

Thirty Years of Fiscal Decentralization Research: a Bibliometric Analysis

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Abstract

Fiscal decentralization has become a trend in countries around the world over the past few decades. Therefore, it is necessary to investigate the impact of fiscal decentralization on economic, social, and political aspects. The rapid development of publications on fiscal decentralization makes it difficult to synthesise a complete, streamlined, and relevant body of knowledge. Therefore, this study aims to find out about the latest developments of related research topics in fiscal decentralization. The research method used in this study is bibliometric analysis using the Vosviewer application. The bibliometric techniques used in this research are performance analysis and science mapping. The data source in this study comes from Dimensions.ai. Based on the results of the analysis in this study, it can be seen that research related to fiscal decentralization is mostly carried out in China. The relationship between fiscal decentralization and environmental as well as energy issues is the latest trend in the field of fiscal decentralization research.

1. Introduction

Fiscal decentralization has become a trend for countries around the world in recent decades. It is an attempt to organize more efficient public sector services. Fiscal decentralization is generally defined as the transfer of authority from the central government to local governments, especially regarding financial sector management. Fiscal decentralization is concerned with organizing the public sector to create better opportunities for economic growth and prosperity (Martinez-Vazquez et al., 2017).

Tiebout (1961) explained that there are two main reasons for the need for fiscal decentralization. The first reason is because local governments have better and more detailed information related to the regions they lead. Thus, the advantages possessed by local governments can be an asset to organize better public services (Hamdani, 2022). The second reason is that the alignment of the preferences of local communities and local governments will occur as a result of competition between local governments and community mobilization.

Vo (2010) explains that it is not just an administrative matter of transferring authority from the central government to local governments. Furthermore, fiscal decentralization is related to increasing the opportunity for people to play an active role in the management of public interests (Herdhiani, et al., 2022; Prima, 2022). Thus, it will be a counterweight to any authority and policy taken by the central government. As a consequence of the transfer of financial management authority and the provision of public goods from the central government to local governments, it is important to measure the economic, social and political impact of fiscal decentralization (Martinez-Vazquez et al., 2017).

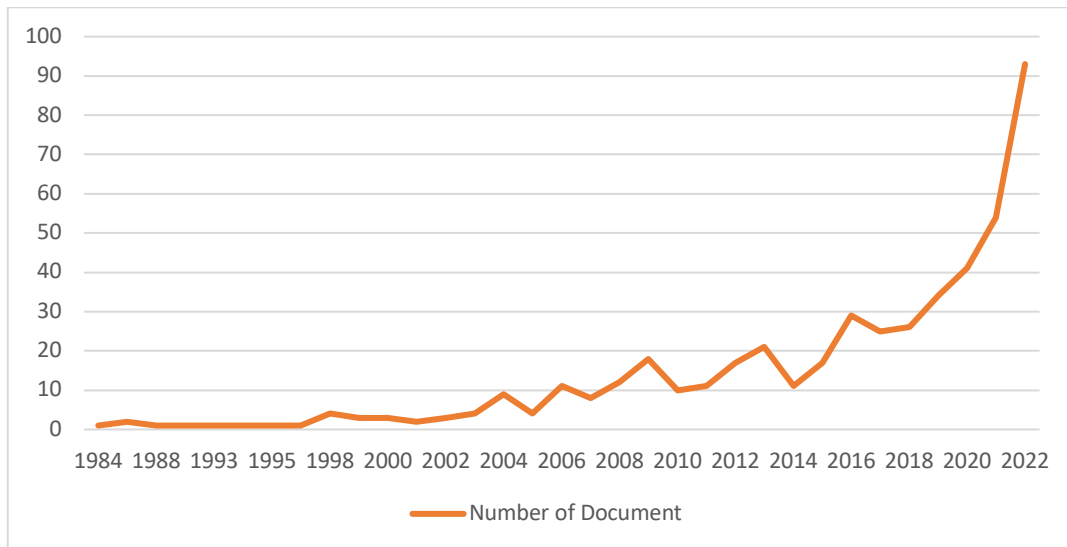


Figure 1. Research Trends Related to Fiscal Decentralization

Source: Results of data processing with Excel

Based on Figure 1, it can be seen that the trend of research related to fiscal decentralization over the last 30 years shows an increasing trend. The consequence of this is that the available information becomes overwhelming and tends to be unstructured. This certainly makes it difficult for researchers to know the latest developments related to fiscal decentralization. Another impact is that it is difficult for researchers to identify quality publications to synthesize the available information (Linnenluecke et al., 2020). Therefore, it is necessary to conduct an empirical investigation of the number of publications on fiscal decentralization. The aim is to find out the latest developments in the field of research related to fiscal decentralization (Firmansyah, 2021). One method that can be used to analyze the number of publications available is the bibliometric method. This type of bibliometric research has increased in popularity in recent years (Linnenluecke et al., 2020; Aria & Cuccurullo, 2017).

The rapid development of bibliometric research is inseparable from the increasing development of software that assists bibliometric research (e.g. Vosviewer and Gempy) as well as increasing access to scientific databases such as Google Scholar, Dimensions, Scopus, and Web of Science (WoS) (Donthu et al., 2021). Thus, the purpose of this research is to identify the latest developments in the field of fiscal decentralization research by using bibliometric research methods. This research is useful for the general public who want to know the development of fiscal decentralization research, as well as for researchers who are interested in the field of fiscal decentralization research.

2. Research methods

The type of research used in this study is quantitative descriptive. The research method used in this research is bibliometrics. Bibliometrics is a research method used to analyze a very large database. The data source in this research is obtained from the Dimension.ai website database. The keyword used in this research is "Fiscal Decentralization". The data collected in this research is 500 publications from 1984 to 2023. Software used in this research are Vosviewer and Microsoft Excel. Donthu et al., (2021) explains that the procedure for conducting bibliometric research is divided into 4 steps as follows:

First, determine the scope and objectives of the research. Bibliometric research must be conducted systematically, therefore the first step is to narrow the scope of the research so that the research can run in a focused, effective and efficient manner. Second, select the analytical techniques to be used. After determining the scope and coverage of the research, the next step is

to determine the analytical technique that suits the research objectives. One of the analytical techniques commonly used in bibliometric research is Performance Analysis and Science Mapping. Third, extract or collect data for analysis. There are several journal databases that can be used in bibliometric research such as Google Scholar, Web of Science, Scopus, and Dimensions. Fourth, run the analysis and report the results. The final step is to run the analyses and report the findings. The procedure for conducting bibliometric research can be summarized in Figure 2.

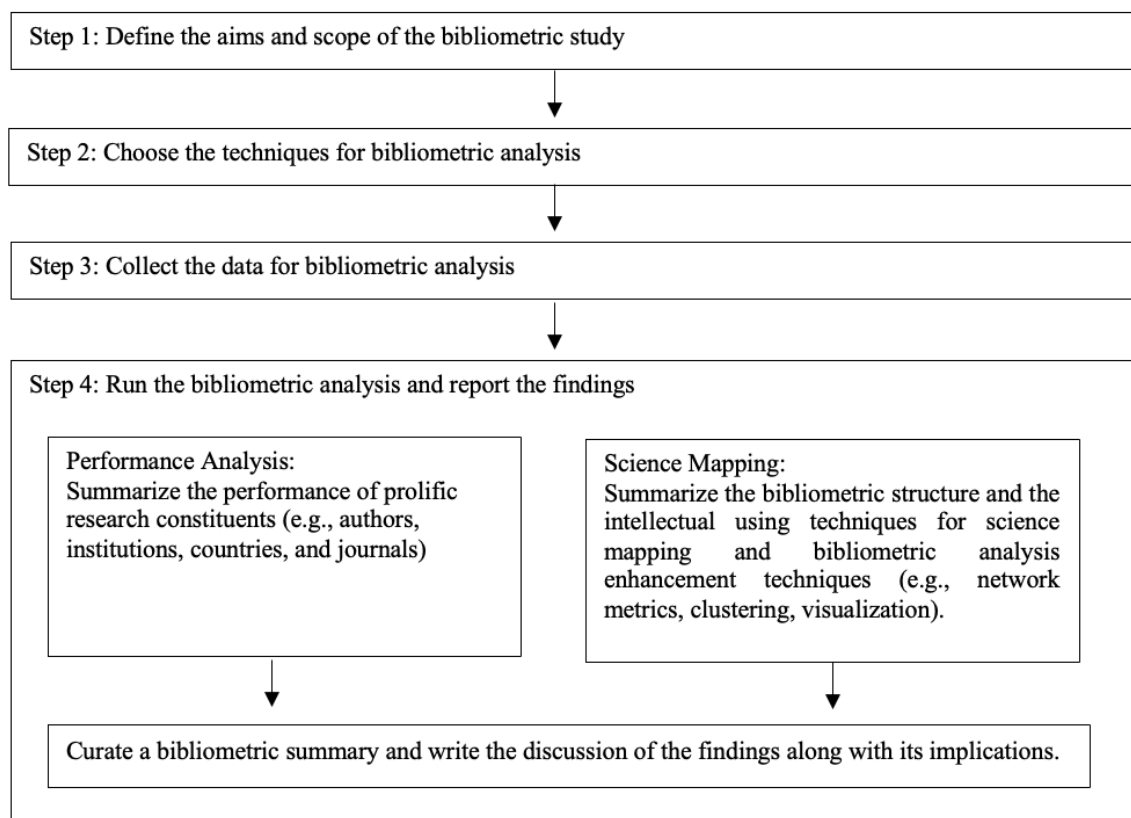


Figure 2. Procedure for Conducting Bibliometric Research
Source: Donthu et al., (2021)

3. Results and Discussion

Publication Type

The following are several documents that contain research on the theme of fiscal decentralization. Based on Table 1, it can be seen that the publication documents that have been collected related to the theme of fiscal decentralization are 500 documents. The most types of documents are articles with 431 documents, followed by preprints with 34 documents, book chapters with 20 documents, proceedings with 13 documents, and edited books with 2 documents.

Table 1. Publication Type

Type of Document	Number of Publication
Article	431
Preprint	34
Chapter	20
Proceeding	13
Edited Book	2
Total	500

Source: Results of data processing with Microsoft Excel

Annual Publication Trend and Cited

Figure 3 illustrates the trend of annual publications and citations from 1984 to 2022. Based on Figure 3, it can be seen that the trend of annual publications of research on fiscal decentralization has fluctuated but has an increasing trend over the past 30 years. The trend of annual publications from 1984 to 2003 showed stagnant results, but since 2004 there has been an exponential increase and the peak occurred in 2022 with 93 publications.

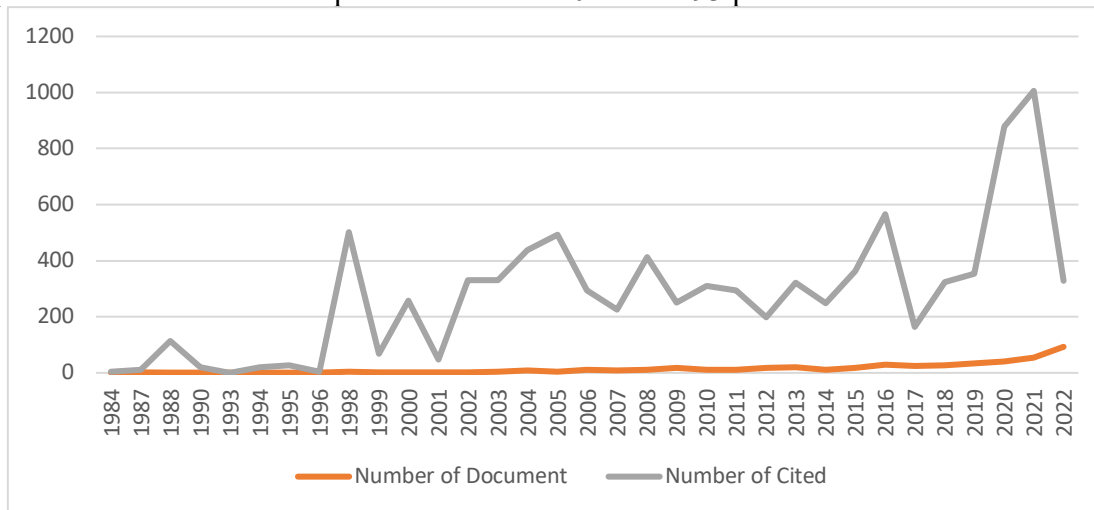


Figure 3. Annual Publication Trend and Citations

Source: Results of data processing with Microsoft Excel

Then when viewed based on the citation trend, Figure 3 shows that the annual citation trend of research publications with the theme of fiscal decentralization experiences more varied fluctuations. There are several periods where fiscal decentralization research experienced a sharp increase, namely in 1998, 2005, 2016 and 2021.

Most Productive Journal in Fiscal Decentralization Research Topics

In this section, we can find out about the journals that publish the most publications on the theme of fiscal decentralization. The number of studies published on the theme of fiscal decentralization in a journal will cause the journal to be sought after by relevant stakeholders who want to know more about the theme of fiscal decentralization (Firmansyah & Rusydiana, 2021).

Table 2. Most Revelant Journal on the Theme of Fiscal Decentralization

Rank	Journals	Number of Publication
1	Environmental Science and Pollution Research	33
2	SSRN Electronic Journal	29
3	International Journal of Environmental Research and Public Health	16
4	Journal of Environmental Management	9
5	Sustainability	8
6	Environment and Planning. C, Government and Policy	6
7	Fiscal Studies	6
8	Pakistan Development Review	6
9	Social Science & Medicine	5
10	IDE-JETRO Series	5
11	Frontiers in Environmental Science	5
12	PLOS ONE	5
13	Public Finance Review	5
14	European Journal of Political Economy	5
15	The Annals of Regional Science	4
16	Health Policy	4
17	International Journal of Health Policy and Management	4
18	Health Economics Policy and Law	4
19	Journal of Urban Economics	4
20	The Science of The Total Environment	4

Source: Results of data processing with Microsoft Excel

Based on Table 2, we can find 20 journals that are most relevant to the theme of fiscal decentralization. Of these 20 journals, there are three most relevant journals, namely Environmental Science and Pollution Research, SSRN Electronic Journal, and International Journal of Environmental Research and Public Health. Interestingly, the top three journals that publish the most research on fiscal decentralization are not journals that focus on economics. Then, based on Table 2, we can see that the journals most relevant to the theme of fiscal decentralization research have a variety of fields of science ranging from environmental science, electronics, public health, fiscal studies, finance, political economy, and urban economics.

Most Influential Journals

In addition to being able to find out about the most relevant journals, in this study we can also find out about the most influential journals. The level of influence of a journal can be seen from the number of citations generated by the journal (Firmansyah & Rusydiana, 2021). Table 3 shows the most influential journals in the field of fiscal decentralization. Based on Table 3, it can be seen that there are differences in results between the most relevant journals and the most influential journals. If the most relevant journals have a very varied scope of science, but in the most influential journals the scope of science is not too varied and almost all of them are dominated by journals that have a scope of economics.

Table 3. Most Influential Journal in Fiscal Decentralization

Rank	Journals	Number of Citations
1	Journal of Urban Economics	915
2	Environmental Science and Pollution Research	574
3	Fiscal Studies	512
4	World Development	469
5	China Economic Review	304
6	Journal of Environmental Management	303
7	International Tax and Public Finance	241
8	Public Choice	239
9	Social Science & Medicine	230
10	Environment and Planning. C, Government and Policy	225
11	Energy Economics	223
12	SSRN Electronic Journal	221
13	Journal of Economic Surveys	204
14	The Science of The Total Environment	196
15	Public Finance Review	192
16	European Journal of Political Economy	175
17	International Journal of Production Economics	170
18	Health Policy	165
19	Health Economics Policy and Law	142
20	Journal of Development Economics	129

Source: Results of data processing with Microsoft Excel

Most Influential Author

All authors who write research on fiscal decentralization have an influence on the development of knowledge, especially in the scope of fiscal decentralization. However, there are some authors who have more influence than others. The strength of an author's influence can be seen based on how much his/her work is cited by other authors.

Table 4. Most Influential Authors and their affiliations

Rank	Authors and Affiliations	Times cited
1	Hamid Davoodi (World Bank)	457
2	Nobuo Akai (Kobe University)	277
3	Jorge Martinez-Vazquez (Georgia State University)	272
4	Zeeshan Khan (Tsinghua University)	223
5	Ulrich Thiessen (German Institute for Economic Research)	210
6	Dan Stegarescu (Centre for European Economic Research, Mannheim)	210
7	Luiz R de Mello. (University of Kent)	197
8	Malin Song (Lanzhou University of Finance and Economics);	170
9	Jorge Martinez-Vazquez (Georgia State University)	165
10	John Thornton, (International Monetary Fund)	160

Source: Results of data processing with Microsoft Excel

In this study, 10 authors with the greatest influence are presented. Based on Table 4, it can be seen that the authors in the scope of fiscal decentralization research have different affiliations. These researchers come from universities and various institutions, both government and non-government institutions.

Most Influential Article

Table 4 shows the 10 most influential articles in the scope of fiscal decentralization research in the last 30 years. The first article is entitled "Fiscal Decentralization and Economic Growth: A Cross-Country Study" written by (Davoodi & Zou, 1998). The research method used in the study is panel data on 46 countries in 1970-1989. The study found that there is a negative relationship between fiscal decentralization and economic growth in developing countries, but the opposite happens in developed countries.

The second article was written by (Akai & Sakata, 2002) entitled "Fiscal decentralization contributes to economic growth: evidence from state-level cross-section data for the United States". The results of this study show that fiscal decentralization has a positive effect on economic growth in the United States.

Table 5. Most influential articles

Rank	Title	Journals	Year	Number of Citations
1	Fiscal Decentralization and Economic Growth: A Cross-Country Study	Journal of Urban Economics	1998	457
2	Fiscal decentralization contributes to economic growth: evidence from state-level cross-section data for the United States	Journal of Urban Economics	2002	277
3	Fiscal Decentralization and Economic Growth	World Development	2003	272
4	How does fiscal decentralization affect CO2 emissions? The roles of institutions and human capital	Energy Economics	2021	223
5	Fiscal Decentralization and Economic Growth in High-Income OECD Countries	Fiscal Studies	2005	210
6	Public Sector Decentralization: Measurement Concepts and Recent International Trends*	Fiscal Studies	2005	210
7	Fiscal Decentralization and Intergovernmental Fiscal Relations: A Cross-Country Analysis	World Development	2000	197
8	Impact of fiscal decentralization on green total factor productivity	International Journal of Production Economics	2018	170
9	The Impact of Fiscal Decentralization: Survey	Journal of Economic Surveys	2016	165
10	Fiscal decentralization and economic growth reconsidered	Journal of Urban Economics	2007	160

Source: Results of data processing with Microsoft Excel

The third article is entitled "Fiscal Decentralization and Economic Growth" written by (Martinez-Vazquez & McNab, 2003). As the title suggests, this article aims to determine the effect of fiscal decentralization on economic growth. This article has been cited 272 times. The fourth article is entitled "How does fiscal decentralization affect CO2 emissions? The roles of institutions and human capital" written by (Khan et al., 2021). In the study, the author tried to find out whether fiscal decentralization affects carbon emissions (CO2). The research method used in the study is panel data.

The fifth article was written by (Thiessen, 2005) entitled "Fiscal Decentralization and Economic Growth in High-Income OECD Countries". This study aims to analyze the long-term relationship between per capita income growth, capital formation total factor productivity growth and fiscal decentralization in high-income OECD countries. The seventh article is entitled "Fiscal Decentralization and Intergovernmental Fiscal Relations: A Cross-Country Analysis" written by (de Mello, 2000). Based on the article, it is known that a common problem of fiscal decentralization that occurs in developing countries is the failure of coordination in fiscal relations between government agencies, which usually leads to decisional bias in formulating decentralized policies.

The eighth article was written by (Song et al., 2018) entitled "Impact of fiscal decentralization on green total factor productivity". The study found that fiscal decentralization can stimulate the growth of Green Total Factor Productivity (GTFP). The ninth article is "The Impact of Fiscal Decentralization: A Survey" written by (Martinez-Vazquez et al., 2017). The study aims to find out about the impact of fiscal decentralization on the economy, social and politics. The tenth article entitled "Fiscal decentralization and economic growth reconsidered" written by (Thornton, 2007). The results show that the impact on economic growth does not increase significantly when local governments have full autonomy and the measure of fiscal decentralization is limited to revenue.

Network Analysis

Network analysis is part of science mapping in Bibliometric research methods. This section describes the network relationship analysis of all studies with the theme of fiscal decentralization. Each circle in the figure represents each item/word contained in the research related to fiscal decentralization. The more often an item appears, the bigger the circle. Thus, the size of a circle can indicate the relevance or intensity of a word appearing in fiscal decentralization research. (Jan van Eck & Waltman, 2018).

The relationship between items can be seen based on several things. First, the presence of lines connecting the items indicates the relevance and direct relationship between the items. Secondly, the similarity of colour and distance between items indicates the clustering of an item. items that have the same colour indicate that they belong to the same cluster. This can be useful for understanding how items emerge and evolve (Donthu et al., 2021; Jan van Eck & Waltman, 2018).

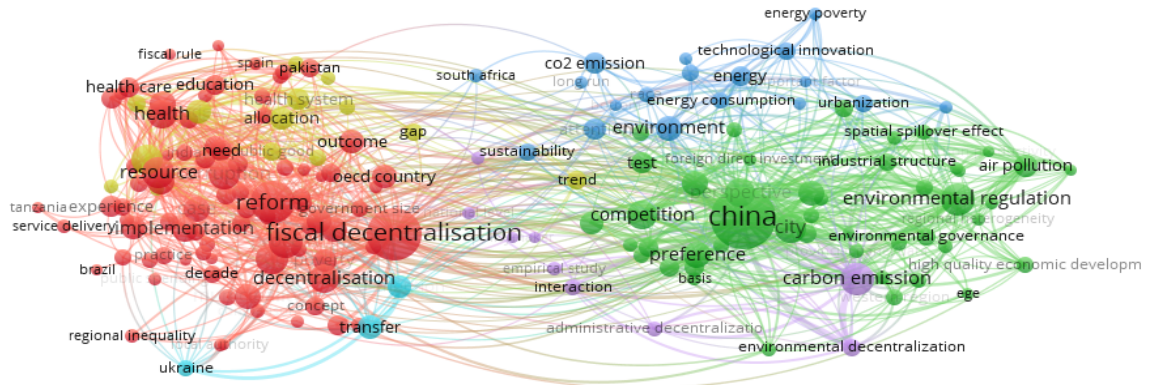


Figure 4. Network Visualization Using Vosviewer
Source: Results of data processing with Vosviewer

Based on Figure 4, there are two large clusters, namely the red cluster with the most dominant word being fiscal decentralization, and the green cluster with the most dominant word being China. Both clusters have a relationship with each other and have a relationship with other smaller clusters. In the red cluster, the biggest element is fiscal decentralization. If analyzed further, this element is related to many elements, both large and small. One of the elements that is related and in the same cluster with fiscal decentralization is regional in equity. Some studies that show the relationship between fiscal decentralization and regional in equity are (Qiao et al., 2008) and (Boadway, 2001) which shows that fiscal decentralization has an impact on economic inequality. Meanwhile, (Sacchi & Salotti, 2014) shows that economic disparity affects fiscal decentralization policy.

The second cluster is green in colour with the most dominant element being China. This means that many fiscal decentralization studies have been conducted in China. The number of fiscal decentralization studies conducted in China is very relevant to the geographical conditions of the country which is a large country divided into several regions. One of the small elements that relates to the China element is environmental regulation. (Kuai et al., 2019) and (Tufail et al., 2021) shows that fiscal decentralization has a positive impact on environmental improvement. However, (Chen & Liu, 2020) and (T. Wang et al., 2021) shows the opposite where fiscal decentralization has a negative impact on the environment.

Overlay Visualization

The overlay visualization analysis is similar to the previous network visualization analysis, the difference is the colour interpretation (Jan van Eck & Waltman, 2018). The lighter (yellow) the colour, the more recent the research, and the darker (blue) the older the research.

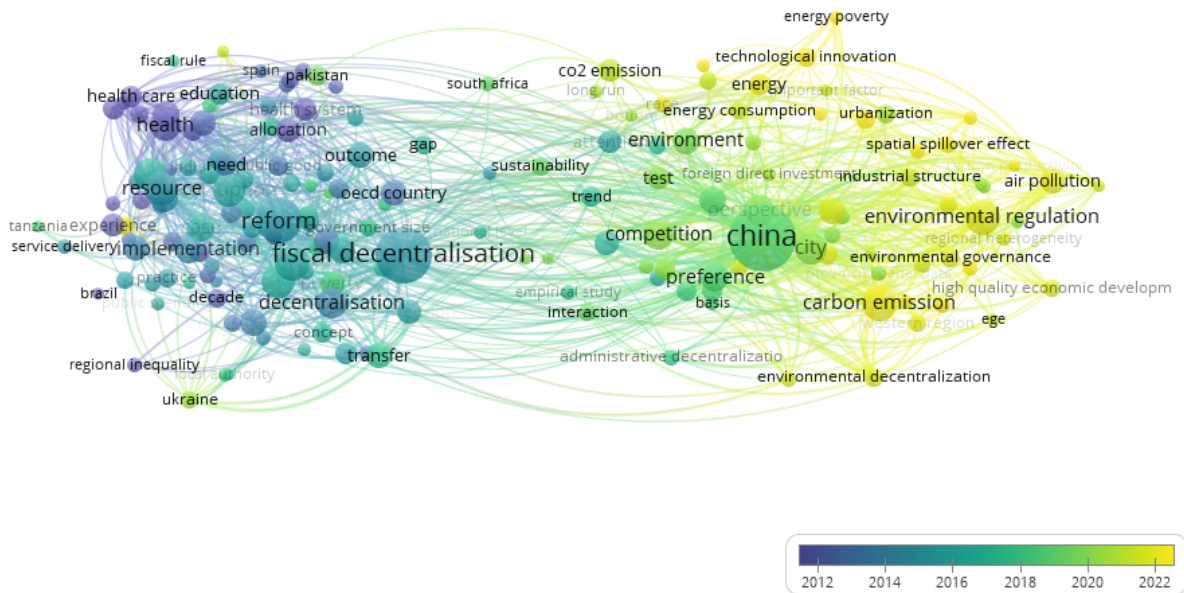


Figure 5. Overlay Visualization Using Vosviewer
 Source: Results of data processing with Vosviewer

Based on Figure 5, it can be seen that some circles are blue and some are yellow. The yellow circles indicate that the research related to the element in the yellow circle was conducted in a relatively recent period. Some of the yellow circles include carbon emission, technological innovation, and energy poverty. This means that the latest trends in the scope of fiscal decentralization research are related to environmental and energy issues.

Research on the relationship between fiscal decentralization and carbon emissions has shown different results. Tufail et al., (2021) showed that fiscal decentralization has a negative effect on carbon emissions, while Xia et al., (2021) shows the opposite result. Another opinion was expressed by Du & Sun, (2021) which shows that in regions with a high level of technological adaptation, fiscal decentralization has a positive effect on reducing carbon emissions, and vice versa. Meanwhile, Wahab et al., (2022) shows that in the short-term fiscal decentralization has a positive effect on increasing carbon emissions, while in the long-term fiscal decentralization has a negative effect on increasing carbon emissions.

Then, some researchers who connect fiscal decentralization variables with technology include Lin & Zhou (2021) which shows that fiscal decentralization is negatively related to energy performance. Furthermore, research of D. Wang et al., (2022) shows that fiscal decentralization and Green Technological Innovation (GTI) in different provinces in China have significant and regionally different inhibitory effects on local air pollution.

The relationship between fiscal decentralization and energy poverty is captured in the study of Y. Wang et al., (2023) entitled "Modelling the Impact of Fiscal Decentralization on Energy Poverty: Do Energy Efficiency and Technological Innovation Matter?". The result is that fiscal decentralization can significantly reduce energy poverty in China.

4. Conclusion

This study uses bibliometric method to determine the latest development of research on fiscal decentralization over the last 30 years. Based on the results of data analysis, it is known that the

trend of research on fiscal decentralization over the past 30 years has increased, especially after 2004. Meanwhile, based on the number of citations, it can be seen that the trend of citations to articles with the theme of fiscal decentralization has fluctuated over the past 30 years, but there were several years where there was a spike in citations to articles with the theme of fiscal decentralization, namely in 1998, 2005, 2016 and 2021.

Based on the analysis of the most relevant journals, it is known that the journals that publish the most articles on fiscal decentralization have a variety of fields of study, but when viewed based on the analysis of the most influential journals, it can be seen that the most influential journals are dominated by journals with a field of study in economics. Furthermore, the most influential authors in the field of fiscal decentralization come from various universities and world-level institutions.

Then, based on the analysis of the most influential articles, it is known that most of the most influential articles mostly examine the impact of fiscal decentralization on economic growth, while others examine the impact of fiscal decentralization on environmental issues such as carbon emissions and green total factor productivity. Based on the network visualization analysis, it can be seen that there are two large clusters that are connected to each other and connected to other small clusters. The two clusters are fiscal decentralization and China.

Meanwhile, based on the overlay visualization analysis, there are several new elements in the field of fiscal decentralization studies, namely carbon emission, environmental regulation, technological innovation, and energy poverty. Based on this, the author can suggest to future researchers who will carry out research in the field of fiscal decentralization, namely linking fiscal decentralization with environmental and energy issues because it is the latest trend in the field of fiscal decentralization research and there are still not many researchers who study it so there is great potential to get novelty in research.

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