

A Bibliometric Analysis of Foreign Direct Investment

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ABSTRACT

This study aims to systematically map the development of Foreign Direct Investment (FDI) research using a bibliometric approach. Data were collected from the Scopus database covering the period 2000–2026. The analysis employs bibliometric techniques, including co-authorship, citation, keyword co-occurrence, overlay, and density visualization, using VOSviewer to identify research patterns, influential contributors, and thematic evolution within the field. The results show that FDI research has grown significantly and is dominated by key countries such as China, the United States, and India, which act as central hubs in global collaboration networks. Citation analysis reveals that highly influential studies largely focus on the relationship between FDI, economic growth, and environmental sustainability. Furthermore, keyword analysis indicates a shift from traditional economic themes toward more interdisciplinary topics, including renewable energy, carbon emissions, and sustainable development. The overlay and density visualizations confirm that sustainability-related issues are emerging as prominent research areas in recent years. This study contributes by providing a comprehensive overview of the intellectual structure of FDI research, identifying key trends, and highlighting future research directions, particularly in the integration of sustainability, digital transformation, and global policy frameworks.

Keywords: *Foreign Direct Investment, Bibliometric Analysis, Economic Growth, Sustainability, Global Collaboration*

1. INTRODUCTION

Foreign Direct Investment (FDI) has long been recognized as a critical driver of economic growth, structural transformation, and global economic integration. As economies become increasingly interconnected, FDI plays a pivotal role in facilitating capital flows, technology transfer, employment creation, and knowledge spillovers across national borders [1], [2]. Both developed and developing countries actively compete to attract FDI as a strategic instrument to enhance productivity, strengthen industrial capacity, and accelerate sustainable development [3], [4]. Over the past two decades, the dynamics of FDI have evolved significantly, influenced by globalization, digital transformation, geopolitical shifts, and changing regulatory environments. Consequently, scholarly interest in FDI has expanded rapidly, resulting in a substantial and diverse body of academic literature [5], [6].

The increasing complexity of global investment patterns has encouraged researchers to examine FDI from multiple perspectives, including economic, institutional, political, and environmental dimensions [7], [8]. Early studies primarily focused on the determinants of FDI, such as market size, labor costs, and trade openness, often grounded in classical theories like the eclectic paradigm (OLI framework). However, more recent research has incorporated broader considerations, including institutional quality, governance, sustainability, and the role of digital infrastructure [9], [10]. This shift reflects a growing recognition that FDI is not merely an economic phenomenon but also a multidimensional process shaped by global value chains, innovation systems, and socio-political contexts.

Despite the abundance of research, the expanding volume of FDI literature presents challenges in identifying its intellectual structure, major research streams, and emerging trends. Traditional literature reviews, while valuable, often lack the capacity to systematically capture large-

scale patterns and relationships within extensive datasets [5], [8]. In this context, bibliometric analysis has emerged as a powerful methodological approach to quantitatively and visually map scientific knowledge. By analyzing publication metadata such as authorship, citations, and keywords, bibliometric methods enable researchers to uncover hidden structures, collaboration networks, and thematic evolutions within a research field.

The application of bibliometric techniques in FDI research remains relatively limited compared to other economic and management domains. While some studies have explored specific aspects of international investment, there is still a lack of comprehensive mapping that integrates multiple analytical dimensions, such as co-authorship networks, citation structures, and keyword co-occurrence patterns over an extended period. This gap highlights the need for a systematic and data-driven review that can provide a holistic understanding of how FDI research has developed, where it currently stands, and where it is heading.

Therefore, this study aims to conduct a comprehensive bibliometric analysis of FDI literature using data from the Scopus database, covering the period from 2000 to 2026. The study employs advanced visualization techniques through VOSviewer to analyze co-authorship patterns, citation networks, and keyword co-occurrence [11], [12]. Through this approach, the study seeks to identify influential authors, leading countries and institutions, highly cited publications, and dominant as well as emerging research themes within the field of FDI.

This research is expected to contribute both theoretically and practically. From a theoretical perspective, it provides a structured overview of the intellectual landscape of FDI studies, helping scholars understand the evolution of key concepts and research trajectories. From a practical standpoint, the findings offer insights for policymakers and practitioners in designing more effective investment strategies and policies, particularly in the context of sustainable and inclusive development. Ultimately, this study not only maps the past and present of FDI research but also highlights future directions, including the growing importance of green investment, digital economy integration, and resilience in global investment systems.

2. METHODS

This study adopts a quantitative bibliometric approach to systematically map and analyze the development of Foreign Direct Investment (FDI) research. Bibliometric analysis is widely used to evaluate scientific output and uncover patterns within a large body of literature through statistical and visualization techniques. The data for this study were obtained from the Scopus database, which is recognized for its comprehensive coverage of high-quality peer-reviewed journals. The data collection process involved the use of relevant keywords such as "Foreign Direct Investment," "FDI," and related terms within titles, abstracts, and keywords. The search was limited to publications between 2000 and 2026 to capture both foundational and contemporary developments in the field. Only journal articles written in English were included to ensure consistency and comparability of the dataset.

After the data collection stage, the retrieved records were exported in a compatible format and underwent a cleaning process to remove duplicates, incomplete entries, and irrelevant documents. The final dataset was then analyzed using VOSviewer, a widely used tool for constructing and visualizing bibliometric networks. This study employs three main analytical techniques: co-authorship analysis, citation analysis, and keyword co-occurrence analysis. Co-authorship analysis is used to identify collaboration patterns among researchers, institutions, and countries. Citation analysis helps determine the most influential publications and authors within the FDI research domain. Meanwhile, keyword co-occurrence analysis is utilized to detect major research themes and track the evolution of topics over time.

To enhance the robustness of the analysis, thresholds were applied in each bibliometric mapping to filter out less significant nodes, such as minimum numbers of documents, citations, or keyword occurrences. The visualization outputs generated by VOSviewer were interpreted using network, overlay, and density visualization modes, allowing for a comprehensive understanding of relationships and trends within the dataset [13], [14]. These visualizations were then analyzed descriptively to explain the structure of the research field, identify dominant clusters, and highlight emerging areas of interest. Through this methodological framework, the study provides a systematic and data-driven overview of the intellectual landscape of FDI research.

3. RESULT AND DISCUSSION

3.1 Author Collaboration Analysis



Figure 1. Author Visualization

Source: Data Analysis

The author visualization in Figure 1 illustrates the co-authorship network within Foreign Direct Investment (FDI) research, where each node represents an author and each link indicates a collaboration relationship. The network is clearly divided into several distinct clusters, represented by different colors, which indicate that authors tend to collaborate more intensively within their own groups rather than across different clusters. Key authors such as Radulescu, Magdalena, Asongu, Simplic A., and Ali, Muhammad appear centrally positioned within their respective clusters, suggesting their significant roles as influential contributors and collaboration hubs in the field. However, the relatively weak connections between clusters indicate limited cross-group collaboration, highlighting an opportunity for broader international and interdisciplinary cooperation to strengthen the global research network and enhance knowledge integration in FDI studies.

3.2 Country Contribution Analysis

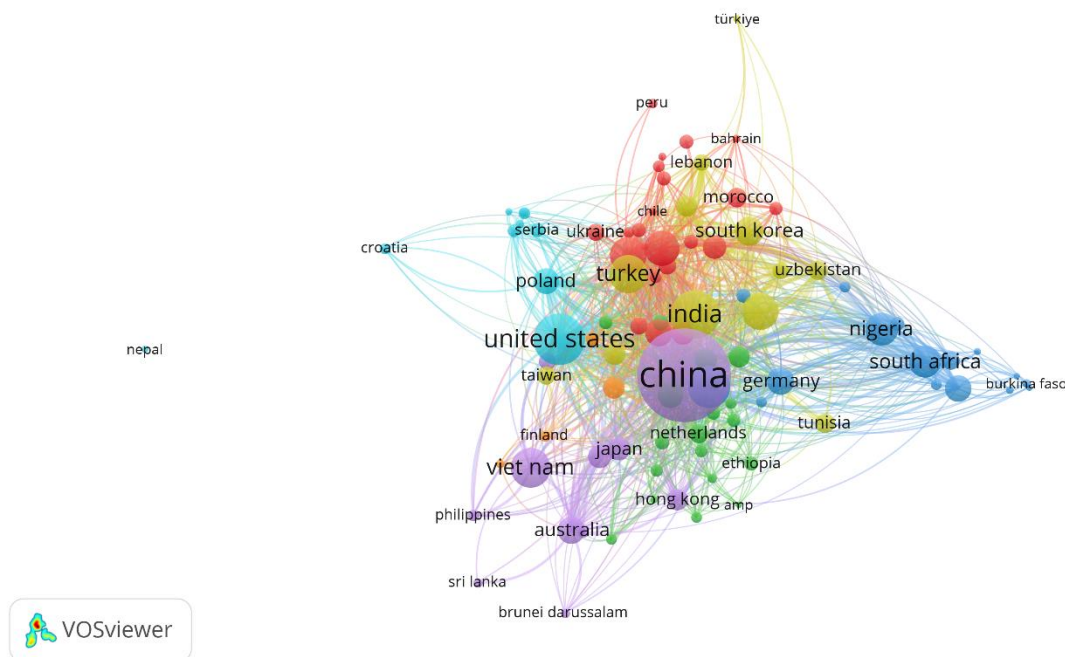


Figure 2. Country Visualization

Source: Data Analysis

The country visualization in Figure 2 illustrates the global collaboration network in Foreign Direct Investment (FDI) research, where each node represents a country and the links indicate co-authorship relationships between countries. The size of the nodes reflects the level of research productivity, while the proximity and thickness of the connections indicate the strength of collaboration. The map shows that China, United States, and India emerge as central hubs, indicating their dominant roles in contributing to and shaping FDI research globally. These countries are closely connected with multiple regions, highlighting their strong international research collaborations. Additionally, clusters of countries such as those in Europe, Asia, and Africa suggest regional collaboration patterns, although cross-regional linkages are also evident. Countries like South Africa and Nigeria represent emerging contributors, particularly in developing regions. Overall, the visualization reflects an increasingly interconnected global research landscape, while also indicating that collaboration remains concentrated around a few key countries, suggesting opportunities to further expand inclusive and balanced international research partnerships.

3.3 Citation Analysis

Table 1. The Most Impactful Literatures

Citations	Authors and year	Title
1039	Sarkodie, S.A.,Strezov, V. (2019)	Effect of foreign direct investments, economic development and energy consumption on greenhouse gas emissions in developing countries
1035	Shahbaz, M.,Nasir, M.A.,Roubaud, D. (2018)	Environmental degradation in France: The effects of FDI, financial development, and energy innovations
774	Xu, L.,Fan, M.,Yang, L.,Shao, S. (2021)	Heterogeneous green innovations and carbon emission performance: Evidence at China's city level

Citations	Authors and year	Title
707	Zafar, M.W., Zaidi, S.A.H., Khan, N.R., ... Hou, F., Kirmani, S.A.A. (2019)	The impact of natural resources, human capital, and foreign direct investment on the ecological footprint: The case of the United States
704	Paul, J., Benito, G.R.G. (2018)	A review of research on outward foreign direct investment from emerging countries, including China: what do we know, how do we know and where should we be heading?
677	Salahuddin, M., Alam, K., Ozturk, I., Sohag, K. (2018)	The effects of electricity consumption, economic growth, financial development and foreign direct investment on CO2 emissions in Kuwait
630	Ji, Q., Zhang, D. (2019)	How much does financial development contribute to renewable energy growth and upgrading of energy structure in China?
565	Ouyang, X., Li, Q., Du, K. (2020)	How does environmental regulation promote technological innovations in the industrial sector? Evidence from Chinese provincial panel data
564	Cheng, Z., Li, L., Liu, J. (2018)	Industrial structure, technical progress and carbon intensity in China's provinces
562	Anton, S.G., Afloarei Nucu, A.E. (2020)	The effect of financial development on renewable energy consumption. A panel data approach

Source: Scopus, 2026

Table 1 highlights the most impactful literatures in Foreign Direct Investment (FDI) research, as reflected by high citation counts, indicating their strong influence on the development of the field. A clear pattern emerges where the most cited studies predominantly focus on the intersection between FDI, environmental sustainability, and economic development. For instance, works by Sarkodie, S.A. and Shahbaz, M. emphasize the relationship between FDI, energy consumption, and environmental degradation, suggesting that FDI plays a dual role in both promoting economic growth and contributing to environmental challenges. Similarly, studies such as those by Xu, L. and Zafar, M.W. extend this discussion by linking FDI with green innovation and ecological footprints, reflecting a growing concern for sustainable development. In addition, conceptual and review-based contributions, such as Paul, J., provide important theoretical direction by synthesizing knowledge on outward FDI from emerging economies. Overall, the table demonstrates a significant shift in FDI research from traditional economic perspectives toward more integrated approaches that incorporate environmental, financial, and technological dimensions, highlighting the evolving priorities and future directions of the field.

3.4 Keyword Co-Occurrence and Research Themes

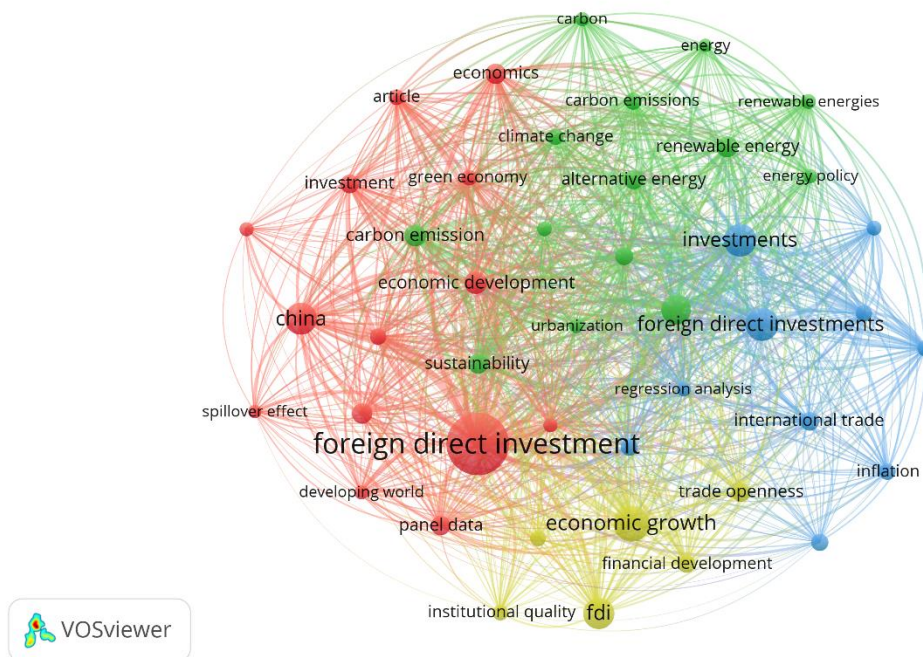


Figure 3. Network Visualization

Source: Data Analysis

The network visualization in Figure 3 illustrates the keyword co-occurrence structure within Foreign Direct Investment (FDI) research, revealing the main thematic clusters and their interconnections. The central position of “foreign direct investment” indicates its role as the core concept linking various research topics. The visualization is divided into several clusters, each representing a distinct research stream. The red cluster emphasizes traditional economic themes such as investment, economic development, and spillover effects, with strong relevance to countries like China. The green cluster highlights environmental and sustainability-related topics, including carbon emissions, renewable energy, and climate change, reflecting the increasing integration of environmental concerns into FDI studies. Meanwhile, the blue cluster focuses on macroeconomic and trade-related issues such as international trade, inflation, and financial development, while the yellow cluster captures institutional and methodological aspects, including economic growth, trade openness, and regression analysis. The dense interconnections among these clusters indicate that FDI research is highly interdisciplinary, with strong linkages between economic, environmental, and policy-oriented perspectives. Overall, the figure demonstrates a clear evolution of the field from conventional economic analysis toward a more comprehensive approach that incorporates sustainability and global economic dynamics.

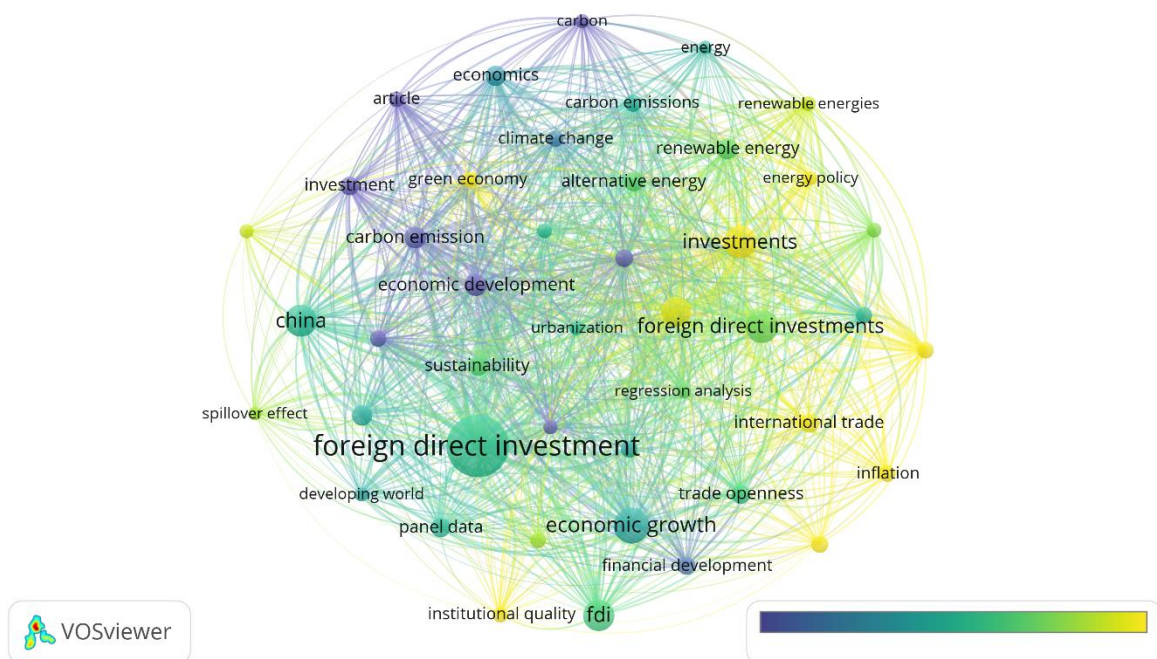


Figure 4. Overlay Visualization
 Source: Data Analysis

The overlay visualization in Figure 4 illustrates the temporal evolution of research themes in Foreign Direct Investment (FDI) studies, where the color gradient (from blue to yellow) represents the progression of topics from earlier to more recent research. Core terms such as “foreign direct investment,” “economic growth,” and “international trade” appear in cooler colors, indicating that they have been long-established and foundational themes in the literature. In contrast, more recent topics are highlighted in warmer colors, including “renewable energy,” “energy policy,” “green economy,” and “sustainability,” reflecting a growing shift toward environmentally oriented and sustainable investment research. Additionally, emerging methodological and contextual keywords such as “regression analysis,” “trade openness,” and “financial development” demonstrate the increasing sophistication and diversification of analytical approaches. The central positioning and persistent relevance of “foreign direct investment” confirm its role as the core linking concept across time, while the spread toward newer themes indicates that the field is evolving toward a more interdisciplinary and forward-looking direction. Overall, this visualization clearly shows that FDI research is transitioning from traditional economic concerns to incorporating sustainability, energy, and global policy dimensions as key areas of future inquiry.

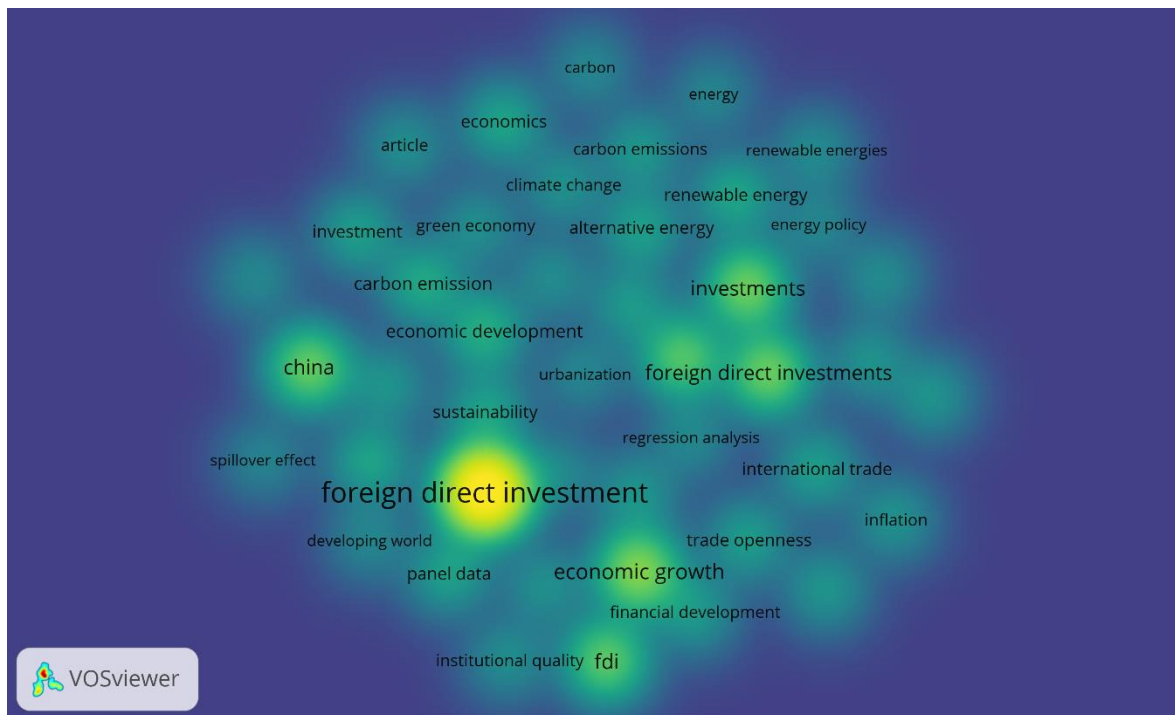


Figure 5. Density Visualization

Source: Data Analysis

The density visualization in Figure 5 highlights the concentration and intensity of research topics within the Foreign Direct Investment (FDI) literature, where brighter areas (yellow) indicate higher frequency and stronger co-occurrence of keywords, while darker areas represent less explored topics. The term “foreign direct investment” appears as the most prominent and densely populated node, confirming its central role as the core focus of the research field. Surrounding this core, highly dense areas include themes such as “economic growth,” “investments,” and “China,” indicating that these topics have been extensively studied and are strongly interconnected in the literature. Additionally, moderately dense regions such as “carbon emissions,” “renewable energy,” and “financial development” suggest growing research interest, particularly in linking FDI with environmental and financial dimensions. In contrast, less dense areas like “institutional quality” and “inflation” indicate relatively underexplored or more specialized topics. Overall, this visualization demonstrates that FDI research is heavily concentrated on its economic impact while increasingly expanding toward sustainability and energy-related issues, highlighting both well-established themes and potential areas for future research development.

Discussion

The findings of this bibliometric analysis reveal that Foreign Direct Investment (FDI) research has evolved into a highly dynamic and interdisciplinary field. The dominance of core themes such as economic growth, trade openness, and financial development confirms that traditional economic perspectives remain foundational in explaining FDI dynamics. These themes are strongly interconnected, indicating that scholars continue to rely on established theoretical frameworks to analyze the role of FDI in enhancing macroeconomic performance. At the same time, the consistent centrality of “foreign direct investment” across all visualizations highlights its role as a unifying concept that bridges various research domains, from macroeconomic policy to firm-level performance.

However, a significant shift is evident in the increasing integration of environmental and sustainability-related issues within FDI research. The prominence of keywords such as carbon emissions, renewable energy, and climate change suggests that the academic discourse has

expanded beyond purely economic outcomes to include ecological consequences. This shift aligns with global concerns about sustainable development and responsible investment, indicating that FDI is now being examined not only as a driver of growth but also as a factor influencing environmental quality [1], [2], [4]. The growing citation of studies focusing on green investment and ecological impact further reinforces the importance of sustainability as an emerging research frontier.

In terms of collaboration patterns, the co-authorship and country visualizations indicate that FDI research is still concentrated around a limited number of dominant countries, particularly China, the United States, and India. These countries act as central hubs in the global research network, contributing significantly to knowledge production and dissemination. While international collaboration is increasing, especially involving emerging economies, the network structure suggests that cross-regional partnerships remain uneven. This imbalance points to the need for more inclusive and diversified collaboration, particularly involving developing countries, to ensure that FDI research reflects a broader range of economic contexts and policy challenges.

Finally, the overall structure of the literature suggests that FDI research is transitioning toward a more integrative and forward-looking approach [9], [15]. The emergence of themes related to digital economy, innovation, and policy frameworks indicates that future research will likely focus on the intersection of technology, sustainability, and global investment flows. This evolution presents opportunities for scholars to explore new theoretical perspectives and methodological approaches, particularly in addressing complex global challenges such as climate change, economic inequality, and digital transformation. Therefore, future studies are encouraged to adopt interdisciplinary frameworks and expand empirical contexts to enhance the relevance and impact of FDI research in an increasingly interconnected world.

CONCLUSION

This study provides a comprehensive bibliometric overview of Foreign Direct Investment (FDI) research from 2000 to 2026, highlighting its intellectual structure, collaboration patterns, and thematic evolution. The findings demonstrate that FDI remains a central topic in economic and international business research, with a strong emphasis on its role in driving economic growth and development. At the same time, the study reveals a significant shift toward integrating environmental and sustainability concerns, reflecting changing global priorities in addressing climate change and promoting responsible investment practices.

The analysis also shows that research productivity and collaboration are concentrated in a few key countries, particularly China, the United States, and India, which dominate the global research network. Although international collaboration is increasing, there is still a need to strengthen partnerships involving developing countries to create a more inclusive and representative body of knowledge. Additionally, the emergence of new research themes such as renewable energy, green investment, and the digital economy indicates that FDI research is becoming more interdisciplinary and forward-looking. Overall, this study contributes to the literature by offering a structured and data-driven understanding of FDI research trends and directions, while encouraging future research to explore underdeveloped areas, adopt interdisciplinary approaches, and address global economic and environmental challenges.

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