

## The Aid-Growth Relationship Revisited: A Bibliometric Analysis of ODA, Infrastructure Channels, Trade, and FDI

**Reeti Sharma Sujith**

Research Scholar, Department of Economics, School of Behavioral and Social Sciences (SBSS), Manav Rachna International Institute of Research and Studies (MRIIRS), Sector 43, Faridabad, Haryana 121004, India and Director, ICEMA, CII Affiliated. Email: reetisujith888@gmail.com

**Durairaj Kumarasamy**

Professor and Head, Department of Economics, School of Behavioral and Social Sciences (SBSS), Manav Rachna International Institute of Research and Studies (MRIIRS), Sector 43, Faridabad, Haryana 121004, India. Email: doorairaj@gmail.com

### Abstract

Role of Official Development Assistance (ODA) in economic growth, has received extensive academic attention over the past decades and more so recently. The effectiveness of ODA in promoting economic growth has been one of the most extensively debated issues in development economics. Although the aid-growth nexus is widely discussed in the literature, there is no consensus and empirical findings remain inconclusive. This study revisits the aid-growth relationship using a bibliometric analysis with a specific focus on aid effectiveness in promoting trade, FDI and infrastructure as the key transmission channel. The analysis includes a total of 1,122 research documents between 1983-2024, offering a comprehensive dataset for evaluating the evolution of the field. A significant finding is that the literature has been shifting from aggregate growth parameters towards sectoral allocation and role of institutions. The study highlights emerging research directions focused on infrastructure transmission channels, absorptive capacity, and climate finance integration. The findings reveal that global discourse emphasise institutional quality and conditionality as key determinants of aid effectiveness. The paper contributes to the literature by bridging global theoretical perspectives with country-specific empirical realities. The results indicate that aid effectiveness is highly conditional upon institutional quality, absorptive capacity, and alignment with domestic policy priorities.

**Keywords:** Official Development Assistance, Foreign Aid, Economic Growth, Infrastructure, Trade, FDI, Bibliometric Analysis

**JEL Classification** F34, F35, H63, P33, O19, O57

### THE INTRODUCTION

Official Development Assistance, also known as foreign aid, represents the financial, technical, and material assistance given by international organisations, bilateral donors from countries, and multilateral institutions for the economic and social developmental purposes of recipient countries. Such assistance is expected to help in bridging the resource gaps, strengthening the institutional capacity, and promoting sustainable development for emerging and low-income economies. Different types of assistance usually include grants, concessional loans, debt relief, technical cooperation, or other forms of assistance by which the donor helps according to the needs of the recipient and their objectives (OECD, 2018). Such assistance provides vital links in the tasks of stabilizing economies, promoting trade and investments, and addressing

social inequalities. Besides these forms of assistance, another important dimension of foreign aid involves the provision of technical assistance. This means donors promise to build institutional capacities, offer policies in particular fields, and facilitate the transfer of technology to assure the long-term resilience of economies. Ultimately, ODA stands as a strategic resource with which to engineer sustainable growth, enhance governance capabilities, integrate into a global economy, and score in alignment with international development goals, such as the United Nations Sustainable Development Goals (SDGs) (Iacobuță et al., 2022).

Development assistance programs are integrally commonly appended to reform policies that tend to promote an open and business-friendly approach to the economy. Measures to be taken in this modification often include liberalizing trade restrictions, relaxing the rules governing foreign investments, and simplifying the regulatory framework, hence improving the ease of doing business. Investment-friendliness rules are what development assistance is attempting to engender to build the confidence of investors and make it easy for domestic and international businesses to operate. Empirical evidence has shown that, among other things, foreign aid has the potential to boost good governance structures and institutional quality which are very necessary for prolonged economic growth. When governance is improved through transparency, legal reform, and effective public administration, it fosters an environment conducive to attracting increased foreign direct investment (FDI) levels and trade openness. This is why developing nations using aid for such improvements tend to be more integrated and expanded in terms of trade globally (Bird & Choi, 2020).

ODA has long been recognized as a central instrument in the global development architecture, designed to promote economic growth, reduce poverty, and finance structural transformation in developing economies (OECD, 2022). The effectiveness of foreign aid in promoting economic growth has been a central concern in development economics for decades. Since the early post-war period, ODA has been viewed as a critical instrument for addressing capital requirements and accelerating investments (Chenery & Strout, 1966). However, despite substantial financial flows, the empirical relationship between aid and growth remains contested. Early studies suggested a positive association between aid and growth through capital accumulation and investment expansion (Arndt et al., 2015). In contrast, subsequent research questioned this optimism, arguing that aid effectiveness depends on country-specific conditions such as institutional Quality, governance, and macroeconomic policies (Burnside & Dollar, 2000). More recent contributions have further nuanced this debate by examining sectoral allocation, aid fragmentation, and the role of EA in facilitating trade, infrastructure, and private investment (Dreher et al., 2021). The ODA plays a crucial role in the development of the transportation sector worldwide (Donaubauer et al., 2019).

This paper employs bibliometric approach to map the global aid-growth literature and examine the contribution of ODA to the growth and development of the transportation sector. It further identifies key themes, main authors, and emerging research trends Through a comprehensive analysis of existing literature, this study identifies key trends, challenges and emerging sectors associated with the effective utilisation of ODA in the transportation sector. The analysis highlights the importance of ODA in enhancing infrastructure quality, promoting sustainable transport solutions and facilitating access to transportation services in developing countries.

Despite its theoretical appeal, the empirical evidence on aid effectiveness remains deeply contested. Early optimism regarding the positive impact of aid on economic growth was challenged by studies suggesting limited or conditional effects (Easterly, 2006).

More recently, the literature has shifted toward examining sector-specific transmission channels, particularly infrastructure and trade. Infrastructure investments financed through ODA, such as transport corridors, energy systems, ports, and logistics networks have been shown to reduce transaction costs, enhance export competitiveness, and crowd in private investment ((Bird & Choi, 2020; Donaubauer et al., 2019). Aid for Trade initiatives further emphasise the role of development assistance in strengthening productive capacity and facilitating global value chain participation ((Helble et al., 2012). Concurrently, rising concerns about sovereign debt sustainability and climate transition financing have introduced new dimensions to the debate ((OECD, 2022).

Although the literature on ODA and economic growth is extensive, it remains fragmented across cross country thematic clusters, methodological approaches, and geographical contexts. Cross-country panel regressions dominate empirical analysis, while sector-specific impact and sub national evaluations remain underdeveloped. Furthermore, the rapid expansion of publications over the past two decades has generated a complex body of knowledge whose intellectual structure and thematic evolution have not been systematically mapped.

Bibliometric analysis provides a rigorous quantitative method for evaluating the conceptual, intellectual, and social structure of a research field ((Aria & Cuccurullo, 2017; Donthu et al., 2021). By examining citation networks, co-occurrence patterns, and collaboration structures, bibliometric techniques identify dominant themes, influential authors, and emerging research fronts.

Against this background, the aim of this study is to identify and analyse the scientific literature on Official Development Assistance, its impact on economic growth, and mediation of transmission channels like infrastructure, trade, and FDI. The study seeks to identify the main research themes, authors, journals, most cited articles, and contributing countries in the ODA-growth literature particularly focusing on infrastructure transmission channels.

The present study contributes to the literature in several ways. First, it provides a comprehensive bibliometric analysis of the global research landscape on ODA and economic growth using data from the Scopus database covering the period 1983–2024. By examining publication trends, citation patterns, leading authors, and country collaborations, the study offers a detailed overview of the evolution of this research field. Second, the study identifies the major thematic clusters shaping the literature, including the aid–growth nexus, political economy of aid allocation, trade and infrastructure linkages, and emerging debates on sovereign debt and climate finance. Third, the study highlights key research gaps and underexplored areas, particularly the limited attention given to infrastructure transmission channels and subnational development outcomes.

Additionally, understanding the evolving patterns of research on aid effectiveness, trade integration, and infrastructure development can help guide policy frameworks aimed at improving the design and implementation of development financing programs.

The remainder of this article is organized as follows. The second section presents the theoretical framework and literature background relevant to the aid-growth debate. The third section highlights the research questions leading the study. The fourth section describes the data sources, search strategy and bibliometric methods used for analysis. Section fifth presents the bibliometric results, including publication

trends, thematic clusters, and science mapping of the literature. Finally, the sixth section summarises the key findings, and outlines future research directions.

## THEORETICAL UNDERPINNINGS

The relationship between ODA and economic development has been examined through several theoretical perspectives in development economics. The earliest foundations emerge from the Harrod-Domar growth model, which emphasises the role of capital accumulation in economic growth where in ODA acts as a source of capital that supplements domestic investment (Harrod, 1939; Domar, 1946).

Further, the two-gap model developed by Chenery and Strout (1966) provided one of the most influential theoretical justifications for foreign aid. The model argues that developing economies face two major constraints, one is a saving gap and other is a foreign exchange gap. Assistance helps bridge these gaps by productive sectors such as infrastructure, industry, and technology. Another theoretical perspective that informs the aid-growth relationship is the endogenous growth theory, which suggests the role of human capital, technological progress, and knowledge spillovers in sustaining long-term economic growth (Romer, 1986; Lucas, 1988). This highlights that foreign aid can promote growth when it supports investments in infrastructure, education, technology transfer, and institutional capacity. Assistance directed towards sectors such as transport networks, energy systems, and logistics infrastructure can reduce costs, improve productivity, and facilitate integration into global trade and investment networks. One more important theory emphasises the role of governance quality, institutions, and policy frameworks in determining the effectiveness of official development assistance (North, 1990; Acemoglu & Robinson, 2012). Accordingly, the impact of foreign aid depends not only on the volume of aid flows but also on the institutional capacity of recipient countries to absorb and utilise these resources efficiently. Weak governance structures, policy changes, and political economy considerations may reduce the effectiveness of aid in promoting economic growth and investment. Furthermore, recent literature highlights the role of aid as a catalyst for trade and FDI. ODA can enhance economic integration by financing infrastructure development, strengthening trade facilitation mechanisms, and improving the overall business environment (Donaubauer et al., 2019; Kraemer & Volz, 2024). Investments in transport, ports, and logistics networks reduce trade costs and increase export competitiveness, while institutional reforms supported by aid programs can improve investor confidence and attract foreign capital. Together, these theoretical perspectives suggest the impact of ODA on economic outcomes operates through multiple transmission channels, including capital accumulation, infrastructure development, institutional strengthening, trade integration, and investment promotion. Understanding these channels is essential for evaluating the effectiveness of aid in promoting sustainable economic development.

This study employs a bibliometric analysis to examine the scientific literature on ODA and their relationship with economic growth, trade, FDI, and infrastructure development. The term bibliometrics was first introduced by Pritchard (1969), who defined it as the application of statistical and mathematical methods to analyse written communication and scholarly publications. Since then, bibliometric techniques have become widely used to evaluate the development and trends of research within a particular academic field.

Bibliometric analysis is a quantitative research approach used to measure and analyse patterns in academic literature through citation analysis, publication counts, and co-occurrence mapping (Donthu et al., 2021). It enables researchers to identify influential authors, key journals, collaboration networks, and emerging research themes within a discipline. By analysis bibliographic meta data, bibliometric techniques

provide a systematic overview of the intellectual structure and evolution of a research field ((Aria & Cuccurullo, 2017).

These methods have become increasingly important as the volume of scientific publications has grown rapidly, making it difficult to manually synthesize large bodies of literature. Bibliometric methods rely on large datasets of academic publications and are commonly applied to evaluate research productivity, citation impact, and thematic developments across disciplines (Zupic & Čater, 2015). Such techniques allow researchers to identify patterns of collaboration among countries, institutions, and authors, as well as to detect the emergence of new research clusters and knowledge domains. Bibliometric tools and software such as Bibliometrix and Biblioshiny in R have further enhanced the ability of scholars to conduct comprehensive science mapping and performance analysis of research fields. In recent years, bibliometric analysis has been widely applied across various areas of economics, management, and development studies. For example, Donthu et al. (2021) conducted a comprehensive bibliometric review to map the evolution of research across management disciplines and demonstrated the usefulness of science mapping techniques in identifying emerging research themes. Similarly, Aria and Cuccurullo (2017) introduced the Bibliometrix R package, which provides an open-source framework for conducting bibliometric and scientometric analysis, enabling researchers to visualise the conceptual, intellectual, and social structure of scientific literature.

Bibliometric methods have also been used to analyse research trends in development economics and international trade. For instance, studies have examined the intellectual structure of literature on global value chains, international trade, and sustainable development using bibliometric methods to identify dominant themes and influential research contributions. These analyses highlight the growing importance of bibliometric techniques in synthesising complex and multidisciplinary research domains.

Despite the extensive literature on ODA and economic development, relatively few studies have systematically mapped the intellectual structure of this research field using bibliometric techniques. Most existing studies rely on traditional structure of this field using bibliometric methods. Most existing studies depend on traditional literature reviews or econometric analyses that focus on specific empirical relationships, such as the aid-growth nexus or the role of institutions in aid effectiveness. As a result, there is limited understanding of the overall evolution, thematic structure, and knowledge networks within the literature on ODA.

This study applies bibliometric analysis to provide a comprehensive overview of the research landscape on ODA and economic development. By examining publication trends, citation patterns, leading authors, and thematic clusters, the study contributes to a deeper understanding of the intellectual development of the field and identifies emerging research directions related to ODA, infrastructure, trade integration, and foreign investment. Additionally, regulatory efficiency and quality of governance are some of the issues that are important in turning flows into a reality of trade and investment.

### Research Questions

This study examines the evolution and structure of research on Official Development Assistance and its impact on economic growth and linkages with trade, FDI and infrastructure development as transmission channels using bibliometric analysis by addressing the following research questions:

- What are the global publication trends and growth patterns in the literature of ODA and economic development?

- Who are the most influential authors, journals, institutions, and countries contributing to the research on the aid-growth relationship?
- What are the dominant themes and keyword clusters for the research on nexus between aid and growth?
- How have the thematic areas of research evolved over time, particularly regarding the linkages between ODA, economic growth, infrastructure, trade, and FDI?
- What are the emerging gaps in research and future research directions in the study of ODA specifically through channels?

## DATA AND METHODOLOGY

Selecting an appropriate dataset is one of the most critical steps in bibliometric analysis, as the reliability and quality of results largely depend on the database used. Researchers commonly use database such as Web of Science (WoS), Scopus, and Google Scholar for bibliometric studies (Donthu et al., 2021). Each database differs in term of coverage, citation tracking capabilities, and data structure. Scopus is considered one of the largest abstracts and citation databases of peer-reviewed literature and provides comprehensive citation, metadata and coverage across disciplines. Due to its broad coverage, high quality indexing, and compatibility with bibliometric tools, Scopus is widely used in bibliometric research. Therefore, this study uses the Scopus database as the primary data source for conducting bibliometric analysis (Aria & Cuccurullo, 2017). The present study focuses on the research field examining the relationship between ODA, economic growth, trade, FDI and infrastructure development. To capture the evolution of this literature over time, the study considers publications from 1983-2024 reflecting the growing academic interest in the aid-growth nexus during the past four decades. To ensure consistency and quality of the dataset, only English language publications were included. In addition, the search was restricted to peer-reviewed articles and conference papers.

The data selection process was conducted using Boolean operators. The search strategy was designed to capture studies examining ODA or Foreign Aid and its linkages with economic growth, trade, investment and moderating impact of infrastructure. Given the interdisciplinary nature of development economics. The search was conducted within subject areas related to economics, business, and social sciences. The use of the Boolean operators “OR” and “AND” ensured that the selected documents simultaneously addressed development assistance and economic development outcomes. The search was conducted in the Title, Abstract, and Keywords fields, which is commonly used in bibliometric research to capture the most relevant studies.

The initial search produced a total of 1.122 documents indexed in the Scopus database. These records were then exported in bibliographic format for further analysis. The dataset includes information on authors, affiliations, citations, journals, keywords, and abstracts, which provides the bias for conducting performance analysis and science mapping.

To analyse the dataset, this study utilises R-Studio, an integrated development environment for the R programming language. The analysis was conducted using the bibliometrix package, which is widely used for bibliometric analysis. The Biblioshiny interface, a web-based application within the bibliometrix package, was employed to visualise the bibliometric results through graphs, tables, and network maps. Bibliometrix enables researchers to perform various bibliometric techniques such as performance analysis, citation analysis, co-authorship networks, keyword co-occurrence analysis, and thematic mapping.

The overall research process is summarized through the methodological framework presented in Table 1, which illustrates the stages of data collection, screening, analysis, and visualisation.

**Table 1: Methodology Used for Bibliometric Analysis**

Methodology	Bibliometrics extracted by exploring Scopus database and the biblioshiny tool through R software
Data Time Span	From 1983-2024 relevant papers were collected
Data Source	The SCOPUS database was used, with keywords as the initial search in the Title, Abstract and Keywords Query. It resulted in a total of 1122 research papers, indicating a substantial dataset for comprehensive analysis in the field.
Search Strategy	TITLE-ABS-KEY ("Foreign Aid" OR "External Assistance" OR "Official Development Assistance" OR "Development Financing" OR "Sovereign Debt" OR "Development Assistance") AND ("Economic Growth" OR fdi OR "Foreign Direct Investment" OR trade OR export OR import OR infrastructure OR transport))
Document Type & Other Inclusions or Exclusions	Agricultural and Biological Sciences, Decision Sciences, Computer Science, Medicine, Psychology, Mathematics, Materials Science, Health Professions, Physics and Astronomy, Chemical Engineering and Nursing. Search was limited to ENGLISH Language only. In Document Type, it was limited to Article, and Conference papers only. After all these screening, the final count was 1122. The countries with top seven research papers are limited to top seven United States, United Kingdom, Germany, Japan, India, Canada, France.
Keywords	Official Development Assistance, Foreign Aid, External Assistance, Bibliometric, Infrastructure, Transport

Source: author's own based on Jacob et al., 2023

In recent years, the role of ODA in shaping economic development and particularly in infrastructure has emerged as a significant area of scholarly investigation. The growing complexity of development finance, coupled with its interplay across economics, international trade, and public policy, has led to an expansion of interdisciplinary research in this domain. Hence, the present study identifies and charts the relevant research and body of knowledge using a structure bibliometric approach{Citation}. The study's objective is to examine the contribution of ODA to infrastructure and broader economic outcomes. The dataset is created using a Boolean search strategy applied to the Scopus database, combining key terms related to ODA, economic growth, trade, and infrastructure, as detailed by Table 2. This systematic approach ensures a comprehensive selection of literature for bibliometric analysis subsequently.

**Table 2: Keywords of the Research**

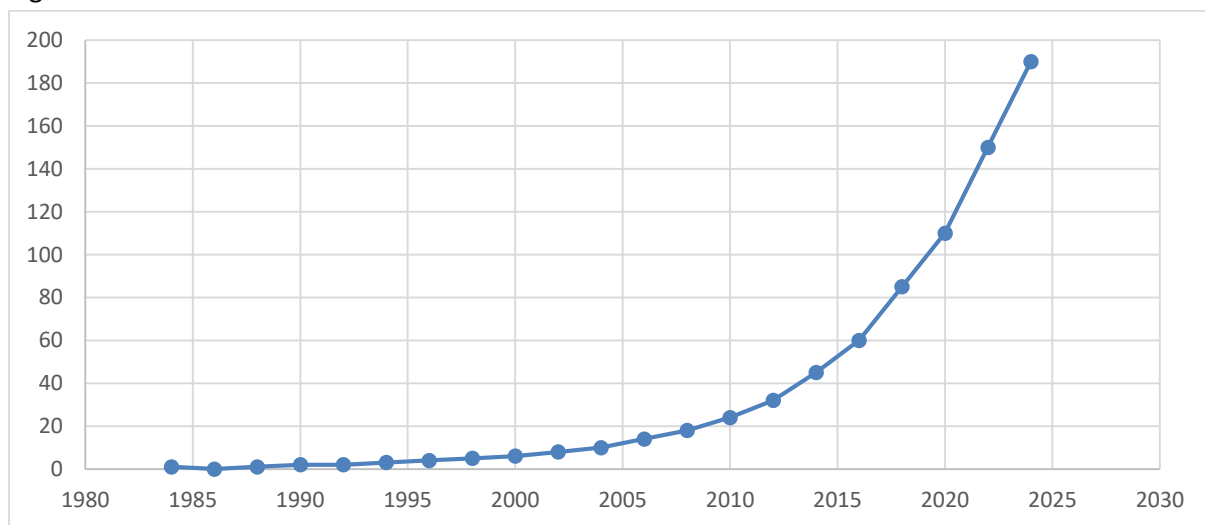
“ODA-related Keywords”	“Economic Development Keywords”	“Trade and Investment Keywords”
Official Development Assistance (ODA)	Economic Growth	Foreign Direct Investment
Foreign Aid	Sustainable Development	Export
Development Assistance	Infrastructure Development	Import
Development Financing	Logistics	Capital Flows
Concessional Loans	Transport Infrastructure	Trade Openness
	Mobility	

Source: Author’s Own based on Jacob et al., 2023

### Results and Discussion

This analysis includes the annual scientific production, author and author citation analysis, country analysis, publication trends and journal analysis. The analysis of annual scientific production presents the findings related to the first research question, focussing on the global publication trends in studies examining the role of ODA in transportation infrastructure and the economic development as well as growth patterns in the literature.

Figure 1: Number of Publications



Source: Authors’ own basis bibliometric analysis

During the early years, the number of publications remained relatively low, generally below 20 articles per year. From the late 1990s onwards, there is a clear upward trend as research activity began to increase steadily, reflecting renewed interest in the aid-growth debate and the emergence of new research methods for evaluating aid effectiveness. A significant growth in publications can be observed after 2000, coinciding with major global development initiatives such as Millenium Development Goals (MDGs) and the expansion of development financing by multilateral institutions. However, a significant surge in research output becomes evident after 2014, marking a structural shift in academic interest. The growth accelerated during 2010-2023, reflecting the growing academic interest in the role of assistance in addressing global challenges such as infrastructure deficits, climate change, and sustainable development. This acceleration can also be attributed to major global policy developments, particularly the adoption of the Sustainable

Development Goals (SDGs) in 2015, which emphasised infrastructure, SDG Goal 9 as a key driver of economic growth and sustainability. Additionally, international initiatives such as the Paris Agreement of 2015 and increased focus on climate-resilient infrastructure have further intensified scholarly engagement in this field. The rising trend in publications also reflects broader institutional and policy shifts towards sustainable financing, global connectivity, and inclusive economic development. Overall, the figure highlights the transition of this research area from a relatively underexplored topic to a rapidly expanding and policy-relevant field of study.

Table 3 presents the most globally cited papers in the aid-growth literature, highlighting the foundational contributions that have shaped the evolution of this field. The literature is largely dominated by highly influential studies published in leading journals such as *American Economic Review*, *Journal of Development Economics*, and *World Development*. Early contributions, such as Burnside and Dollar (2000) and Boone (1996), focused on the effectiveness of aid in promoting economic growth and introduced the role of policy and political factors. These were followed by critical reassessments by Easterly (2003) and Rajan and Subramanian (2008), who questioned the robustness and generalizability of the aid-growth relationship.

Subsequent research has increasingly moved toward unpacking the “black box” of aid effectiveness by examining transmission channels such as investment, infrastructure, trade, and fiscal behavior. Studies by Clemens et al. (2012), Arndt et al. (2015), and Dreher et al. (2018) provide more nuanced and methodologically sophisticated evidence, distinguishing between short-term and long-term impacts of aid. Additionally, emerging strands of literature explore the interaction between aid and other economic variables, including foreign direct investment and export performance. Overall, the most cited works reflect a transition from polarized debates on whether aid works to a more refined understanding of how, when, and under what conditions aid contributes to economic development.

Table 3: Most Globally Cited Papers in the Aid-Growth Literature

Rank	Author (s) & Year	Title of the paper	Journal	Total Citations (TC)	Key Contribution
1	Burnside and Dollar (2000)	Aid, Policies and Growth	American Economic Review	3200+	Introduced policy conditional aid effectiveness hypothesis
2	Easterly (2003)	Can foreign Aid buy Growth?	Journal of economic	2000+	Critique of aid effectiveness and policy-based models
3	Hansen & Tarp (2001)	Aid and Growth Regressions	Journal of Development Economics	1800+	Found positive relation between aid and growth
4	Rajan & Subramanian (2008)	Aid and Growth: What does the Cross-Country Evidence Really Show?	Review of Economics and Statistics	1500+	Questioned robustness of aid-growth relationship

5	Dalgaard et al. (2004)	On the Empirics of Foreign Aid and Growth	Economic Journal	1200+	Highlighted role of geography and climate
6	Clemens et al. (2012)	Counting Chickens when They Hatch	Economic Journal	900+	Distinguished short-term vs long-term aid effects
7	Bourguignon & Sundberg (2007)	Aid Effectiveness: Opening the Black Box	American Economic Review Papers & Proceedings	800+	Focused on transmission mechanisms of aid
8	Arndt et al. (2015)	Assessing Foreign Aid's Long Run Contribution to Growth	World Development	700+	Strong evidence of long-run positive impact
9	Juselius et al. (2014)	The long-run Impact of Foreign Aid in 36 African Countries	European Economic Review	700+	Time-series evidence of positive AI

### Emerging Areas of Research Based on Authors' Interest

Table 4 highlights the emerging research areas in the aid-growth literature, reflecting a clear shift in scholarly focus over time. While earlier studies primarily concentrated on the aggregate relationship between foreign aid and economic growth, recent research increasingly emphasizes the underlying transmission mechanisms through which aid influences development outcomes. These include infrastructure development, trade facilitation, foreign direct investment (FDI), institutional quality, fiscal performance, and sectoral allocation of aid. This evolution indicates a growing recognition that the effectiveness of aid depends not merely on its volume but on how it is allocated, managed, and integrated within domestic economic structures.

A significant strand of recent literature focuses on infrastructure as a critical channel of aid effectiveness. Investments in transport, energy, and digital infrastructure are increasingly viewed as essential for reducing transaction costs, enhancing productivity, and enabling structural transformation in developing economies. Similarly, the role of aid in facilitating trade and improving export competitiveness has gained prominence, particularly through initiatives such as Aid for Trade, which aim to integrate developing countries into global markets.

Another important area of research relates to the interaction between aid and private investment, especially FDI. Studies suggest that aid can play a catalytic role by improving the investment climate, strengthening institutions, and mitigating risks faced by private investors. At the same time, there is growing attention to the fiscal implications of aid, including its impact on government expenditure, revenue mobilization, and macroeconomic stability.

More recently, the literature has also begun to explore heterogeneity in aid effectiveness, with increasing emphasis on country-specific contexts, governance structures, and subnational dynamics. In particular, emerging economies such as India have received attention for their unique development

trajectories, where aid is often directed toward infrastructure and sectoral development rather than broad macroeconomic support.

Overall, the results indicate a transition from a generalized, macro-level debate on aid effectiveness to a more nuanced and context-driven understanding that incorporates sectoral channels, institutional frameworks, and country-specific realities. This shift not only enriches the theoretical discourse but also provides a stronger foundation for designing targeted and effective development policies.

Table 5: Emerging Areas of Research Based on Work by Most Relevant Authors

Author (s) & Year	Title	Keywords	Focus (Country/Region)	Total Citations
Burnside & Dollar (2000)	Aid, Policies and Growth	Foreign		

Source: Author's own bases on Bibliometric analysis

S.no	Author(s) & Year	Title	Key Keywords	Focus (Country/Region)	Total Citations
	Burnside & Dollar (2000)	Aid, Policies, and Growth	Foreign aid, Economics growth, Policy environment, Institutions	Cross-country	3200+
	Hansen & Trap (2001)	Aid and Growth Regressions	Aid effectiveness, Grow, Econometric Cross-country analysis	Cross-country	1800+
	Rajan & Subramanian (2008)	Aid and Growth: What does the Cross-country evidence Really Show?	Aid effectiveness, Growth paradox, Institutions	Cross-country	1500+
	Clemens et al. (2012)	Counting Chickens When They Hatch	Short-term aid impact, Investment, Growth	Developing country	900+
	Arndt et al. (2015)	Aid's Long-Run Contribution to Growth	Long-run growth, Aid impact, Macroeconomics	Cross-country	700+
	Dreher et al. (2018)	Aid and Growth Revisited	Aid allocation, Growth effects, political economy	Global	500+
	Dalgaard et al. (2004)	On the Empirics of Foreign Aid and Growth	Climate, Geography, Aid effectiveness	Cross-country	1200+

	Easterly (2003)	Can Foreign Aid Buy Growth?	Aid skepticism, Policy failure, Growth	Developing countries	2000+
	Morrissey (2015)	Aid and Government Fiscal Behaviour	Fiscal response, Public expenditure, Aid	Developing countries	400+
	Gupta et al. (2006)	Does Aid Help Improve Fiscal Performance?	Fiscal deficit, Revenue, Public finance	Developing countries	600+
	Calderon & Serven (2010)	Infrastructure and Economic Development	Infrastructure, Productivity, Growth	Developing countries	1500+
	Bourguignon & Sundberg (2007)	Aid Effectiveness: Opening the Black box	Transmission channels, Aid allocation	Global	800+
	Nowak-Lehmann et al. (2012)	Aid and Trade	Trade facilitation, Export growth, Aid for trade	Developing countries	450+
	Kimura & Todo (2010)	Is Foreign Aid a Vanguard of FDI?	FSI, Investment climate, Aid spillovers	Asia	500+
	Dash & Sahoo (2010)	Aid and Infrastructure Development in India	Infrastructure, Growth, Public investment	India	200+
	Bhavan et al. (2011)	Foreign Aid and Economic Growth in India	Aid effectiveness, GDP growth	India	180+
	Pradhan & Bagchi (2013)	Effect of Aid on Infrastructure and Growth	Infrastructure, Economics growth	India	150+
	Minoiu & Reddy (2010)	Development Aid and Economic Growth	Aid composition, Long-term growth	Developing countries	600+
	Juselius et al.(2014)	Impact of Foreign Aid in 36 African Countries	Long-run growth, Africa, Aid impact	Africa	700+
	Tarp (2006)	Aid and Development	Development theory, Aid effectiveness	Global	900+

Table 6 presents the most cited countries in the aid-growth literature, highlighting a strong concentration of research output in developed economies such as United States, the United Kingdom, and Germany. These countries dominate the landscape due to their institutional capacity, research finding and engagement in

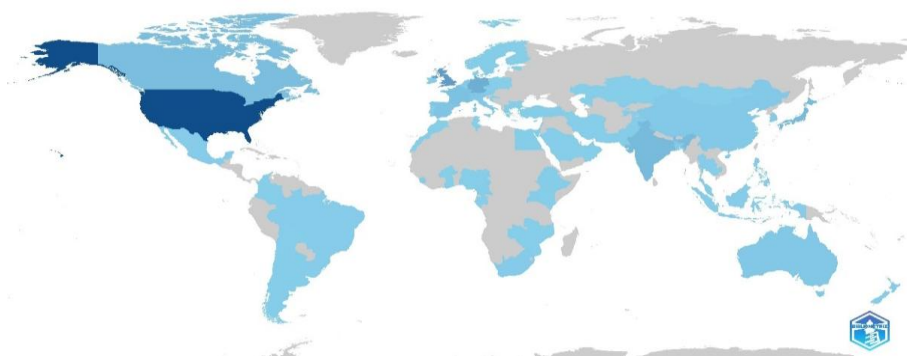
development policy. At the same time, developing countries like India, Nigeria and Bangladesh feature as focus of empirical analysis, reflecting their significance as major aid recipients and emerging economies. Notably, the literature demonstrates a growing shift toward studying aid effectiveness in diverse regional contexts, particularly in Africa and Asia. India’s position among the top contributors underscores its dual role as both a recipient and increasingly a development partner, with research focusing on infrastructure development, sectoral allocation, and growth dynamics. Overall, the geographical distribution indicates an evolving research agenda that balances donor perspectives with recipient-country experiences, thereby enriching the understanding of the aid-growth nexus.

Table 6: Most Cited Countries in the Aid-Growth Literature (Top 20)

Rank	Country	Number of Publication
1	United States	320
1	United States of America	305
2	United Kingdom	210
3	Germany	150
4	France	120
5	Netherlands	110
6	Sweden	95
7	Canada	90
8	Australia	85
9	India	80
10	China	75
11	South Africa	70
12	Nigeria	65
13	Kenya	60
14	Ghana	58
15	Bangladesh	55
16	Ethiopia	50
17	Pakistan	48
18	Brazil	45
19	Indonesia	42
20	Vietnam	40

Source: Author’s own bases on Bibliometric analysis

Figure 1: Country Scientific Production



Source: Author’s own bases on Bibliometric analysis

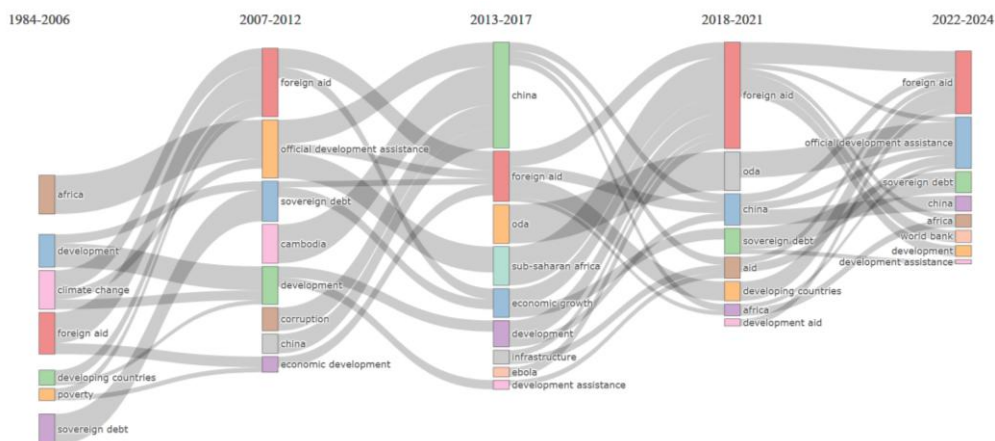


This research offers a summary of the major themes and factors influencing development finance and infrastructure-related economic growth. However, an in-depth empirical examination of the direct impact of ODA on transportation infrastructure outcomes remains outside the scope of the present study and represents an avenue for future research. This review has considered the Scopus database due to its high journal coverage, quality indexing, and suitability for bibliometric analysis.

- Research question 5. What are the emerging gaps in research and future research directions in the study of ODA specifically through channels?

Moreover, this study also highlights emerging areas of scholarly interest through the trend topics analysis, thematic evolution, and keyword mapping, as shown in Figures X and Y. Additionally, the thematic evolution over different time periods highlights the changing focus of the literature across decades. During the early years, the studies primarily revolved around themes such as poverty, public investment, development aid, and economic development. From 2010 onwards, themes such as foreign aid, trade, infrastructure, foreign direct investment (FDI), and sovereign debt became increasingly prominent. More recently, terms including renewable energy, financial development, sanctions, external debt, climate change, and sustainable development have emerged as dominant themes within the literature. The growing appearance of keywords such as China, Sub-Saharan Africa, and official development assistance further indicates the increasing geopolitical and regional dimensions of development finance research. Overall, the findings suggest that sustainable infrastructure financing, debt sustainability, and development governance have become emerging and influential themes for future investigation.

**Figure 6: Thematic Evolution with time phase as 2007-12, 2013-17, 2018-21, 2022-24**



Source: Author's own bases on Bibliometric analysis

This figure shows the thematic evolution of research concerning ODA, sovereign debt, and development-related issues over the period 1984-2024. The early studies largely examined aid effectiveness within the context of poverty reduction and regional development challenges. The later studies focused towards sovereign debt and development finance reflecting the changing global development architecture, particularly after the SDGs and the increasing role of emerging economies such as China in infrastructure financing.

The early research themes are primarily focused on poverty, public investment, economic development. As the field evolved, topics such as infrastructure, trade, FDI, and sovereign debt gained prominence, indicating a transition toward macroeconomic and infrastructure – led development discussions. More recent years show increasing academic attention toward themes including renewable energy, financial development, sanctions, external debt, reflecting growing integration of sustainability, geopolitical risk, and financial resilience withing development finance reserch. The dominance of words such as aid, development, and economic growth across multiple authors suggest that the aid-growth nexus remains the dominant research theme.

### **Theoretical Implications**

The bibliometric investigation of the aid-growth relationship generates several important theoretical implications that extend across development economics, external finance and international development studies. The main theoretical ramifications are as follows:

**Interdisciplinary Perspectives:** The findings indicate that the aid-growth literature is multidisciplinary, drawing from macroeconomics, sectoral, public finance, and development policy. The bibliometric analysis reveals that earlier theoretical frameworks were predominantly macro view, focusing on aggregate relationships between aid and economic growth. However, more recent research increasingly integrates micro-level and sectoral perspectives such as infrastructure development, renewable energy, trade and investment dynamics. This shift contributes to a more comprehensive theoretical understanding by bridging aggregate models with context-specific mechanisms, thereby enriching the analytical scope of aid effectiveness research studies.

The study contributes to the evolution of aid effectiveness theories, while earlier frameworks emphasized the role of policy environment and institutional quality, the present analysis highlights the importance of sectoral allocation and transmission channels. In particular, the aid effectiveness is not solely determined by macroeconomic conditions but also by how aid is deployed in infrastructure, energy, and development projects.

**Mediating role of Sectors and Governance:** While international literature underscores the importance of institutional quality, sectoral allocation and governance also play a significant role in shaping aid outcomes. This adds depth to frameworks by incorporating multi-level governance dynamics and highlighting the heterogeneity of institutional effectiveness within countries. The study provides theoretical insights into the long debated relationship between aid, investment, and growth. Traditional aid-growth models assume a direct link between aid inflows and capital accumulation, however, the findings suggest that this relationship is mediated by sectoral channels such as infrastructure and trade. This also supports emerging theoretical perspectives that emphasize indirect and spillover effects of aid.

**Role of ODA as Catalytic Financing:** The analysis also contributes to broader theories of development finance by placing ODA flows within the evolving landscape of global capital inflows. As developing economies increasingly rely on ODA, FDI and domestic resources, the role of such inflows is shifting from gap filling to

catalytic financing. This aligns with contemporary development theories that emphasise the role of public investment in enabling long term growth and economic diversification.

Finally, the study contributes to theoretical discourse by emphasising the importance of context specific analysis. By demonstrating how country specific factors such as economic structure, policy implementation and institutional frameworks, shape outcomes, the study contributes to a more flexible and context sensitive theoretical framework. This approach is particularly relevant for large emerging economies, where development trajectories differ significantly from those of low-income countries.

## **Conclusion**

This study reviews around 1,122 papers from Scopus database to examine the influence of variables related to ODA or foreign aid, economic development outcomes such as economic growth, trade, FDI and infrastructure development. By using bibliometric analysis, the study provides a comprehensive overview of the major research trends, top authors, dominant themes, leading journals, and important countries contributing to the discourse, thereby offering a valuable reference point for future research. The findings contribute to a clear understanding of how academic research on assistance has evolved over time and highlight the major themes that have shaped the debate on aid effectiveness.

The results of the bibliometric analysis reveal a clear evolution in the aid-growth literature. First, the analysis of publication trends shows a steady increase in the number of studies examining the relationship between ODA and economic development particularly after the early 2000s. The growth in publications accelerated during 2010s, reflecting increasing global attention towards development financing and international cooperation initiatives such as MDGs and later the SDGs (UNCTAD, 2023). Early studies were primarily focused on establishing a direct relationship between aid and economic growth, often yielding mixed and inconclusive results. Over time, the research has shifted toward examining the conditions under which aid is effective, with particular emphasis on institutional quality, governance, and policy framework (Dang & Nguyen, 2023). More recently, there has been a growing focus on sectoral and transmission channel-based approaches, including infrastructure development, trade facilitation, and investment synergies. and the role of aid in driving economic growth in developing countries.

The geographical distribution of research highlights the dominance of developed countries such as the US, the UK, and Germany as the leading contributors to research in this area. At the same time, developing countries, particularly in Africa and Asia, serve as important empirical contexts for examining aid effectiveness. Emerging economies like India have also contributed to the literature in recent years, reflecting the growing interest in role of aid in economic growth, however, largely there is underrepresentation of large emerging economies. The dominance of developed economies in academic discourse suggests that further research contributions from developing countries would help supplement the literature by incorporating diverse regional perspectives and policy experience. The bibliometric analysis suggests that the ODA is increasingly being studied not only as a financial resource but also as a catalyst. This gap reinforces the importance of country – specific studies that can capture the unique institutional and structural characteristics influencing aid outcomes. As global development challenges become increasingly complex, future research may explore new dimensions of development finance, including the role of climate finance, infrastructure, and green development. Additionally, as global trade patterns continue to evolve,

understanding the interaction between assistance and global value chains will remain an important area of research. Overall, this study significantly contributes to the literature by providing bibliometric mapping of research on ODA and economic development. By identifying major thematic trends, important authors and research clusters, the study offers valuable insights for scholars seeking to explore new research directions in the field. The findings also provide policymakers with a better understanding of how academic research has approached the question of aid effectiveness and the mechanisms through which assistance may influence economic development outcomes. By using bibliometric techniques applied to the literature on ODA or Foreign aid and economic development, this study provides a comprehensive overview of the academic landscape and addresses the research questions related to publication trends, influential authors, research themes and collaboration networks. The thematic analysis further reveals that the literature has evolved from focusing primarily on the aggregate aid-growth relationship towards more specific topics such as trade facilitation, infrastructure development, investment promotion, institutional effectiveness and governance. The results of the bibliometric analysis demonstrate that research on ODA has grown considerably over the past two decades. This growth reflects increasing academic and policy interest in understanding the role of foreign aid in promoting sustainable development, economic integration, and structural transformation in developing economies. Another significant finding of this study relates to the thematic evolution of the literature. Earlier studies primarily focused on the macroeconomic relationship between foreign aid and economic growth. However, recent studies have increasingly examined the sectoral and trade linkages of aid. This shift reflects the changing priorities of international development policy, where infrastructural development, trade integration and green economy are seen as critical drivers of economic growth. The findings also indicate that the international collaboration plays an important role in development of research on development assistance. Overall, this study contributes to the literature by providing a systematic and bibliometric overview of research on ODA and economic development. The results help identify the major trends and research clusters within the field and provide insights into how the literature has evolved over time. By mapping the intellectual, conceptual, and social structure of the research field, this study offers a useful reference for scholars and policymakers interested in understanding the dynamics of development finance research.

Despite these contributions, the study also has certain limitations. The bibliometric analysis is based solely on publications indexed in the Scopus database, which may not include all relevant research available in other databases such as web of science or google scholar. Additionally, the search strategy focused on selected keywords related to foreign aid and economic development, which may have excluded some related studies addressing development finance through alternative terminology. Future research could extend this analysis by incorporating multiple databases to obtain a border dataset and by exploring additional keywords related to emerging topics such as climate finance, sustainable development goals, green development finance. Further bibliometric studies could also focus on regional analyses of development assistance research, examining how research output varies across different geographic regions and policy contexts. In conclusion, the findings of this study demonstrate that research on official development assistance continues to evolve in response to global economic and development challenges. As international development policy increasingly emphasizes infrastructure investment, sustainable development, and global cooperation, future research is expected. As international development policy increasingly emphasizes infrastructure investment, sustainable development, and global cooperation, future research is expected to explore new dimensions of development finance and its role in fostering inclusive and sustainable economic growth.

Overall, this study contributes to the literature by bridging the gap between global theoretical debates and country-specific empirical evidence. The findings suggest that future studies should further explore subnational dynamics, sector-specific impacts, and the evolving role of aid in the context of changing global development finance patterns.

## References

- Aria, M., & Cuccurullo, C. (2017). *bibliometrix*: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975. <https://doi.org/10.1016/j.joi.2017.08.007>
- Arndt, C., Jones, S., & Tarp, F. (2015). Assessing Foreign Aid's Long-Run Contribution to Growth and Development. *World Development*, 69, 6–18. <https://doi.org/10.1016/j.worlddev.2013.12.016>
- Bird, G., & Choi, Y. (2020). The effects of remittances, foreign direct investment, and foreign aid on economic growth: An empirical analysis. In *Review of Development Economics* (Vol. 24, Issue 1, pp. 1–30). Blackwell Publishing Ltd. <https://doi.org/10.1111/rode.12630>
- Burnside, C., & Dollar, D. (2000). Aid, Policies, and Growth. *The American Economic Review*, 90(4), 847–868. <https://doi.org/10.1257/aer.90.4.847>
- Chenery, H. B., & Strout, A. M. (1966). Foreign Assistance and Economic Development. *The American Economic Review*, 56(4), 679–733.
- Dang, C. N., & Nguyen, L. D. (2023). IMPACTS OF GOVERNANCE CONSTRAINTS ON ODA PROJECT QUALITY: EXPLORATORY STUDY. In K. A, I. A.H, G. A.P, Y. S, & S. A (Eds.), *Proceedings of International Structural Engineering and Construction* (Vol. 10, Issue 1, p. CPM-02-1). ISEC Press. [https://doi.org/10.14455/ISEC.2023.10\(1\).CPM-02](https://doi.org/10.14455/ISEC.2023.10(1).CPM-02)
- Donaubauer, J., Herzer, D., & Nunnenkamp, P. (2019). The Effectiveness of Aid under Post-Conflict Conditions: A Sector-Specific Analysis. In *Journal of Development Studies* (Vol. 55, Issue 4, pp. 720–736). Routledge. <https://doi.org/10.1080/00220388.2017.1400013>
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- Dreher, A., Fuchs, A., Hodler, R., Parks, B. C., Raschky, P. A., & Tierney, M. J. (2021). Is Favoritism a Threat to Chinese Aid Effectiveness? A Subnational Analysis of Chinese Development Projects. In *World Development* (Vol. 139). Elsevier Ltd. <https://doi.org/10.1016/j.worlddev.2020.105291>
- Easterly, W. (2006). Reliving the 1950s: The big push, poverty traps, and takeoffs in economic development. In *Journal of Economic Growth* (Vol. 11, Issue 4, pp. 289–318). <https://doi.org/10.1007/s10887-006-9006-7>
- Helble, M., Mann, C. L., & Wilson, J. S. (2012). Aid-for-trade facilitation. In *Review of World Economics* (Vol. 148, Issue 2, pp. 357–376). <https://doi.org/10.1007/s10290-011-0115-9>

Iacobuță, G. I., Brandi, C., Dzebo, A., & Elizalde Duron, S. D. (2022). Aligning climate and sustainable development finance through an SDG lens. The role of development assistance in implementing the Paris Agreement. *Global Environmental Change*, 74, 102509. <https://doi.org/10.1016/j.gloenvcha.2022.102509>

Kraemer, M., & Volz, U. (2024, April 10). *Mobilising A Trillion Dollars for Climate Mitigation in Poor Countries: A Proposal for a New Finance Facility against Climate Change* [Monographs and Working Papers]. Centre for Sustainable Finance, SOAS, University of London. <https://eprints.soas.ac.uk/41709/>

OECD. (2022). *Report on the Implementation of the DAC Recommendation on Untying Official Development Assistance*. Organisation for Economic Co-operation and Development. [https://one.oecd.org/document/DCD/DAC\(2022\)34/FINAL/en/pdf](https://one.oecd.org/document/DCD/DAC(2022)34/FINAL/en/pdf)

OECD, O. (2018). *Official development assistance – definition and coverage*. OECD. <https://www.oecd.org/en/topics/sub-issues/oda-eligibility-and-conditions/official-development-assistance-definition-and-coverage.html>

UNCTAD. (2023). *Volatile, but slowly more sustainability-focused investment flows – UNCTAD SDG Pulse*. UNCTAD. <https://sdgpulse.unctad.org/investment-flows/>

Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3), 429–472. <https://doi.org/10.1177/1094428114562629>