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FISCAL DECENTRALIZATION: A BIBLIOMETRIC ANALYSIS OF FIFTY YEARS OF STUDY

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Abstract. This study presents a bibliometric analysis of research on fiscal decentralization over the past fifty years (1974-2024), based on data from the Scopus database. By employing bibliometric tools, such as VOSviewer, we analyze publication trends, key topics, prominent authors, and countries contributing to the literature. The results indicate significant research growth in fiscal decentralization, with China emerging as a leading research hub. Our analysis also uncovers thematic connections between fiscal decentralization and governance, environmental policy, and public health, suggesting the broad relevance of this topic across various disciplines. These findings offer valuable insights for both policymakers and scholars aiming to understand the evolving discourse on fiscal decentralization.
Keywords: fiscal decentralization, bibliometric analysis, economic performance, VOSviewer

Аңдатпа. Бұл зерттеу Scopus дереккорындағы деректерге негізделген соңғы елу жылдағы (1974-2024) фискалдық децентрализация бойынша зерттеулердің библиометриялық талдауын ұсынады. VOSviewer сияқты библиометриялық құралдарды қолдана отырып, біз жарияланымдардың тенденцияларын, негізгі тақырыптарды, көрнекті авторларды және әдебиетке үлес қосатын елдерді талдаймыз. Нәтижелер фискалдық децентрализация бойынша зерттеулердің айтарлықтай өскенін көрсетеді, Қытай жетекші зерттеу орталығы ретінде пайда болды. Біздің талдауымыз фискалдық децентрализация мен басқару, экологиялық саясат және қоғамдық денсаулық арасындағы тақырыптық байланыстарды да анықтайды, бұл тақырыптың әртүрлі пәндер бойынша кең маңыздылығын көрсетеді. Бұл тұжырымдар саясаткерлер мен ғалымдарға фискалдық децентрализация бойынша дамып келе жатқан дискурсты түсінуге арналған құнды түсініктерді ұсынады.
Түйін сөздер: фискалдық децентрализация, библиометриялық талдау, экономикалық тиімділік, VOSviewer

Аннотация. В данном исследовании представлен библиометрический анализ исследований по фискальной децентрализации за последние пятьдесят лет (1974-2024), основанный на данных из базы данных Scopus. С помощью библиометрических инструментов, таких как VOSviewer, мы анализируем тенденции публикаций, ключевые темы, выдающихся авторов и страны, вносящие вклад в литературу. Результаты показывают значительный рост исследований по фискальной децентрализации, при этом Китай становится ведущим исследовательским центром. Наш анализ также выявляет тематические связи между фискальной

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децентрализацией и управлением, экологической политикой и общественным здоровьем, что свидетельствует о широкой значимости этой темы в различных дисциплинах. Эти выводы предоставляют ценные инсайты как для политиков, так и для ученых, стремящихся понять развивающийся дискурс по фискальной децентрализации.

Ключевые слова: фискальная децентрализация, библиометрический анализ, экономическая эффективность, VOSviewer

Introduction

Fiscal decentralization, defined as the transfer of fiscal authority from central to sub-national governments, has garnered substantial scholarly attention due to its potential to enhance good governance, economic growth, and efficient public service delivery [1]. According to Tiebout (1961), fiscal decentralization ensures that subnational governments are closer to the people, and thus have better and more detailed information about their constituents. Through fiscal decentralization, the alignment of the preferences of local communities and local governments will occur as a result of competition between local governments and community mobilization [2]. Additionally, when appropriately calibrated, fiscal decentralization has been shown to enhance economic growth, improve environmental performance, reduce corruption, and enhance the internally generated revenues of sub-national governments [3], [4], [5].

Despite all its purported benefits, fiscal decentralization is not without its critics. Some studies have outlined the limits of fiscal decentralization, such as the fact that the size of a country, as measured by geographical land size has limiting effects on the benefits of fiscal decentralization. Additionally, the quality of regulation and the rule of law have significant implications on its effectiveness. It was also found that while fiscal decentralization deterred corruption in developed countries, greater autonomy in spending for subnational tiers of government increased various forms of malfeasance in developing countries [6].

Since fiscal decentralization has been a major area of interest for researchers and practitioners for decades, this study examines the scope of research conducted on the subject. Recent studies explore its multifaceted impact, extending beyond economic outcomes to include environmental sustainability, healthcare, and social capital [7].

This study conducts a bibliometric analysis of scholarly literature on fiscal decentralization for the past 50 years (1974 to 2024) by using information from Scopus database and VOSviewer software. Such an analysis is important in order to appreciate key trends in fiscal decentralization research. Furthermore, bibliometric analysis constitutes an important method used to identify the latest developments on a topic and can utilized to analyze the indicators in a field of study [8], [9], [10], [11]. This paper aims to provide a comprehensive bibliometric analysis, identifying key research trends and gaps in the literature, and contributing to the evolving understanding of fiscal decentralization's role in modern governance.

Materials and methods

This study adopts a performance analysis method, utilizing bibliometric data from Scopus to analyze research papers in fiscal decentralization. The dataset covers a period of 50 years (1974 -August 29, 2024). The decision to use Scopus was motivated by its robust indexing of peer-reviewed journals, ensuring the inclusion of high-quality academic sources [12]. A total of 1844 publications were retrieved from the Scopus database by inputting the words "Fiscal Decentralization" in the search prompt. Scopus data analytics was first used to analyze the dataset by clicking on the "Analyze results" prompt on the Scopus page. The dataset was further processed using VOSviewer to generate network and density visualizations, which reveal key research clusters, author collaborations, thematic trends, and so on. VOSviewer can manage large amounts of data and provide aesthetically appealing visual images that help the researcher appreciate the intricate linkages between research papers and authors in a very significant way (Van Eck and Waltman, 2023).

Among the depictions in VOSviewer are network visualization and density visualization. In network visualization, items are depicted by their label and also by a circle (node). The size of a label and the corresponding circle is determined by the

weight of the item. The higher the weight of an item, the larger the label and the circle of the item. The color of an item is represented by the label to which it belongs, and lines between items represent links between them. In the case of density visualization, items are also represented by their labels and each point has a color that indicates the density of the item. The colors range from blue to green to yellow, and the larger the number of items around a point and the higher the weights of the neighboring items, the closer the color of the point is to yellow color. On the other hand, the smaller the number of items around a point and the lower the weights of the neighborhood items, the closer the color of the point is to blue color [13].
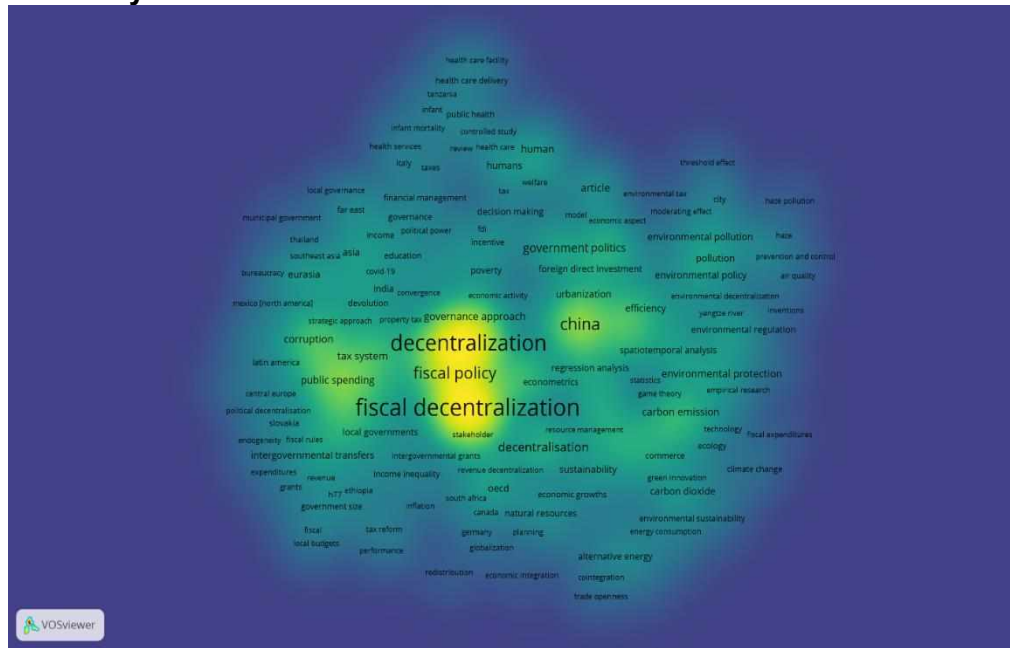
Results

Figures 1 and 2 show the density and network visualizations respectively of all keywords associated with fiscal decentralization. The results from Figure 1 highlight that the four most prominent keywords in fiscal decentralization research are "fiscal decentralization," "decentralization," "fiscal policy," and "China." This demonstrates the centrality of China in fiscal decentralization research, particularly in the context of governance and public policy.

This means that these 4 keywords are most prominent in fiscal decentralization research. The network visualization in Figure 2 has 6 clusters with different colors. The biggest node has red color with the keywords: "decentralization" and "fiscal decentralization". There is also a smaller node in red color with the words "fiscal policy". This means that there is a strong association of these 3 keywords in the study of fiscal decentralization. The next larger node with blue color has the keyword "China". This means that many fiscal decentralization studies were conducted in China. Clicking on the node shows the number of occurrences of the items on that node. From Figure 2, we can see these four keywords and how many times they occur in the network.

The keyword with the highest occurrence is "fiscal decentralization" with 749 occurrences and a total link strength of 3,709. The second keyword in terms of occurrence is "decentralization" which occurred 623 times, with a total link strength of 5,108. This means that even though the word "decentralization" occurred fewer times than "fiscal decentralization", it is more connected (linked) to other words in the network. The third item in terms of the number of occurrences is "fiscal policy", which appeared 257 times with a total link strength of 2,262. Similarly, the word "China" appears 296 times in the network with a total link strength of 2,726. Other keywords in both Figure 1 and Figure 2 include environmental policy, environmental pollution, sustainability, green innovation, intergovernmental transfers, public health, governance, COVID-19, government, politics, and so on. This shows the strong linkages between fiscal decentralization and such topics and reveals the broader application of fiscal decentralization in addressing societal challenges beyond economic growth and governance.3,709. The second keyword in terms of occurrence is "decentralization" which occurred 623 times, with a total link strength of 5,108. This means that even though the word "decentralization" occurred fewer times than "fiscal decentralization", it is more connected (linked) to other words in the network. The third item in terms of the number of occurrences is "fiscal policy", which appeared 257 times with a total link strength of 2,262. Similarly, the word "China" appears 296 times in the network with a total link strength of 2,726. Other keywords in both Figure 1 and Figure 2 include environmental policy, environmental pollution, sustainability, green innovation, intergovernmental transfers, public health, governance, COVID-19, government, politics, and so on. This shows the strong linkages between fiscal decentralization and such topics and reveals the broader application of fiscal decentralization in addressing societal challenges beyond economic growth and governance.
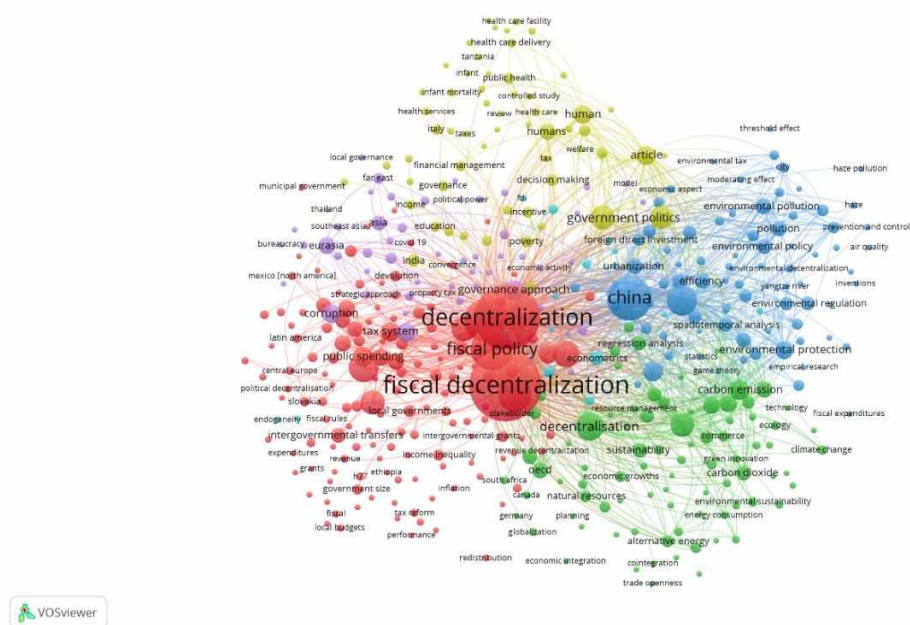
Figure 1. Density Visualization of links

Source: Compiled by authors based on Scopus Database

Figure 3 and Table 1 show the number of publications on fiscal decentralization, and for the most part indicate an increasing trend from 1974 until August 29, 2024. It is shown that the highest number of publications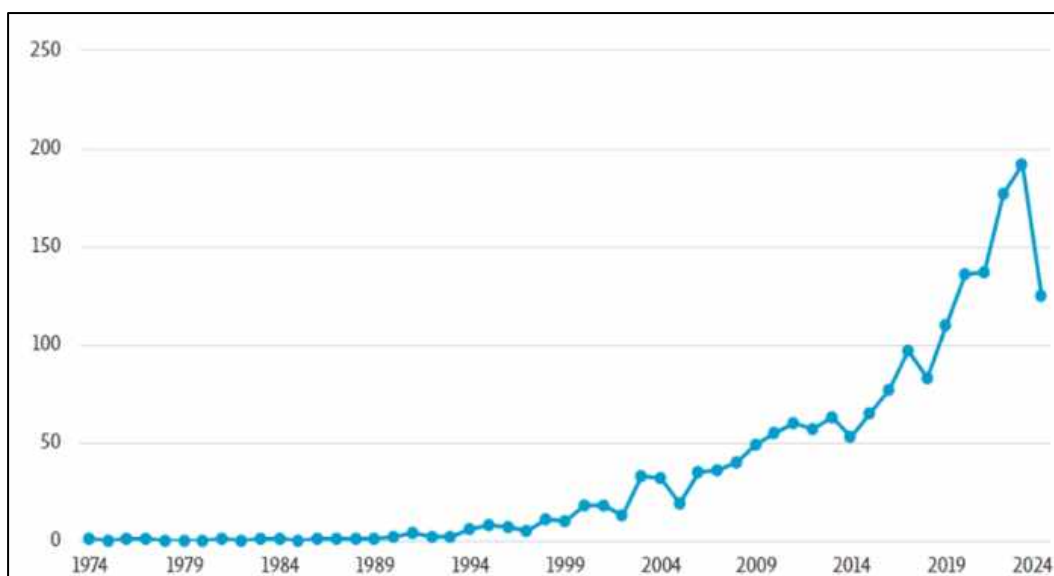 on fiscal decentralization occurred in 2023 with a total number of 192 publications, followed by 177 publications in 2022. From 1974 to 1997 the numbers of yearly publications were in single digits, with zero publications in 1975, 1978, 1979, 1980, 1982, and 1985.

Figure 2. Network Visualization of all Keywords

Source: Compiled by authors based on Scopus Database

Figure 3. Number of Publications in Fiscal Decentralization (1974-August 29, 2024)

Source:Scopus Database

Table 1. Number of yearly publications on the theme of fiscal decentralization (1974-August 29, 2024)

Year	Number of publications	Year	Number of publications
2024	122	1997	5
2023	192	1996	7
2022	177	1995	8
2021	137	1994	6
2020	136	1993	2
2019	110	1992	2
2018	83	1991	4
2017	97	1990	2
2016	77	1989	1
2015	65	1988	1
2014	53	1987	1
2012	57	1986	1
2011	60	1985	0
2010	55	1984	1
2009	49	1983	1
2008	40	1982	0
2007	36	1981	1
2006	35	1980	0
2005	19	1979	0
2004	32	1978	0
2003	33	1977	1
2002	13	1976	1
2001	18	1975	0
2000	18	1974	1
1999	10		
1998	11		

Source: Compiled by Authors based on Scopus Database

Number of Publications by Country

Figure 4 shows the network visualization of the number of studies on fiscal decentralization by country. The network visualization shows the color-coded clusters, with the size of each node indicating the 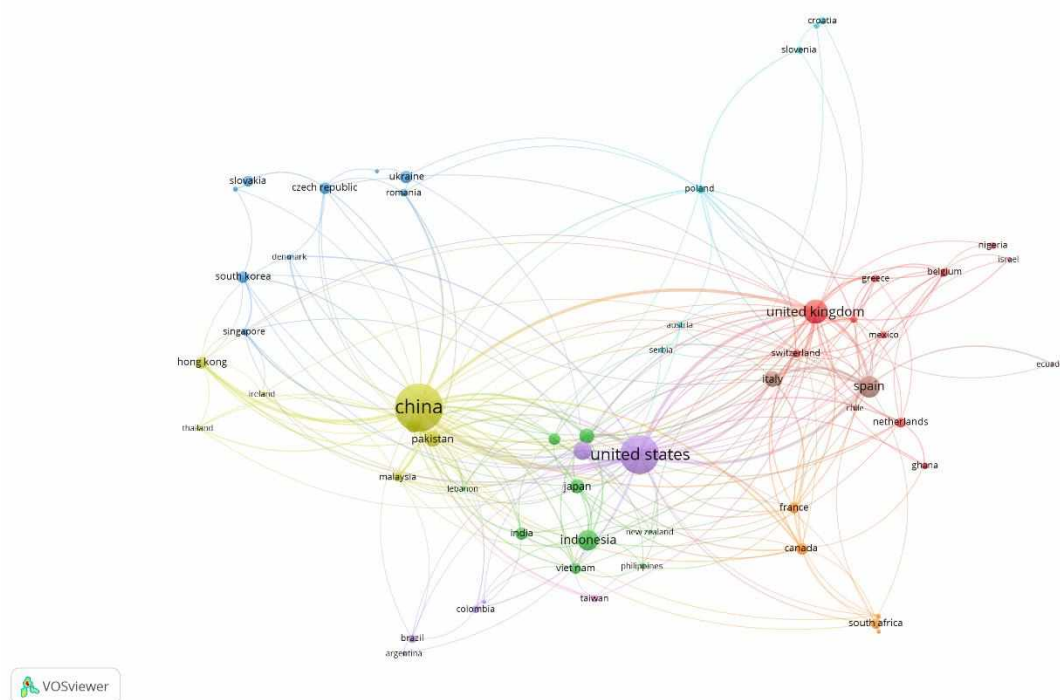volume of research output for each country in the network. China is shown with the largest node and has 523 publications on fiscal decentralization. This is followed by the United States with 342 publications on the subject. The United Kingdom has 133 publications on fiscal decentralization, while Spain has 112

publications. Indonesia and Italy have relatively smaller nodes with 102 and 78 publications respectively. The lines that connect the nodes show the extent of collaborative research between countries, and the thickness of the lines shows the intensity of the collaboration. Thicker lines can be seen to connect the United States with the United Kingdom and China, indicating robust research collaborations between the countries. The network visualization thus provides an overview of the global landscape of fiscal decentralization studies and underscores the level of international cooperation in addressing the topic.

The ten countries with the highest number of publications on the topic of fiscal decentralization are shown in Table 2. It can be seen that the top 10 countries produced 1,504 publications on fiscal decentralization, which constitutes 81.6 percent of the 1,844 total number.

Figure 4. Network Visualization of Authorship and Countries

Source: Compiled by authors based on Scopus Database

Table 2. Countries with the highest number of publications on Fiscal Decentralization (1974-August 29, 2024)

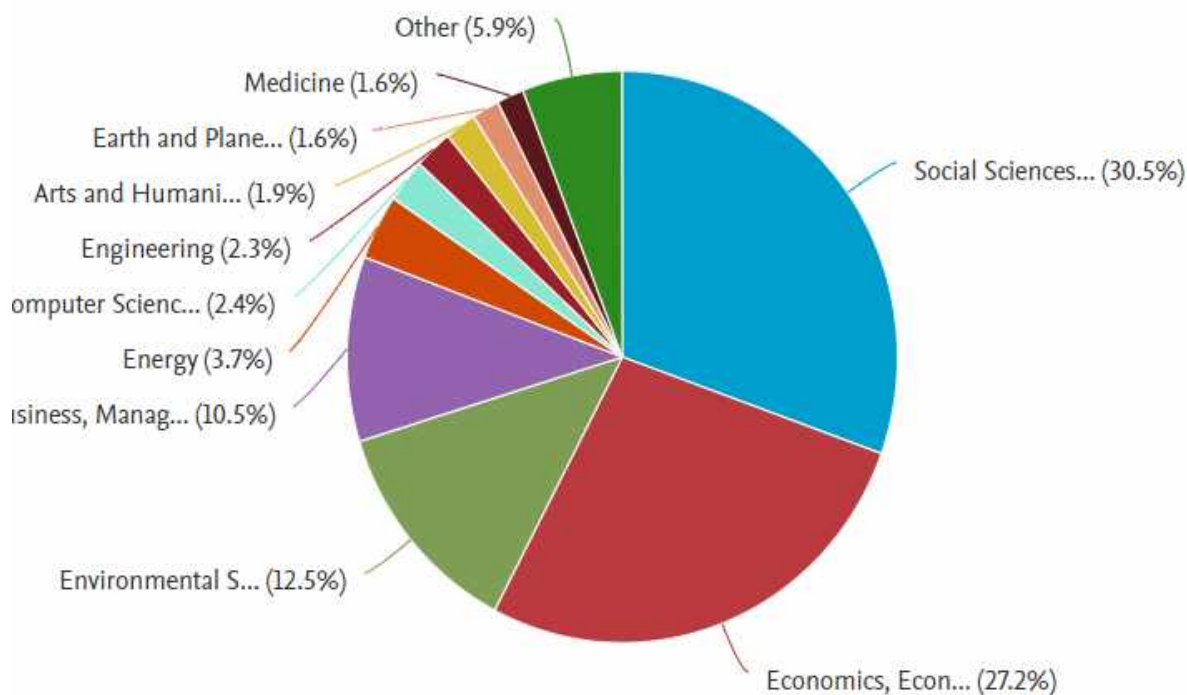| Country	Number of publications
China	523
United States	342
United Kingdom	133
Spain	112
Indonesia	102
Italy	78
Pakistan	61
India	57
Australia	50
Japan	46
TOTAL	**1,504**

Source: Compiled by Authors based on Scopus Database

Publications by Subject Area

Figure 5 shows the subject areas with the topic of fiscal decentralization. The three subject areas with the highest number of articles on fiscal decentralization are Social Sciences (30.5%), Economics, Econometrics and Finance (27.2%), and Environmental Science (12.5%). It is also noted from Figure 5 that the theme of fiscal decentralization was covered in various subject areas, such as energy, computer science, arts and humanities, engineering, earth and planetary science, and medicine. This indicates that fiscal decentralization is relevant in virtually all disciplines of human endeavor.

Figure 5. Subject Areas with Theme in Fiscal Decentralization

Source: Compiled by the authors based on Scopus database

Publications by Document Types

Various types of documents contain research works on the theme of fiscal decentralization as shown in Table 3. There were significantly more publications on fiscal decentralization in journal articles than in other types of publications. While there were 1,537 publications in articles, the second most popular medium of publication was book chapters which have 149 publications on fiscal decentralization. Other types of documents have relatively fewer publications on the subject. For example, reviews have 53 publications, conference papers have 49 publications, books have 26 publications, and so on.

Table 3. Types of Documents with Research in Fiscal Decentralization

Type of document	Number of publications
Articles	1,537
Book Chapters	149
Reviews	53
Conference Papers	49
Books	26
Editorials	10
Erratum	8
Notes	6
Data Papers	2
Retracted	2
Conference Reviews	1
Letter	1
TOTAL	1,844

Source: Compiled by the authors based on Scopus database

Publications by Journal Types

Journals with the highest number of articles on the theme of fiscal decentralization are presented in Table 4 below. The three journals with the highest number of published research in the area of fiscal decentralization are Environmental Science and Pollution Research (46 articles), Sustainability Switzerland (45 articles), and Lex Localis (26 articles). We can see from Table 4 that journals with articles on the theme of fiscal decentralization comprise a variety of fields, ranging from the environment to regional studies, public administration and development, economics, resources policy, economic modelling, sustainability, and so on.

Table 4. Most Productive Documents in Fiscal Decentralization Research

Source	Number of publications
1. Environmental Science and Pollution Research	46
2. Sustainability Switzerland	45
3. Lex Localis	26
4. World Development	25
5. Regional Studies	24
6. Public Finance Review	22
7. Resources Policy	19
8. Public Choice	18
9. Frontiers in Environmental Science	17
10. China Economic Review	16
11. Environment and Planning C Government and Policy	16
12. European Journal of Political Economy	16
13. Applied Economic Letters	14
14. International Journal of Environmental Research and Public Health	14
15. International Tax and Public Finance	14
16. Public Administration and Development	14
17. Applied Economics	13
18. Economic Modelling	13
19. Economic Letters	12
20. Journal of Cleaner Production	12
TOTAL	396

Source: Compiled by the authors based on Scopus database

Most Published Authors, their Citations, and Affiliations

Table 5 shows the ten most published authors in the field of fiscal decentralization, their number of citations, and organizational affiliations. Most prominent among the authors is Rodriguez-Pose, Andres with a total of 287 publications, 11 of which are indexed in the Scopus database. Rodriguez-Pose also has 18,007 citations on fiscal decentralization research and is affiliated with the London School of Economics and Political Science, London, United Kingdom. The second most published author on fiscal decentralization is Martinez-Vazquez, Jorge with 157 publications, and 3,247 citations. Martinez-

Vazquez has 26 publications on fiscal decentralization indexed in the Scopus database and is affiliated with Georgia State University, United States. The third most published author on fiscal decentralization is Nemec, Juraj with 121 publications, 10 of which are indexed in the Scopus, and has 351 citations on the topic. Nemec, Juraj is affiliated with Masaryk University, Brno, Czech Republic.

It is also shown that the most published authors published in the area of fiscal decentralization have affiliations with institutions of higher learning mostly in Europe and the United States. For example, Ochrana, Frantisek is affiliated with Charles University, Prague, Czech Republic; Sacchi, Agnese affiliated with Università degli Studi di Urbino Carlo Bo Urbino, Italy; and Malicka, Lenka affiliated with Technická Univerzita v Košiciach, Kosice, Slovakia.

Table 5. Most Published Authors in Fiscal Decentralization and Their Affiliations

Author	Total No. of Publications in Fiscal Decentralization	Number of Publications in Scopus	Number of Citations n Fiscal Decentralization
1. Rodriguez-Pose, Andres (London School of Economics and Political Science, London, United Kingdo)	287	11	18,007
2. Martinez-Vazquez, Jorge (Georgia State University, Atlanta, United States)	157	26	3,247
3. Nemec, Juraj (Masaryk University, Brno, Czech Republi)	121	10	1,351
4. Ochrana, Frantisek (Charles University, Prague, Czech Republi)	74	11	445
5. Placek, Michal (Národní Muzeum, Prague, Prague, Czech Republi)	74	10	304
6. Bahl, Roy (Georgia State University, Atlanta, United States)	49	10	1,040
7. Pucek, Milan Jan (Vysoká škola regionálního rozvoje, Prague, Czech Republi)	44	9	222
8. Neyapti, Bilin (Bilkent Üniversitesi, Ankara, Turkey)	34	10	1,478
9. Sacchi, Agnese (Università degli Studi di Urbino Carlo Bo Urbino, Italy	33	12	644
10. Malicka, Lenka (Technická Univerzita v Košiciach, Kosice,Slovakia)	27	11	45

Source: Compiled by the authors based on Scopus database

Most Cited Articles

The bibliometric analysis shows that the most cited articles on fiscal decentralization are not necessarily from the most cited authors on the subject. As shown in the network visualization in Figure 6, the network visualization indicates that the article on fiscal decentralization with the highest number of citations is: "Decentralization and Corruption: Evidence Across Countries". This article was written by Fisman, R. and Ghatti, R. and has 701 citations. The article was published in 2002 in the Journal of Public Economics, 83(3), 325-2345

The article with the second highest number of citations is: "Regional Decentralization and Fiscal Incentives: federalism, Chinese Style". The article has

699 citations and was authored by Jin, Hehui; Quian, Yingyi; and Weingast, Barry. It was published in 2005 in Journal of Public Economics, 89(1), 1719-1742.

With 637 citations, "Federalism and the Soft Budget Constraint" is ranked as the third most cited article on fiscal decentralization. Authored by Quian, Yingyi; and Roland, Gerald in 1998, the article was published in the American Economic Review, 88(5), 1143-1162.

The fourth most cited article on fiscal decentralization with 474 citations is "Fiscal Decentralization, Public Spending, and Economic Growth in China". The article was written by Zhang, Tao; and Zou, Heng-Fu in 1998 and published in Journal of Public Economics, 67(2), 221-240.

Finally, with 458 citations, the fifth most cited article is "Fiscal Decentralization and Economic Growth: A Cross-country Study" written by Davoodi, Hamid; Zou, Heng-Fu in 1998 and published in the Journal of Urban Economics, 43(2), 244-257.

Other cited articles in the top-10 category of citations include: "How does Fiscal Decentralization Affect CO2 Emissions? The Roles of Institutions and Human Capital" by Khan, Zheeshan; Ali, Shahid; Dong, Kangyin; and Li, Rita in 202, published in Energy Economics, 94(C) (444 citations);
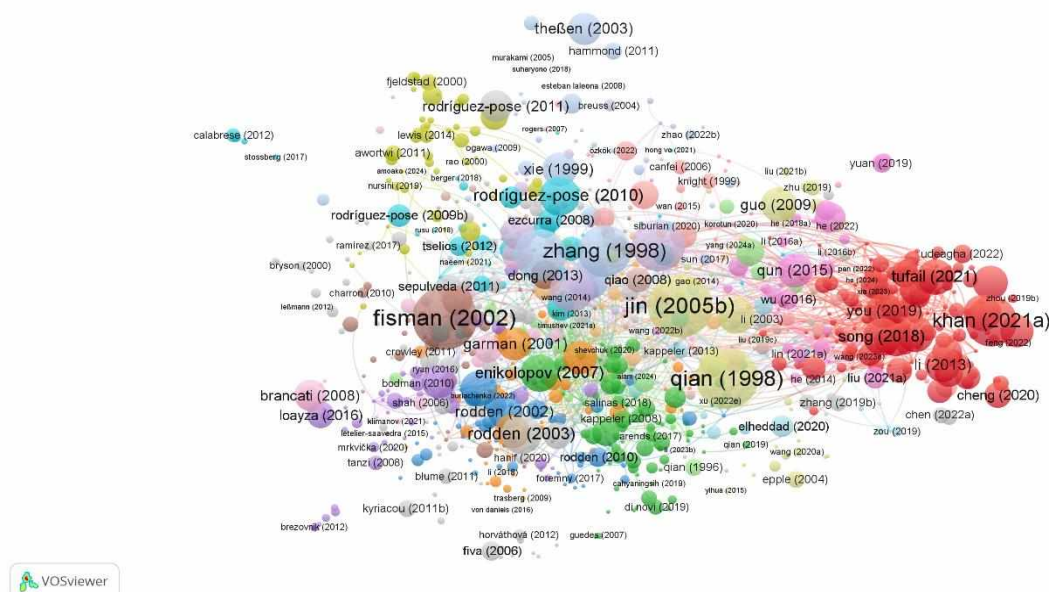
"Reviving Leviathan: Fiscal Federalism and the Growth of Government" by Rodden, Jonathan in 2023, and published in International Organization, 57(4), 695-729 (271 citations);

"Does Decentralization Matter for Regional Disparities? A Cross-Country Study" by Rodriguez-Pose, Andres; Ezcurra, Roberto in 2010 published in Journal of Economic Geography, 10(5), 619-644 (261 citations);

"Impact of Fiscal Decentralization on Green Total Factor Productivity" by Song, Malin; Du, Juntao; Tan, Kim Hua in 2018 published in International Journal of Production Economics, 205, 359-367 (246 citations); and "Decentralization and Political Institutions" by Enikolopov, Ruben; Zhuravskaya, Ekaterina published in 2007 in Journal of Public Economics, 91(12), 2261-2290 (241 citations).

It can be seen that a significant number of cited articles on fiscal decentralization occurred mostly in economics journals. Additionally, topics covered by the authors regarding fiscal decentralization cover various topics, from corruption to fiscal incentives, economic growth, the role of institutions and human capital, the environment (CO_2 emission), and so on.

Figure 6. Network Visualization of Cited Articles

Source: Compiled by authors based on Scopus Database

Discussion and Conclusion

Fiscal decentralization has been a central theme in governance research due to its potential to address inefficiencies in

governance and enhance economic growth. This bibliometric analysis reveals an increasing scholarly interest in fiscal decentralization from 1974 to 2024, particularly in the areas of economic performance, environmental governance, and social welfare. Bibliometric indicators such as keywords, number of publications by countries, types of documents with research in fiscal decentralization, most productive documents, patterns of collaborations, subject areas, and so on were parts of the results of the analysis.

Based on Scopus dataset, the analysis has shown with very few exceptions, a significant upward trend in fiscal decentralization studies from 1974 to 2024, with the highest number of research outputs on the topic occurring in 2023. While some of the studies identify the limitations of fiscal decentralization by indicating that it is not a panacea to solve all societal ills, understanding such limitations can help in designing better decentralization systems that mitigate some of the shortcomings. The analysis underscores the dominance of China and the United States in this field, as well as the multidisciplinary nature of the topic, which spans social sciences, economics, and environmental studies. Interestingly, while Rodriguez-Pose, Andres was identified as having the highest number of publications in fiscal decentralization, no publication from the author is among the top ten most cited publications.

The analysis further revealed that most of the studies on fiscal decentralization were conducted in the social sciences. Consequently, the bibliometric analysis enhances the body of knowledge in fiscal decentralization by providing a comprehensive analysis of various studies on the topic for about 50 years. Moving forward, it is essential for future research to explore fiscal decentralization's impact in developing countries and to assess its role in digital governance and climate change mitigation policies.

Conclusion

A comprehensive understanding of fiscal decentralization through bibliometric analysis highlights its increasing relevance in addressing global governance challenges. The findings indicate that research on fiscal decentralization is not limited to economic governance but extends to environmental policy, public health, and social welfare. The findings from this analysis highlight the vital role played by key regions such as the United China, the United States, and the United Kingdom, not only in terms of the quantity of publications but also in their involvement in global collaborative research networks. The analysis shows that journals with the highest number of published articles in the field tend to be within the economics discipline.

The dominance of specific journals such as the *Journal of Public Economics* within the citation landscape illustrates the influence of specific research outputs in shaping public understanding of the topic. Despite certain limitations, such as the focus on articles that were only indexed in the Scopus database, the insights garnered from this study should help to provide a valuable resource for practitioners and researchers in formulating strategies that are aimed at enhancing better societal outcomes through the allocation of limited resources. Future research should focus on the practical application of fiscal decentralization in developing countries, particularly in addressing issues of corruption, inequality, and sustainability. The insights from this analysis provide a valuable resource for researchers and policymakers aiming to improve governance systems and societal outcomes through more effective decentralization.

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ФИСКАЛДЫ ОРТАЛЫҚСЫЗДАНДЫРУ ЕЛУ ЖЫЛДЫҚ ОҚУДЫҢ БИБЛИОМЕТРИЯЛЫҚ ТАЛДАУЫ

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