 2018). The descriptive analysis assists in evaluating the publication performance of authors and sources by utilising the series of publications and journals indexed. Conversely, content analysis shows the intellectual frameworks of the particular themes. It frequently comprises keyword and citation studies identifying emerging themes, thematic evolution, and research focuses.

Thus, this research aims to comprehensively assess the available rural-urban migration publications between 1975 and March 2023 by combining the advantages of qualitative evaluations with computer technology. To be more precise, we used the bibliometrix R-

package and VOS viewer software to assess publication performance and determine the intellectual, conceptual, and social structure of existing rural-urban migration literature.

The researcher attempts to make the following additional contributions to improve the objectivity and transparency of the analysis. To illustrate the popularity of rural-urban migration research over time and evaluate the quality of publications, we first do a descriptive analysis in this study using several indicators (such as the number of publications, the year of the initial publication, h-index, and citations). This allows for the discovery of systematic data in rural-urban migration studies. Researchers then use content analysis to examine rural-urban migration research's intellectual, conceptual, and social structure. Researchers attempt to synthesise the research on rural-urban migration through these three major analyses to help future researchers better understand the topic. Keyword co-occurrence analysis, theme maps, co-citation networks, historical graphs, collaboration networks, and countries collaboration world maps were carried out under these three main analyses. Third, we have more recent data (392 articles from 1975- March 2023) and a longer study period compared to previous reviews of knowledge suppression. The researcher took the data from 1975 which is the oldest date for the relevant topic-related rural-urban migration research available. The more extensive study period and the updated data help to clarify the overview and potential future prospects for rural-urban migration research.

2   METHODOLOGY

Documents are extracted from a single database and processed quantitatively and qualitatively in bibliometric analysis (Van Raan, 2014). For this single database, SCOPUS is commonly used. Elsevier's Scopus was utilised to retrieve publications in the current research on rural-urban migration, which alludes to the results of global studies on rural-urban migration and its relation to and impact on employment. Due to its many advantages over other databases like WOS (Web of Science) and Google Scholar, Scopus was chosen for this study (De Groote & Raszewski, 2012). The ability of Scopus to offer bibliometric information in an easy-to-understand and concise way is its most crucial characteristic (Sweileh et al., 2018). The current study concentrated on articles that were disseminated in peer-reviewed publications. Therefore, the analysis excluded conference proceedings, grey literature, textbooks, and book chapters.

The researcher followed the following steps for bibliometric analysis (Fig.1). We extracted bibliometric metadata about rural-urban migration from the SCOPUS database by querying across "titles, abstracts, and keywords" with the following string: "rural-urban migration" AND "employment".

When the researcher first used the above-mentioned string, 627 documents were retrieved initially. To extract the most pertinent documents that present the relationship between rural-urban migration and employment, additional inclusion and exclusion steps were taken. Firstly, the search was initially restricted to the social sciences as well as Economics, Econometrics, and Finance on the basis of relevance. As the other subject

areas presented information on the medical and geographic effects of migration, urban development, waste workers and urbanisation, the effects of migration on marriageable age, land temperature, etc. By limiting the search to social science and Economics, Econometrics, and Finance subject area, the database identified 429 documents. Further, by eliminating book chapters, book reviews, books, conference papers, editorials, and notes, the documents were further restricted to 'articles' only, i.e., 392 documents. No limitations based on year were made because the researcher aimed to comprehend the topic's emergence and evolution over time.

Figure 1. Data processing steps.
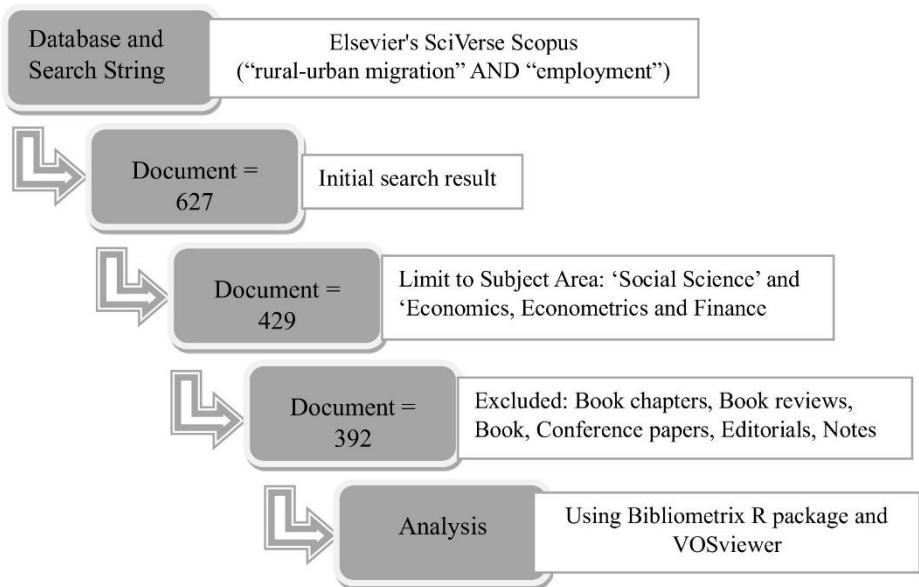
Utilising the Bibliometrix R package, descriptive data were computed, such as the average annual number of publications, most prolific author, institutions, and nations, as well as the author who is cited most. Content analyses were conducted concurrently with VOSviewer and the R programme bibliometrix to assess the final dataset's conceptual, intellectual, and social structure.

3   RESULTS

3.1   Descriptive Analysis

3.1.1   Main Information About Data

The analysis's important statistics, including its essential data on documents, keywords, countries and authorship, are shown in Table 1. Rich and useful information on the attributes of the authors and the authors' collaboration is provided by the authorship (Donthu et al., 2021). According to Table 1, the 392 articles in the sample are written by 691 authors who are connected to 331 affiliations in 47 countries or regions and were released in 187 publications.

Table 1. Overview of Data

Descriptions	Results
Main Information about Data	
Sources (Journals, Books, etc)	227
Documents	392
Annual Growth Rate %	1.45
Document Average Age	19
Average citations per doc	20.24
References	12810
Document Contents	
Keyword Plus (ID)	1277
Author's Keywords (DE)	701
Authors	
Authors	691
Authors of single-authored docs	172
Authors Collaboration	
Single-authored docs	190
Co-authors per doc	1.94
International co-authorship %	16.62
Affiliations	331
Countries	47
Publications	187
Document Type	
Articles	392

3.1.2   Number of Publications per Year

In June 1975, Gary S. Fields's work appeared in Scopus databases as the first study on the role of employment on rural-urban migration titled "*Rural-urban migration, urban unemployment and underemployment, and job-search activity in LDCs*" in which the employment factor influencing rural-urban migration was explored, the Harris-Todaro

model was extended, and suggestions were also made for the same, such as the size of the educational system and a properly functioning labour exchange, etc (Fields, 1975).

The yearly publications and citations of the 392 papers that make up the sample are shown in Figure 2. Since publications have not shown an upward or downward trend over time, the researcher separated the time period into 10 years to analyse the publication and citations each year i.e., 5 periods (1975-1985, 1986-1995, 1996-2005, 2006-2015, 2016-2023) the most recent time frame is from 2016 to the present. In the first period (1975–1985), the year with the most publications was 1984, with 13 documents; in the second period (1986–1995), it was 1991, with 12 documents; in the third period (1996–2005), it was 2002, with 10 documents, and in the fourth period (2006–2015), it was 2011 and 2013, with 14 documents each year. Finally, in the fifth and current period (2016–2023), the year with the most publications was 2021, with 21 documents. Overall, of all the time periods, 2021 has had the most publications, with 21 documents published. The topic of rural-urban migration has not been fully explored, as evidenced by the annual growth rate of published research from 1975 to 2023 i.e., 1.45 percent. Furthermore, the documents' average age is 19, and each one has an average of 20.19 citations, suggesting that no new theories or conceptions have emerged while the latter are still in use.
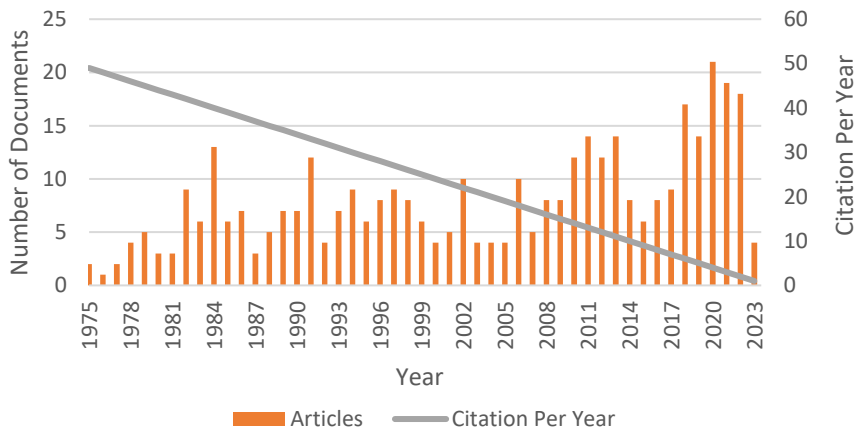

Figure 2. Annual production and citation of documents over the period.

3.1.3 Most Relevant and Cited Journals

This research identifies 392 papers from 188 peer-reviewed journals. The most significant journals in rural-urban migration research are determined using the Hirsch index (h-index) of each journal. The H-index is the number of an author's or journal's articles that have been cited in other papers at least h times. It is frequently used to measure for evaluating the research accomplishment of an author or journal. The top 20 journals (see Table 2) according to h-index are listed. In addition, the year of the first publication

(PY-start), the total number of citations (TC), and the number of publications (NP) are also given. These top 20 publications can be acknowledged as the most prominent and pertinent sources in research synthesis. Table 2 shows that the Journal of Development Economics has the highest h-index (10), with 850 citations, 14 publications, and a first publication in 1975. International Migration Review, on the other hand, has the lowest h-index (9), with 241 citations, 11 publications, and a new publication in 1978. A common rank of h-index 6 is shared by two other eminent journals: World Development (213 citations, 7 publications, and first publication in 1983) and Habitat International (217 citations, 6 publications, and first publication in 2002).

Table 2. Most relevant and cited journals

Element	h-index	TC	NP	PY_start
Journal of Development Economics	10	850	14	1975
International Migration Review	9	241	11	1978
Habitat International	6	217	6	2002
World Development	6	213	7	1983
Environment and Urbanisation	5	119	5	1999
Journal of Regional Science	5	89	6	1981
American Journal of Agricultural Economics	4	73	4	1982
Asia-Pacific Population Journal/ United Nations	4	87	7	1987
China Economic Review	4	258	4	2006
Journal of Developing Areas	4	35	5	1981
Journal of Rural Studies	4	137	6	2015
Land Use Policy	4	198	4	2009
Population, Space and Place	4	84	4	2011
Regional Science and Urban Economics	4	92	5	1981
Social Indicators Research	4	59	5	2017
Sustainability (Switzerland)	4	71	7	2018
Annals of Regional Science	3	15	4	2004
Asian and Pacific Migration Journal	3	34	7	1999
Cities	3	109	5	2006
Eurasian Geography and Economics	3	177	3	2012

3.1.4 Most Relevant Authors

In Table 3, the TC, NP, and PY-start scores of the top 20 authors in the research under study are displayed in relation to their h-index. Their productivity over time is seen in Figure 3. In Figure 2, the colour depth of the spheres is proportional to TC per year, whereas the volume of the spheres is related to NP in each year. As shown in Table 3, the top three ranking authors in terms of h-index are Beladi H (with 5 publications, an h-index of 5 and 96 citations and their first publication in rural-urban migration research in 1994),

Liu Y (with 5 publications, an h-index of 4 and 69 citations and their first publication in knowledge research in 2014), and Mills Mb (with 4 publications, an h-index of 4 and 231 citations and their first publication in rural-urban migration research in 1997).

Table 3. Top 20 relevant authors

| Author	h_index	TC	NP	PY_start
Beladi H	5	96	5	1994
Liu Y	4	69	5	2014
Mills Mb	4	231	4	1997
Fan Cc	3	97	3	2004
Marjit S	3	104	3	1991
Mueller V	3	46	3	2018
Shen J	3	170	3	1995
Wang Z	3	97	3	2002
Wu Y	3	33	4	2018
Zenou Y	3	86	3	1999
Agergaard J	2	48	2	2011
Banerjee B	2	76	2	1984
Basu B	2	16	2	2000
Bhattacharya Pc	2	39	2	1996
Brueckner Jk	2	79	2	1999
Chen J	2	53	2	2018
Chen Y	2	28	2	2019
Deng W	2	30	2	2018
Frayne B	2	45	2	2005
Grote U	2	129	2	2015
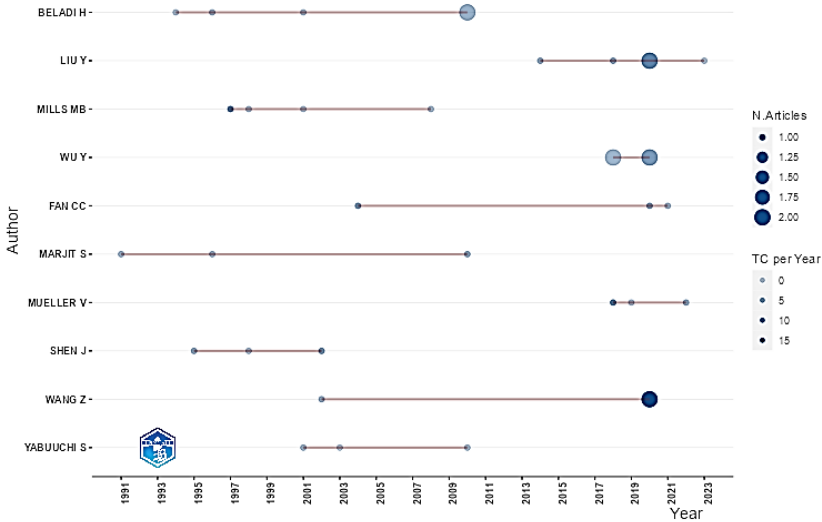
Figure 3. Production over time of relevant authors

3.1.5   Most contributed countries

Journal articles on this topic have been published by 48 countries in total. Figure 4 depicts the most productive nations using the corresponding author's countries in the field of rural-urban migration research in terms of Single Country Publications (SCP) and Multiple Country Publications (MCP). The United States and China rank first and second, respectively, in terms of SCP and MCP. Australia, India, and the United Kingdom make the top five. The top 10 countries for research on rural-urban migration, as measured by the number of publications (f) using the country scientific production analysis, are shown in Table 4. With 165 and 118 publications, respectively, the US and China are the two countries that create the greatest amount of scientific literature. The UK, Australia, and India come next, with 44, 43, and 39 publications, respectively.
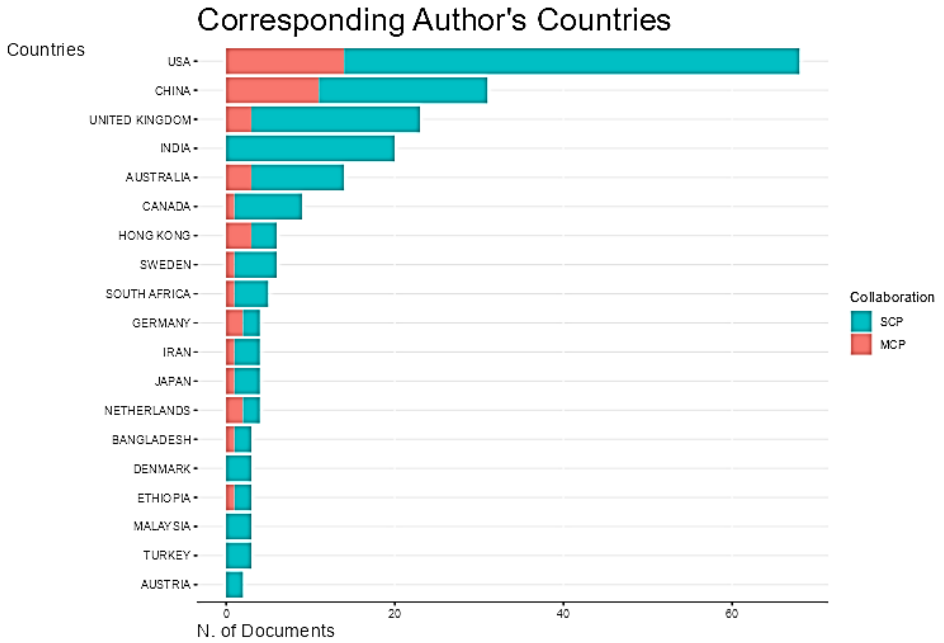
Figure 4. Contribution of countries in terms of publications

Table 4. Top 10 contributed countries

Region	Frequency
Usa	165
China	118
Uk	44
Australia	43
India	39
Canada	22
Germany	15
South Africa	13
Japan	12
Nigeria	12

3.2   Keyword Network Analysis

A key technique in bibliometric analysis is keyword analysis because of the high level of identification and clarification it offers, allowing for a creative method for tracing the development of a discipline and figuring out the structure of a specific subject (Peset et

12

al., 2019). The word cloud method is used to measure and illustrate keyword frequency, as seen in Figure 5.

Both Figures (Figure 5(a) & 5(b)) show where the research is concentrated, but the one created from the author's keywords reveals a high content of study on China (Figure 5(a)). This concentration is relatively high, which is understandable given the country's rapid and pervasive urbanisation over the previous few years. The word cloud created using Keyword Plus (Figure 5(b)) shows that a wide range of research topics, including employment, population dynamics, demographic factors, economic considerations, etc., are being studied.

Figure 5. Keyword network: **A.** Based on authors' keywords and **B.** Based on indexed keywords.

3.3   Content Analysis

3.3.1   Conceptual Analysis

- *Keyword Co-occurrence Analysis*

To gain a deeper understanding of the dynamics of interaction in the field of rural-urban migration, a keyword co-occurrence analysis carried out in R (shown in Figure 6) provides a co-occurrence network portraying the keyword universe (Batagelj & Cerinšek,

2013). As opposed to author keywords, Keyword Plus terms are more generally descriptive, therefore they are employed as analysis inputs (Zhang et al., 2015; Gao & Wang, 2022). In a co-occurrence network (keyword), a word is represented as a node for each keyword and a connection for each instance of two words occurring together. The frequency with which a word pair surfaces in disparate publications establishes the strength of the link between them (Radhakrishnan et al., 2017).

The 4 clusters were discovered using keyword co-occurrence analysis (Figure 6), and they were depicted using vivid colors. The first cluster, which is highlighted in red, includes the terms "rural-urban migration, labour migration, and urbanisation" because these concepts are interrelated, although the term "rural-urban migration" is the key concept and is used more frequently in studies than the other two. The factors that influence decisions on rural-urban migration (such as "population dynamics, economic factors, demographic factors, socioeconomic factors, employment and geographic factors") are shown by the second and third clusters, which are coloured blue and green, respectively. The fourth clusters (purple colour) depict the prevalence of the research field where the majority of studies were conducted i.e., China. According to the strength of the links (Figure 6), "employment, economic factors, population dynamics, socioeconomic factors, and demographic factors" are the key factors on rural-urban migration.

Figure 6. Keyword co-occurrence network

- *Thematic Map*

One of the main benefits of the theme map is its capacity to show the emphasis of research in different categories according to degrees of centrality and density (Mobin et al., 2021). How closely related many themes are to one another defines a theme's centrality, while a theme's density reveals how it has evolved. (Esfahani et al., 2019). The creation of a thematic map, which establishes themes based on clustering recurrent keywords, offers further unbiased insights (Bajaj et al., 2022). We can identify the themes

inherently and set the stage for an investigation of the many quadrants that the themes fall into by creating a thematic map (Rejeb et al., 2022).

A thematic map in Figure 7 displays the concentration of themes associated with rural-urban migration. The dotted lines show how density and centrality divided the map into four distinct sections. The size of the bubbles is determined by how many publications contain the keyword. The first quadrant contains the motor themes, which are also the topics with the highest density and centrality. Substantial internal and external linkages connect these well-developed themes. The second quadrant contains motifs referred to as well developed and isolated, or themes with a high density but a low centrality. They stand out for having strong internal linkages and only tangentially relevant exterior ties. The third quadrant is where the emerging or declining themes are located. Their low values for centrality and density demonstrate the frailty of their connections both internally and externally. The final quadrant's themes are low density and highly central. The basic themes show strong outward connections and insignificant interior connections. The important subjects, as depicted on the map (Figure 7), have a large number of citations overall, and contain the following keywords: migration, employment, and rural-urban movement.
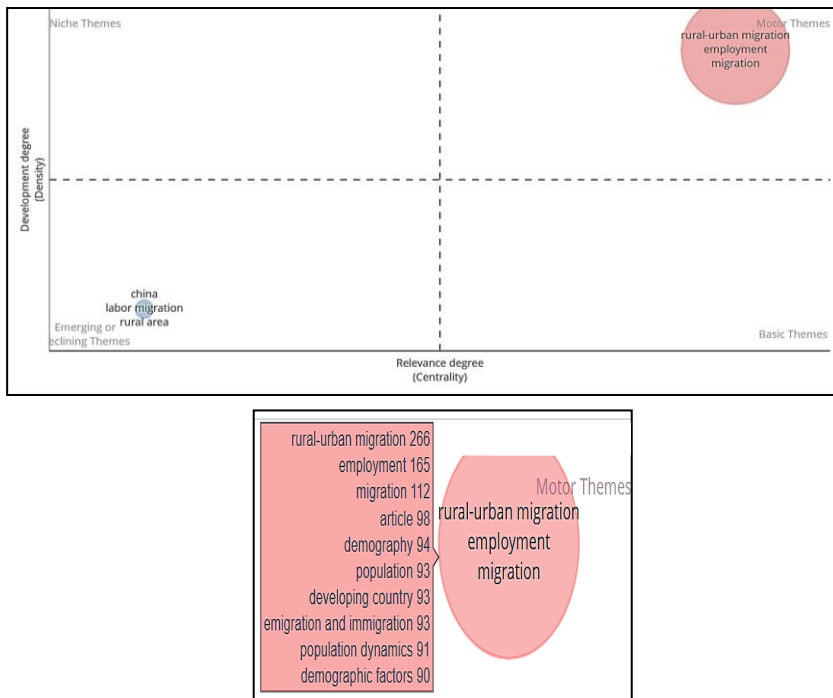
Figure 7. Thematic map in rural-urban migration

3.3.2   Intellectual Analysis

-   *Co-citation Network*

The frequency with which two documents are mentioned together can be ascertained by analysing their co-citations. The more often these papers are quoted together, the more persuasive they become (Pelit & Katiricioglu, 2021). Author co-citation networks allow researchers to progressively discover the most widely recognised experts in a certain field of expertise (Lin & Himelboim, 2018). Using VOSviewer, the co-citations of the authors were analysed and visualised. First, authors and co-citation analysis were chosen in VOSviewer. There were 11655 total authors, the minimum number of citations for an author was set at 20, and only 37 authors met the threshold. They were represented by 37 nodes in the co-citation network that were organised into three clusters (Figure 8). The red cluster has 16 items, the three most prominent authors in this cluster are Todaro, M.P (citations-36, link strength-500), Stark, O (citations-52, link strength-355), and Harris, J.R (citations-40, link strength-218). The green cluster has 11 items, the three most prominent authors in this cluster are Knight, J. (citations-61, link strength-749), Meng, X. (citations-55, link strength-984), and Zhao, Y. (citations-43, link strength-697). The blue cluster has 10 items, the three most prominent authors in this cluster are Liu, S. (citations-61, link strength-772), Fan, C.C(citations-59, link strength-607), and Chan, K.W (citations-47, link strength-469).
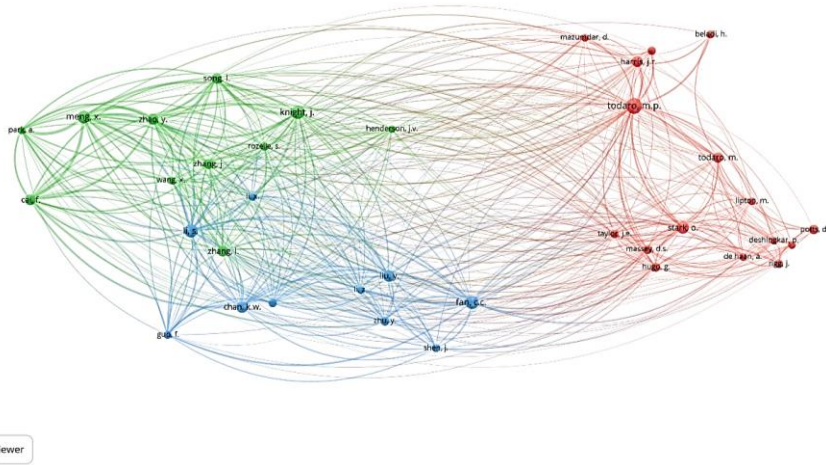
Figure 8. Author's co-citation network

In a study of source co-citations, it is presumable that the frequency with which two journals are referenced in conjunction significantly impacts the link between them. The study of source co-citations was done with VOSviewer. The co-citation network of sources, however, consists of 47 nodes, which represent 47 sources that are grouped into four clusters (Figure 9). Initially 1273 sources were there, the minimum citation for a source was set to 20, 47 met threshold. The size of a node varies with the number of citations it has. The first cluster (red) has 22 items the most three prominent sources in

this cluster are International Migration Review (citations-72, link strength-632), Economic and Political Weekly (citations-68, link strength-605) and Urban Studies (citations-66, link strength-644). The second cluster (green) has 17 items, the most three prominent sources in this clusters are American Economic Review (citations-181, link strength-1741), Journal of Development Economic (citations-137, link strength-1477), and Journal of Political Economy (citations-74, link strength-907). The third cluster (blue) has 5 items, the two most prominent sources in this cluster are World Development (citations-127, link strength-1411) and Journal of Development Studies (citations-57, link strength-683). The fourth cluster (yellow) has 3 items, the most prominent sources in this cluster is Economic Development and Cultural Change (citation-81, link strength-1011).
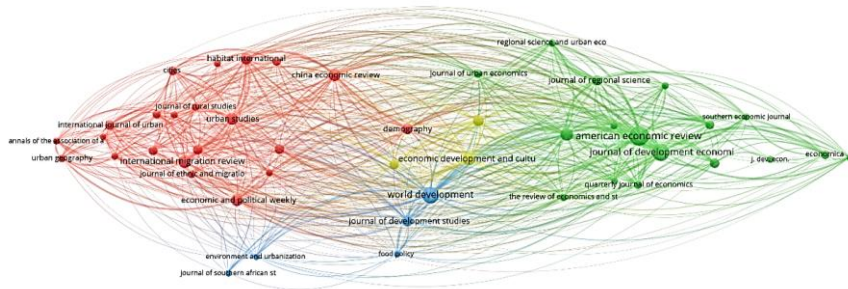
Figure 9. Source co-citation network

- *Historiograph*

Researchers conducted a historiographic citation analysis to map the rural-urban migration citation network chronologically. The sophisticated citation map with two distinct but linked clusters is shown in Figure 10, along with a timeline and direct citation links. The work of BRUECKNER J.K. in 1999 in Regional Science and Urban Economics, which reflected the most widely accepted theory of rural-urban migration of Harris-Todaro models, served as the impetus for the core cluster (top), which encompassed the years 1999 to 2021. It is also the most globally cited paper with GCS 55. In second cluster, which covered the period from 2013 to 2020, was initiated by WANG X, 2013 paper in Eurasian Economic Review which covers the urbanisation and surplus labour concept. But the Deng W, 2020 work was more globally cited with GCS 13, which covers spatiotemporal characteristics of rural labour migration in China under the new type of urbanisation.
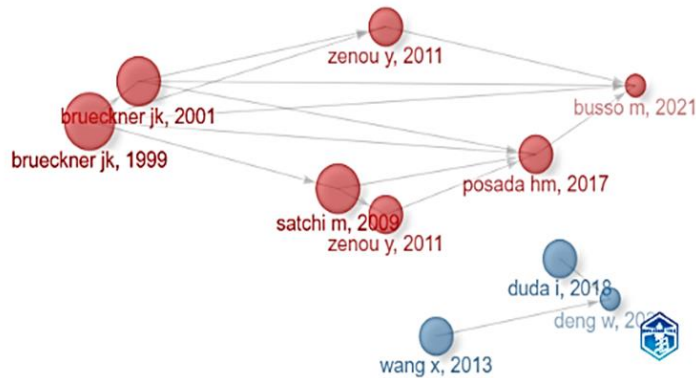
Figure 10. Historiography of rural-urban migration research

3.3.3   Social Analysis

- Collaboration Network

The collaboration network (author) represents the total number of co-authored papers in a certain academic field (Alnajem et al., 2020). There aren't many joint research projects in the literature on rural-urban migration, based on the network's incredibly low connectivity (Figure 11). The network also shows the 8 primary research communities that the rural-urban migration research is divided into, with Liu Y and other authors (Wu Y, Chen J, Beladhi H and Ingene CA) occupying the most prominent positions in the collaborative network. Additionally, a number of dispersed subnetworks exist, indicating a rather low level of collaboration in rural-urban migration research (Figure 11).

The network of institutional collaboration in rural-urban migration research is depicted in Figure 12. The linkages represent the relationships of collaboration, and the node size reflects the total number of publications for each institution. 7 distinct colours are used to indicate the 7 research clusters in the diagram. The largest cluster (blue), contains the 5 institutions, second large cluster (red) contains 4 institutions and remaining clusters (green, orange, brown, purple, pink) contains 2 institutions each, that actively contribute to the literature on rural-urban migration. The most contributed institutions are Nanjing University, Renmin University of China, Institute of Geographic Science and Natural Resources Research, University of California and the University of Bristol.
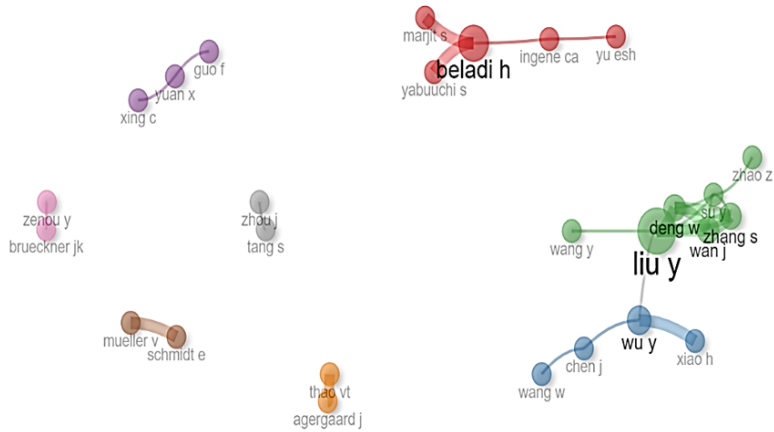
Figure 11. Author's collaboration network
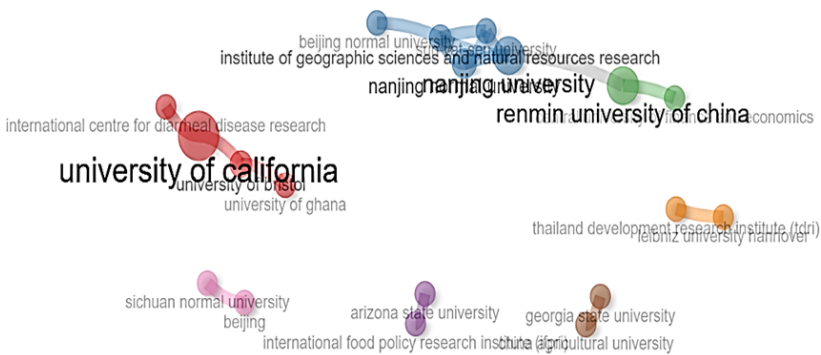
Figure 12. Affiliations collaboration network

- *Countries Collaboration Worldmap*

The countrywide network of collaboration for rural-urban migration research is depicted in Figure 13. The diagram shows that the USA is the country that contributes to rural-urban migration research the most frequently, and it also shows strong partnerships with other countries like China, Australia, and the United Kingdom. The graphic also demonstrates a somewhat smidge of collaboration between Japan, India, and Spain, Pakistan. This research demonstrates that geographical or linguistic proximity does not affect global collaborative networks, even though neighbouring countries do collaborate to some degree.
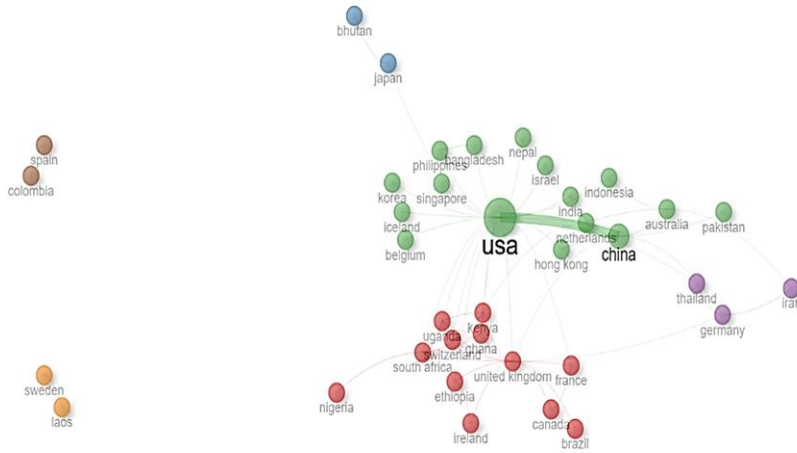
Figure 13. Countries collaboration network

Worldwide trends in collaboration for research are depicted on a world map in Figure 14. The most productive collaboration is between USA and China (f=16) then the collaboration of USA with India and United Kingdom (f=3), China with Australia and Hong Kong (f=3). Table 5 displays the number of works and the top 12 collaborations.
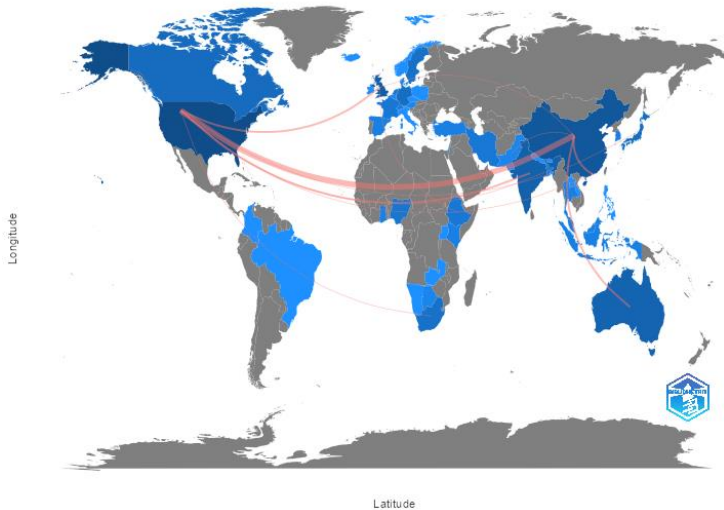
Figure 14. Worldmap of countries collaboration

Table 5. Top 12 collaboration of countries

From	To	Frequency
USA	China	16
USA	India	3
USA	United Kingdom	3
China	Australia	3
China	Hong Kong	3
China	Pakistan	2
China	United Kingdom	2
USA	Hong Kong	2
USA	Japan	2
USA	South Africa	2
USA	Bangladesh	2
United Kingdom	Ethiopia	2

4   DISCUSSION

This study used bibliometric analysis to examine the rural-urban migration in relation to the employment factor in the fields of social science, economics, econometrics, and finance. Although there has been a peaks and troughs in the publication of research on rural-urban migration in relation to employment, there is no definite upward or downward trend in the development of this research area. However, 2021, with 21 documents, had the highest number of publications from the first year (1975) to the present. Gary S. Fields published the first paper in 1975, which examined the employment component of migration from rural to urban areas and extended the Harris-Todaro model. The paper also made recommendations for the model, including the size of the educational system and the efficiency of the labour market, etc (Fields, 1975). The work of Gary S. Fields was the most globally cited (346) and local cited (8) document and followed by Chan KW (303), Meng X (222), and AU C-C (205) in the most globally cited documents which explores the "hukou" housing registration system and its impact on employment and other benefits, rural-urban migration policy and restrictions, and the labour market through migration (Au & Henderson, 2006; Chan, 2010; Meng, 2012) and Meng X and Brueckner JK with 5 citations each and Banerjee B (4) in local cited documents. Brueckner and Zenou (1999) and Brueckner and Kim (2001) gave the additional factor in the Harris-Todaro model which is the land market and explained the wage and employment factor in the formal sector where Banerjee (1984) and Banerjee (1991) tested the employment factor in free-entry activities and migration. However, Beladhi H, Liu Y, and Mills MB are the well-known authors regarding the most pertinent authors based on h-index. In order to further develop the Harris-Todaro migration model, Beladhi H determined the employment consequences of the urban manufacturing sector, which serves as a vital input for the rural sector. Whereas Liu Y investigated the relationship between migrant social capital and the

effectiveness of public services in China's Jiangsu province, Mills MB studied the rural-urban migration of rural women as well as important social and economic variables (such as low-wage and low-status migrants) and worksite exploitation that they experienced.

Although the most relevant and frequently cited authors addressed China in their studies, the United States has made the largest contribution in terms of the amount of work (f= 165) published in the area whereas China is at second place with f=118. As, in developed countries compared to developing countries, migration intensity is generally higher (Selod & Shilpi, 2021). However, as a result of the widespread rural-urban migration in China, both international and domestic researchers and policymakers have taken notice (Meng, 2002). It is also subject of considerable research due to its growing urbanisation, policies, and restrictions on rural-urban migration (Kleinwechter, 2012; Meyer-Clement & Zeuthen, 2020; Kan & Chen, 2021). In addition, it can be inferred from keyword analysis also that more studies have focused on China. According to Keyword analysis and Keyword co-occurrence analysis, it can be argued that employment (Fields, 1975; Bencivenga & Smith, 1997; Chen & Wang, 2018), demographic factors (Banerjee, 1991; Li & Duda, 2010; Kosec et al., 2017; Lal et al., 2021), economic factors (Guang, 2001; Mobrand, 2006; Rupasingha et al., 2015), population dynamics (Rudel & Richards, 1990; Currit & Easterling, 2009; Qin et al., 2022) and socioeconomic factors (Poertner et al., 2011; Choithani et al., 2021; Sravanth & Sundaram, 2022) are the variables which are interlinked and impact the rural-urban migration.

The thematic analysis identifies the driving theme as either rural-urban migration or migration and employment, while China and labour migration are emerging or declining issues. The main justification for increasing consideration of employment is that it is one of the major factors influencing migration (Lyu et al., 2019; Mueller et al., 2019; Revathy et al., 2020; Tripathi, 2020).

Furthermore, according to the analysis of co-citation (authors), M.P Todaro and J.R Harris, are notable researchers as they introduced the theory and factors for rural-urban migration. However, Stark et al., (1991) challenge Todaro's model of rural-to-urban migration's assertion that "increasing urban employment increases urban unemployment." Further new dimensions were added in rural-urban migration. Meng (2002) investigated the role of the informal sector in the procedure of rural-urban migration by separating the group of wage earners and self-employed individuals within the sector. As a result of Knight and Yueh (2009) analysis of the labour market, discovered that migrants and urban employees compete with one another for employment also urbanisation and relocation impact the employment and rural dweller (Shaoquan et al., 2004). And according to a co-citation analysis of sources American Economic Review, Journal of Development Economic and World Development are the most cited sources in the concerned field. The top 10 globally and locally cited authors were identified using historiography. They covered Harris-Todaro model with land market (Brueckner & Zenou, 1999; Brueckner & Kim, 2001), labour market, rural-urban migration and unemployment theories and policies, urbanisation, drivers of rural-urban migration and impact on food security and spatiotemporal characteristics of rural migration.

The analysis of author's collaboration network reveals that there are substantial collaborations in the study of rural-urban migration. Liu y and other authors (Wu Y, Chen J, Beladhi h and Ingene CA) occupy the most prominent collaborative network positions. By collaborating and creating significant works, these authors advance the body of literature and the field of study. The institution collaboration network reveals Nanjing University, Renmin University of China, Institute of Geographic Science and Natural Resources Research, University of California and University of Bristol are most contributed and collaborated with other institutions. Finally, the countries collaboration worldmap demonstrates that USA is the country that contributes to rural-urban migration research the most frequently, and it also shows strong partnerships with other countries like China, Australia, and United Kingdom.

4.1   Theoretical Implications

A wide spectrum of people is interested in studying rural-urban migration, including academicians, researchers and research institutions. From an academic standpoint, the results of a bibliometric study contribute to the provision of some findings on important concerns that academics should consider while investigating rural-urban migration. Academics can expand their comprehension of the numerous factors that have helped to create the interdisciplinary field of rural-urban migration research. This study can assist scholars in recognising and comprehending emerging trends in this field, as well as the keywords used, publications that focus on these inquiries, and field reference studies. It provides insight into the significance of the subject and, as a result, can be used as a reference point for further study and to comprehend other elements influencing rural-urban migration besides employment.

4.2   Practical Implications

As the rural-urban movement is a global phenomenon, the findings are especially noteworthy to scientists, academics, policymakers, people working in research organisations, and governments. Researchers recommend governments and policymakers to collaborate in order in context of the relevant research that have already been conducted. Based on the study, governments and policymakers can determine what factors impact rural-urban migration most. Considering that all nations differ from one another in terms of their geographic, demographic, and economic characteristics, policymakers might identify shared issues by looking at research and the countries that have given the most to the field's study and research. In addition, it can act independently or in collaboration with other countries. From the reviewed literature, China is one of the most researched nations and has experienced an abrupt increase in urbanisation, other emerging nations can learn from its limitations and regulations on rural-urban migration.

4.3   Limitation and Future Research

Despite its contributions, one of the paper's limitations is its utilisation of a single database to extract data instead of several sources. Despite the fact that we believe Scopus

contains a substantial number of papers that adequately represent the field, we think using different databases will give the topic more coverage. We excluded unpublished working papers, doctoral theses, book chapters, books and conference proceedings from the rural-urban migration literature. Additionally, because we only looked at publications in English, the value of research done in other languages was undermined. To analyse this study, only VOSviewer and the R programme were employed. Other tools, such as Tableau, Gephi, CiteSpace II, Bibexcel, and CiteSpace II, can be utilised in the future study alongside to the R package and VOSviewer. Furthermore, future studies might incorporate factorial analysis and other bibliometric analyses such as bibliographic coupling, reference publication year spectroscopy, Bradford's law, and other descriptive analyses.

This research succeeded in locating and mapping global scholarly studies, but the primary reasons for the wave-like trend of publications in this literature throughout time have not been revealed by our findings. This provides the opportunity for further investigation that expound on the causes behind the current trend in rural-urban migration studies. This research identifies a number of notable institutions and countries that make significant contributions to the study on rural-urban migration. It would be worthwhile for future researchers to investigate the factors that contribute to these institutions and countries high productivity in the field of rural-urban migration.

Future research might also examine the effect of governmental policies, employment and unemployment factors, economic variables, demographic dynamics, and geographic factors that may explain the rising number of studies connected to rural-urban migration, utilising qualitative and quantitative methods. The results may also aid future researchers in determining study areas that may be in demand in the study of rural-urban migration in the upcoming years. Therefore, this bibliometric study can operate as a starting point for professionals and academics interested in rural-urban migration factors and research.

5   CONCLUSION

This study examines the global research trends in the area of rural-urban migration from the beginning of the subject (1975) to March 2023. Which enables for the creation of a thorough overview and spans the entire history of publication in this field. By exploring the Scopus database for papers from 1998 to the present, we were able to identify a recent era of significant scholarly publications on this topic. Gary S. Fields published the first article "Rural-urban migration, urban unemployment and underemployment, and job-search activity in LDCs" in 1975. This topic's publication pattern is wave-like rather than having a clear upward or downward trend, with the year 2021 seeing the most activity—21 documents—on the subject. The topic of rural urban migration has not been fully explored, as evidenced by the annual growth rate of published research from 1975 to 2023 i.e., 1.45 percent. Even though various countries have produced articles on the topic, research on rural-urban migration has not received comparable emphasis worldwide. The United States tops the world in paper production followed by China, the United Kingdom, Australia and India. In the period of 1975 to March 2023, 691 authors published works on rural-urban migration; the three most

relevant authors on the basis of h-index are BELADI H, LIU Y, and MILLS MB. The Journal of Development Economics is the highest cited journal in (brief some point on the most research) (850 citations, h-index=10) followed by International Migration Review (241 TC), Habitat International (217 TC) and World Development (213 TC). As per the co-citation of sources, the American Economic Review (citations-181, link strength-1741), Journal of Development Economic (citations-137, link strength-1477) and World Development (citations-127, link strength-1411) are the top three journals in the field. Additionally, the most frequently co-cited authors are Knight, J. (citations-61, link strength-749), Liu, S. (citations-61, link strength-772), and Fan, C. C. (citations-59, link strength-607).

According to collaboration network analysis, in authors, Liu Y and other authors (Wu Y, Chen J, Beladhi H and Ingene CA) occupying the most prominent positions, in institutions Nanjing University, Renmin University of China, Institute of Geographic Science and Natural Resources Research, University of California and University of Bristol are the most contributed institutions. Whereas, according to the countries collaboration worldmap, the USA shows strong partnerships with other countries like China, Australia, and the United Kingdom.

The keyword co-occurrence analysis demonstrates the strong relationship between rural-urban migration and employment and the emergence of new factors such as economic, population, and demographic factors. It also represents that most of the studies have been done in China on the basis of the occurrence. The thematic map analysis also presents rural-urban migration or migration and employment as motor themes. This conclusion suggests a variety of fruitful research avenues based on the themes, keywords, and applicability of the sources, nations, etc. As more renowned international academics from top universities around the world demonstrate a proven record of publishing rural-urban migration studies in top-tier publications, researchers anticipate that the field of rural-urban research will develop and grow.

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