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NET ZERO: A BIBLIOMETRIC ANALYSIS OF ECONOMIC JOURNAL LITERATURE

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Abstract

As environmental change issues become increasingly severe, achieving net-zero emissions has become a global goal. This study employs bibliometric analysis to explore the development trends and impacts of net-zero emissions research. Utilizing HistCite and VOSviewer tools, we collect and analyze articles related to net-zero emissions from economic journals over the past decade to understand the current research status and trends.

Key words: net-zero, economic, bibliography, HistCite, VOSviewer

Introduction

Countries around the world are taking measures to reduce emissions in response to the unprecedented impacts of climate change (Han, Bao, Niu & ur Rehman, 2024). Currently, the timeline to achieve net-zero emissions is extremely urgent (Gössling, Humpe & Sun, 2024). The net-zero goal is crucial in combating climate change as it helps reduce global greenhouse gas emissions, protect ecosystems, promote sustainable development, improve public health, enhance energy security, and drive technological innovation. Furthermore, it fosters international cooperation to address global challenges and ensure the long-term sustainability of the planet. There-fore, the issue of net-zero is of utmost importance.

To achieve a sustainable net-zero goal, the adoption of various advanced technologies is crucial for this transition (Ferdaus, Dam, Anavatti & Das, 2024). Net-zero is not only related to various technologies but also has significant macroeconomic impacts (Mayer, Süsser, Pickering, Bachner & Sanvito, 2024). Therefore, this study will explore the research status, development trends, and impacts of net-zero in the economic field through literature collection and analysis of articles related to net-zero in economic journals.

Methodology

Web of Science (WoS) is one of the most widely used bibliographic databases in the world, providing access to a vast amount of academic research literature across various fields (Junjia, Alias, Haron & Abu Bakar, 2023). Bibliometric software such as HistCite and VOS-Viewer can perform quantitative analysis, description, and visualization of literature in relevant research areas, allowing for the investigation of current conditions and the prediction of future research trends and hotspots (Li, Wu, & Liang, 2023). Therefore, this study uses the WoS database to collect and analyze 436 articles related to net-zero published in economic journals over the past decade (2015-).

Analysis Results and Discussion

This study uses HistCite and VOS-viewer to conduct citation statistics and correlation analysis.

Data Collection

The literature data for this study is primarily sourced from economic journals within the Web of Science (WoS) database, covering publications from 2015 to the present. The dataset includes a total of 436 documents, with contributions from 1,284 authors, 152 journals, 1,512 keywords, 75 countries, and 756 institutions. The citation metrics for the literature include 31 local citations and 5,763 global citations.

Distribution of Article Numbers by Publication Year

As shown in Figure 1, the net-zero topic has increasingly attracted the attention of researchers in the field of economics in recent years. (Figure 1)

Distribution by Country

As shown in Table 1, the United States leads with 143 publications. It is followed by the United Kingdom with 115 publications, and then by China, Australia, and France. In total, there are 75 countries represented. (Table 1)

Distribution of documents by Institutions

This analysis focuses on the contributions of different institutions. The results are shown in Table 2. The University of Cambridge and the University of Oxford are the top contributors, followed by the University of Leeds and the University of Sussex. Most of the institutions are from the United Kingdom. In total, there are 756 institutions. (Table 2)

Distribution of documents by Journals

The distribution of article numbers by journal is as follows: "ENERGY POLICY" has the highest number of publications with 86 articles, followed by "ENERGY ECONOMICS" with 38 articles. Energy-related journals are the most prevalent. In total, there are 152 journals. (Table 3)

Distribution of documents by Authors

An analysis of authors in this field on the topic reveals that "Mercure JF" and "Pollitt MG" are among the top con-

tributors, each with 3 articles. The total number of authors involved is 1,284, with a relatively small number of articles per author. (Table 4)

Distribution of Documents by Keywords

Author keywords represent the relevant topics of the research content. Excluding the two keywords of this study, "net" and "zero," the most frequently used keyword is "energy," accounting for 15.6%. This is followed by "policy" and "policies," which together make up 16.6%, and "carbon," which represents 11.7%. Additionally, "China" appears with 4.1%. There are a total of 1,512 keywords. (Table 5)

Further analysis using VOSviewer on the keywords set by researchers reveals that, aside from "climate change" being the most prominent keyword, other frequently mentioned related terms include "climate policy," "renewable en-

ergy," "investment," and "uncertainty," with "electric vehicle" also being mentioned. When examining the research timeline, recent studies have increasingly focused on topics such as "energy transition" and "carbon pricing". (Figure 2).

Conclusion

In this study, we analyzed 436 articles related to net-zero research in economic journals from the Web of Science using HistCite and VOSviewer. The results indicate that recent publication trends show an increasing focus on the net-zero topic by researchers. In terms of publication by country, the United States and the United Kingdom have the highest number of publications. The institutions with the most publications are the University of Cambridge and the University of Oxford, with a predominance of UK institutions.
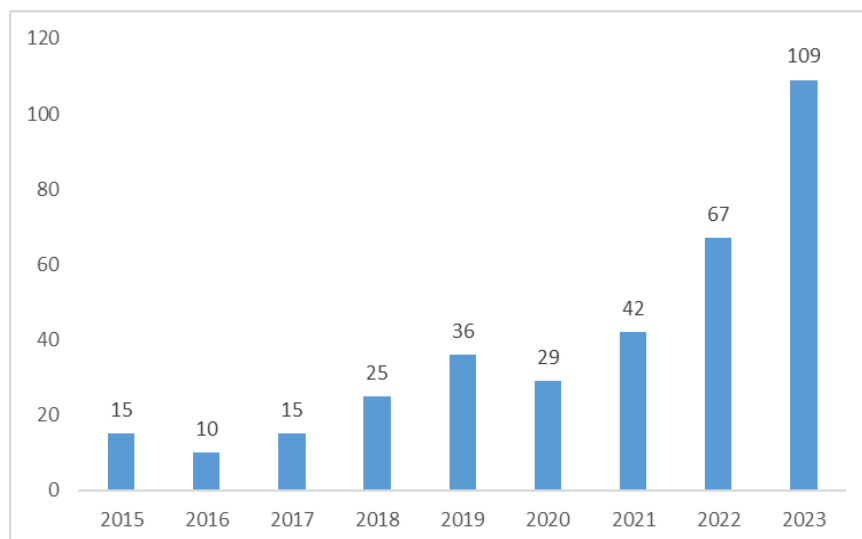

Figure 1. Publication Year's Distribution

Table 1. Distribution of documents by countries

S.No.	Country	Records	%	TLCS	TGCS
1	USA	143	19.4	10	2387
2	UK	115	15.6	2	1046
3	Peoples R China	56	7.6	2	958
4	Australia	37	5.0	3	454
5	France	36	4.9	10	638

*TLCS total local citation score, *TGCS total global citation score

Table 2. Distribution of documents by Institutions

S.No.	Institution	Records	%	TLCS	TGCS
1	Univ Cambridge	14	1.3	1	203
2	Univ Oxford	14	1.3	0	180
3	Univ Leeds	12	1.1	0	158
4	Univ Sussex	12	1.1	0	46
5	NBER	11	1.0	2	290

Table 3. Distribution of documents by Journals

S.No.	Journal	Records	%	TLCS	TGCS
1	ENERGY POLICY	86	19.7	6	1600
2	ENERGY ECONOMICS	38	8.7	0	540
3	ECOLOGICAL ECO-NOMICS	18	4.1	0	168
4	OXFORD REVIEW OF ECONOMIC POLICY	12	2.8	0	73
5	TRANSPORTATION RESEARCH PART A-POLICY AND PRAC-TICE	12	2.8	3	317

Table 4. Distribution of documents by Authors

S.No.	Author	Records	%	TLCS	TGCS
1	Mercure JF	3	0.7	0	8
2	Pollitt MG	3	0.7	1	9
3	Sovacool BK	3	0.7	0	13

| 4 | Umar M | 3 | 0.7 | 1 | 146 |
| 5 | Wu QY | 3 | 0.7 | 0 | 37 |

Table 5. Distribution of documents by Keywords

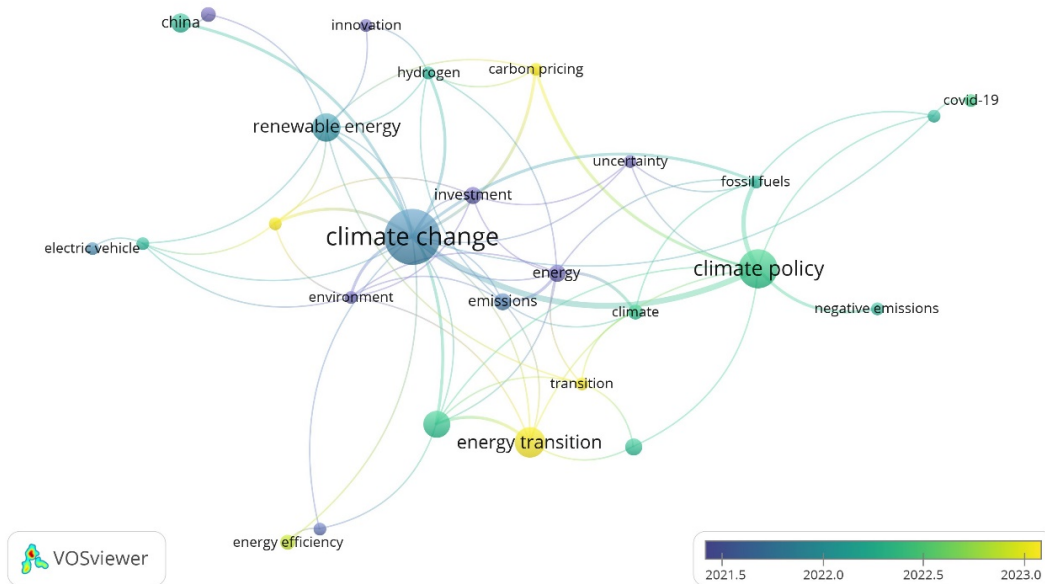| S.No.	Keyword	Records	%	TLCS	TGCS
1	ZERO	92	21.1	8	1063
2	NET	77	17.7	5	769
3	ENERGY	68	15.6	2	989
4	POLICY	53	12.2	5	812
5	CARBON	51	11.7	5	754
6	CLIMATE	43	9.9	1	492
7	EVIDENCE	35	8.0	0	766
8	EMISSIONS	33	7.6	1	849
9	ANALYSIS	28	6.4	2	823
10	GREEN	27	6.2	1	346

Figure 2. Distribution of Keywords Used by Authors

The journal with the highest number of articles is "ENERGY POLICY." The most common research topics are related to "energy" and "policy," with recent studies showing a growing emphasis on "energy transition" and "carbon pricing." Overall, this paper provides an overview of the current state

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and trends of economic research on net-zero, offering valuable insights for researchers.

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