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Navigating the landscape of economic policy research in India : A computational analysis

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The present study examines the emerging landscape of Economic Policy Research (EPR) in India using a comprehensive bibliometric and text-mining framework applied to 2,911 journal articles published between 2010 and 2024. It integrates Biblioshiny, VOSviewer, LDAShiny, and BERTopic to map publication trends, collaboration networks, and thematic evolution. The findings highlight a steady annual growth rate of 14.26%, alongside a thematic shift from traditional concerns, such as poverty and macroeconomic stabilization, toward sustainability, renewable energy, financial inclusion, and international trade. Topic modeling identifies dominant clusters around monetary policy, environmental sustainability, and economic growth, while emerging research themes are climate adaptation and digital finance. The study contributes methodologically by combining probabilistic and transformer-based topic modeling approaches, offering a nuanced understanding of research dynamics. These insights provide valuable implications for policymakers, researchers, and institutions in aligning future economic strategies with evolving global and national priorities.

Keywords: *Economic policy, India, Bibliometric, Topic modeling, BERTopic, Co-occurrence network.*

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1. Background

The trajectory of economic research in India, spanning from the early phase of planned development to the contemporary emphasis on data-driven and market-oriented strategies, reflects both evolving ideological orientations and the need for pragmatic policy interventions [1]. This intellectual evolution provides important insights into policy transformations and broader socio-economic

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changes. In the post-independence period, research was largely centered on state-led industrialization and centralized planning, deeply rooted in the Nehruvian economic philosophy [2]. However, the structural reforms of the early 1990s, initiated under Prime Minister "P. V. Narasimha Rao", marked a significant changes in India's economic landscape. Liberalization policies redefined research priorities, with increasing scholarly attention to fiscal discipline, international trade, foreign direct investment, and market efficiency [3]. These themes continue to gain importance as globalization demands new analytical frameworks to evaluate India's integration into global markets.

In recent years, research trends have increasingly focused on public finance, savings behavior, and subsidy design, alongside the application of artificial intelligence and big data in economic forecasting, planning, and public service delivery [4]. At the same time, persistent regional and social inequalities remain a critical concern, necessitating continuous policy evaluation for inclusive development [5]. The economic unrest due to COVID-19 pandemic further intensified scholarly interest to search a strategies for rapid and effective normalcy while balancing both short-term and long-term economic reform. This includes emerging areas such as digital economies, inclusive financial systems, and climate-resilient development [6, 7].

Parallel to these thematic shifts, the rapid expansion of digital data and computational techniques has transformed how scholarly knowledge is analyzed and interpreted. Traditional economic research, which relied heavily on historical and qualitative approaches, has increasingly incorporated econometric modeling, simulation techniques, and computational tools over the past two decades. This transition reflects improved access to large-scale datasets and a growing emphasis on evidence-based policymaking. Bibliometric analysis and topic modeling have emerged as powerful methodologies for understanding the intellectual structure and evolution of research domains [8, 9]. These approaches enable the identification of influential works, key contributors, and collaboration patterns within the discipline [10]. Additionally, topic modeling techniques such as Latent Dirichlet Allocation (LDA) facilitate the detection of recurring themes and emerging research trends [11].

Recent studies (2020–2024) demonstrate a growing integration of bibliometric and advanced topic modeling techniques in economic and policy research. For example, Mishra [12] applied LDA and BERTopic to examine the evolution of computational economics, highlighting the effectiveness of hybrid approaches in identifying thematic shifts. Similarly, Jung and Lee [13] utilized bibliometric and BERTopic-based methods to analyze business and economic research, identifying key themes such as financial systems, market dynamics, and environmental sustainability. Comparative studies, such as Nguyen, Pham, and Tran [14], further indicate that advanced models like BERTopic provide more coherent and context-sensitive thematic structures than traditional LDA approaches. These developments signal a clear shift toward integrating computational intelligence with bibliometric analysis for enhanced knowledge mapping.

A substantial body of literature continues to focus on macroeconomic management, monetary and fiscal policy, inflation control, and economic stabilization [15]. Trade and

globalization remain dominant research areas, with studies examining India's participation in international trade systems and the implications of bilateral and multilateral agreements. With the expansion of digital infrastructure, researchers are increasingly exploring the digital economy, fintech innovations, electronic payment systems, and inclusive banking policies. Additionally, growing concerns about climate change have directed attention toward green finance, environmental sustainability, and adaptive economic policies [16]. For instance, Sharma and Gupta [17] applied computational methods to analyze Indian budgetary policies, revealing recurring themes such as fiscal deficit management, tax reforms, and public expenditure trends.

Despite these advancements, several research gaps persist. Existing studies often lack comprehensive longitudinal analyses that capture the evolution of Economic Policy Research (EPR) in India, particularly in the post-COVID era. Moreover, most studies rely on either bibliometric techniques or traditional topic modeling approaches, with limited integration of advanced transformer-based models such as BERTopic. There is also insufficient exploration on thematic evolution of economic policy research in India and authors, institutions, and countries collaboration networks.

Addressing these gaps, present study proposes a multi-method computational framework that integrates bibliometric mapping, social network analysis (SNA) using VOSviewer and Biblioshiny, and topic modeling through LDAShiny, and python BERTopic. By adopting a longitudinal perspective (2010–2024), the study aims to identify research priorities and provide a complete, data-driven analysis of EPR in India. From an information science perspective, this work contributes to knowledge mapping and research evaluation by systematically examining patterns of scholarly communication, collaboration, and thematic evolution. Ultimately, the study seeks to support policymakers, researchers, and think tanks in aligning future research with emerging economic challenges and knowledge gaps in India. A total of four research questions have been formulated to obtain the study's outcomes, which are as follows:

RQ1: How has the landscape of EPR in India evolved between 2010 and 2024, as identified through a bibliometric perspective?

RQ2: What roles do collaborative efforts among authors, institutions, countries, and Journals play in shaping the research landscape of EPR?

RQ3: Which thematic keyword groupings and their interrelations dominate the Indian EPR space, and what are their scholarly focus and key areas of interest?

RQ4: What novel research themes and potential directions emerge from topic modeling analysis of EPR literature related to India?

2. Methodology

2.1 *Database Selection and Search Keywords Identification*

This study adopted a structured approach to investigate the EPR in India during 2010 to 2024. The research design, illustrated in Figure 1, depicting bibliometric and topic modeling techniques to provide a comprehensive view. The dataset was retrieved from the

Scopus database, recognized for its comprehensive indexing coverage and advanced search capabilities. [18] For accuracy and relevance, the search strategy was carefully formulated, to capture a wide range of literature while minimizing irrelevant results, that process aligned with the methodological standards outlined in Ramos-Rodríguez and Ruíz-Navarro [19] study. The search was executed on March 25, 2025, and downloaded 3,225 records. After applying keyword-based filters and relevance screening, the dataset was refined to 3113 documents. The data search was limited to English-language publications only, including research articles and review papers. Inclusion criteria focused on studies explicitly related to economic policy in the Indian context, while irrelevant documents were excluded through manual screening. Data preprocessing involved removing duplicates, standardizing author and keyword fields, and eliminating stop words to improve analytical precision. The manual review helped to eliminate 102 articles not aligned with subject criteria, resulting in a refined dataset of 2,911 articles for analysis. Bibliometric analysis was conducted using two primary tools: Biblioshiny (within the R environment) and VOSviewer. These platforms facilitates the exploration of publication trends, leading authors, influential journals, and patterns of institutional and international collaboration. Additional keyword analysis included the word clouds and trend graphs, as well as co-occurrence mapping to highlight frequently linked terms and concepts. In the second phase of the study, topic modeling method used to uncover latent themes of EPR. After preprocessing the text data by removing 887 stop words from abstracts, two topic modeling tools BERTopic and LDAShiny were utilized to extract high-probability keywords, visualize topic similarity clusters, and suggest thematic path for future research. This mixed-methods analytical approach provides a comprehensive understanding of the emergence of EPR over the past 15 years. It is also indicating insights into scholarly collaboration patterns and emerging thematic priorities in the field.

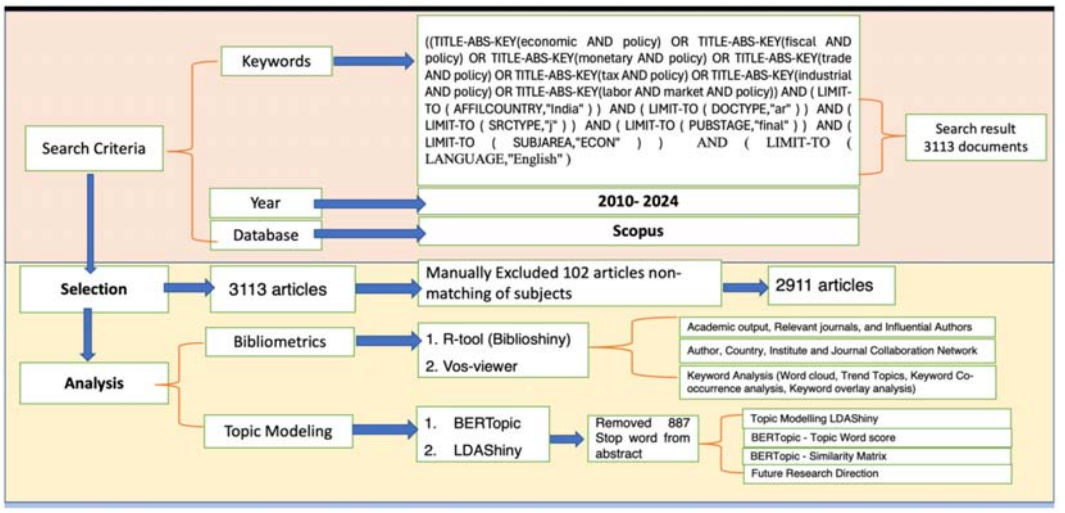

Figure 1

Research design flow chart

2.2 *Preliminary investigation of the retrieved studies*

Table 1 offers a detailed overview of EPR output in India over the period 2010–2024. The analysis is based on a corpus of 2,911 documents published from 507 academic journals. Field has shown a steady upward growth, with annual growth rate of publication 14.26%. Article average age noted approximately 4.79 years, and average 12.79 citations each, including cumulative total of 122,041 referenced sources. These data indicate sustained scholarly progress and a moderate level of academic impact. The data also point to certain structural characteristics authorship pattern. A total of 4,355 authors contributed to the literature during study period, with 2214 multi-authored papers and 679 individuals worked independently. The authors per article is 2.49, and collaboration index stands at 1.49. The collaboration index (1.49) indicates a moderate level of collaborative engagement within the EPR research community. Compared to prior scientometric studies, where higher collaboration indices are associated with greater research impact and knowledge exchange, this suggests that collaboration in this domain remains somewhat limited. Furthermore, the observed decline in average citations per article, despite increasing publication output, may reflect citation lag effects, thematic saturation, or shifts in research quality. These findings highlight the need to emphasize both research quality and interdisciplinary collaboration to enhance the overall impact of EPR studies. International co-authorship appears roughly for 25.08% of the documents, indicating degree of global engagement. Nevertheless, the collaboration index suggests that a considerable portion of research continues to be conducted in relatively interdisciplinary areas. As per the primary insights by Price [20] and later discussed by Ajiferuke, Burrell, and Tague [21], a lower collaboration index may be interpreted as indicative of limited scholarly partnership, which can act as a barrier in exchange of knowledge and research collaboration in interdisciplinary. Previous analyses, including those by Katz and Martin [22], have established that co-authored works tend to benefit from broader perspectives and are often cited more frequently. In a similar discussion, Wuchty, Jones, and Uzzi [23] argue that collaborative research, particularly across institutional or national boundaries, is more

Table 1

Main information of data corpus

Description	Results	Description	Results
Timespan	2010:2024	Author's Keywords (DE)	7324
Sources (Journals)	507	Authors	4355
Documents	2911	Multi authored docs	2214
Annual Growth Rate %	14.26	Single-authored docs	697
Document Average Age	4.79	Co-Authors per Doc	2.49
Average citations per doc	12.79	International co-authorships %	25.08
References	122041		
Keywords Plus (ID)	2937	Collaboration Index	1.49

likely help to sustain intellectual momentum. For consistency, the term "Economic Policy Research (EPR)" has been used uniformly throughout the manuscript. All figures included in this study have been carefully selected to support the interpretation of bibliometric patterns, collaboration structures, and thematic evolution. Each visualization enhances the understanding of complex relationships within the dataset.

2.3 *Social Network Analysis and Topic Modeling*

In recent years Social Network Analysis (SNA) and topic modeling have emerged as potent methodological tools for examining the structural and thematic evolution of academic literature in EPR. SNA enables the investigation of collaboration patterns among authors and institutions, revealing the periphery of scholarly networks by identifying influential contributors, mapping co-authorships, and detecting co-citation linkages [24, 25]. Through the application of key network metrics such as size, density, and diameter, this study explores the connectivity and cohesion within research communities. An analysis has been done on international collaboration networks, which are shown to enhance research visibility, foster methodological diversity, and boost citation impact [26]. The topic modeling offers a content-driven approach to analyzing large group of text by uncovering latent themes based on patterns in word usage. This study applied two advanced topic modeling techniques BERTopic, implemented in Python's Jupyter Notebook, and LDAShiny, run in R to analyze a substantial dataset of EPR abstracts. BERTopic leverages transformer-based embeddings to enable nuanced clustering, while LDAShiny provides transparent visualizations of topic-word distributions. Coherence score metrics were used to guide the selection of maximum numbers of topics, ensuring clarity and thematic uniformity [27]. These tools generated topic clusters that illuminated shifts in scholarly focus over time, identifying both well-established and emerging areas of research. Unlike traditional keyword analysis, topic modeling allows for a more refined and coherent understanding of the semantic landscape, thus facilitating deeper insights into the intellectual structure of the field [28]. The comprehensive analytical framework that maps the collaborative and conceptual dimensions of EPR, enabling scholars to identify knowledge gaps, thematic trends, and future research directions.

3. Results

3.1 ***Research growth, Prolific Journals, and Influential Authors***

An examination of EPR-related publications between 2010 and 2024 (see Figure 2) shows an upward trend in scholarly output. This period has been divided into three distinct five year blocks. The initial phase (2010–2014) was characterized by exploratory research, averaging 85 publications per year. Between 2015 and 2019, output grew more steadily, reaching an annual average of 175.6, likely driven by developments in the field. A further surge occurred in third year block from 2020 onward, with publications averaging 341.6 annually and peaking at 375 in 2024 a trend influenced by post-pandemic policy shifts and

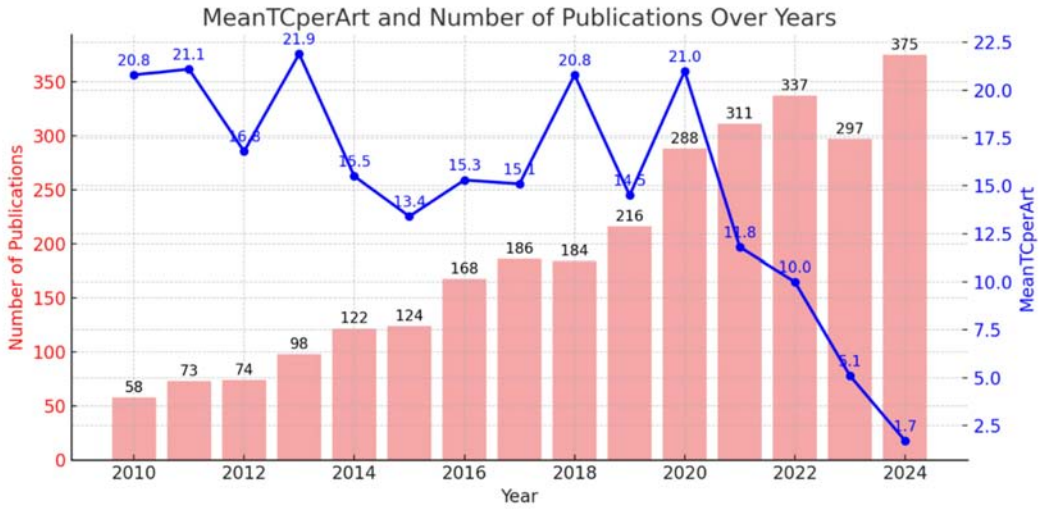

Figure 2

Article per year and mean total citation per article

renewed academic interest. Despite the increase in quantity, the average citation count per article has declined. While the peak citation rate was 21.9 in 2013, it fell to 1.7 by 2024. This pattern may reflect citation delays, field saturation, or a shift in research quality or focus [29]. The findings indicate the importance of not merely expanding research volume, but maintaining substantive impact a challenge that ties into the application of Bradford's law for mapping core academic journals. According to this model, journals are organized by their relative contribution, forming a central core followed by broader zones with equivalent publication output [30].

In this context, 17 journals included in the core zone. The "*Economic and Political Weekly*" leads with 193 contributions, followed by the "*Indian Journal of Labour Economics*" (109), "*Environment, Development and Sustainability*" (75), and "*GeoJournal*" (64). Collectively, these core journals account for one-third of all EPR publications, highlighting their central role in the discourse. Table 2 offers a bibliometric profile of leading authors. Tiwari, A.K. stands out with 64 publications and an h-index of 25, including 30 papers cited more than 10 times. Shahbaz, M. has authored 24 papers with the highest citation total at 2,723, with h-index 19 and i-10 index 23. Mahalik, M.K., with 32 publications and 2,065 citations, holds an h-index of 18. Other contributors such as Pradhan, R.P. and Rath, B.N. shows notable output, while scholars like Nag, R.N. and Marjit, S. are less prolific possibly reflecting narrower research scope or earlier stages of academic careers. Overall, analysis reveals a diverse landscape of research productivity and scholarly influence, and productivity of authors.

Table 2

Top ten author in EPR research in India

SNo	Author	NP	TC	h-index	i-10 index
1.	Tiwari, A.K.	64	1359	25	30
2.	Mahalik, M.K.	32	2065	18	18
3.	Pradhan, R.P.	28	1475	18	20
4.	Goyal, A.	24	207	8	8
5.	Shahbaz, M.	24	2723	19	23
6.	Nag, R.N.	19	30	4	0
7.	Chaudhuri, S.	17	190	7	7
8.	Rath, B.N.	17	265	12	12
9.	Marjit, S.	16	90	5	5
10.	Prabheesh, K.P.	16	355	6	6

(NP=Number of publication, TC=Total citation)

Lotka's law, which proposes that "*the number of authors contributing n articles is inversely proportional to the square of n"* [31] was used to evaluate patterns of authorship within the EPR literature. The observed data closely conform to this theoretical distribution, with no meaningful statistical deviations noted [32]. The results also reveal that a substantial number of authors have single article on EPR. This trend may indicate that, for many researchers, engagement with EPR topics is peripheral possibly underlying with broader research agendas rather than representing a sustained, central focus [33].

3.2 *Social Network Analysis*

3.2.1 Author, Institute, country and Journal Collaboration Networks

As shown in Figure 3, the collaborative network including 107 researchers who each have at least five publications and 20 citations. This bibliographic coupling map visualizes the internal connection of authors through shared references. The each node size corresponds to the relativity of an author based on either publication output or citation count while the thickness of connecting lines represents the degree of co-authorship or intellectual alignment. Distinct clusters, highlighted by color, reflect cohesive research communities within the broader EPR field. At the network's center is Avira Kumar Tiwari, whose position suggests a wide-ranging collaboration footprint. Other notable clusters, including those centered around Muhammad Shahbaz and Shilpa Goyal form recognizable sub-networks that remain linked to the central scholarly dialogue while retaining their thematic or methodological differences [34].

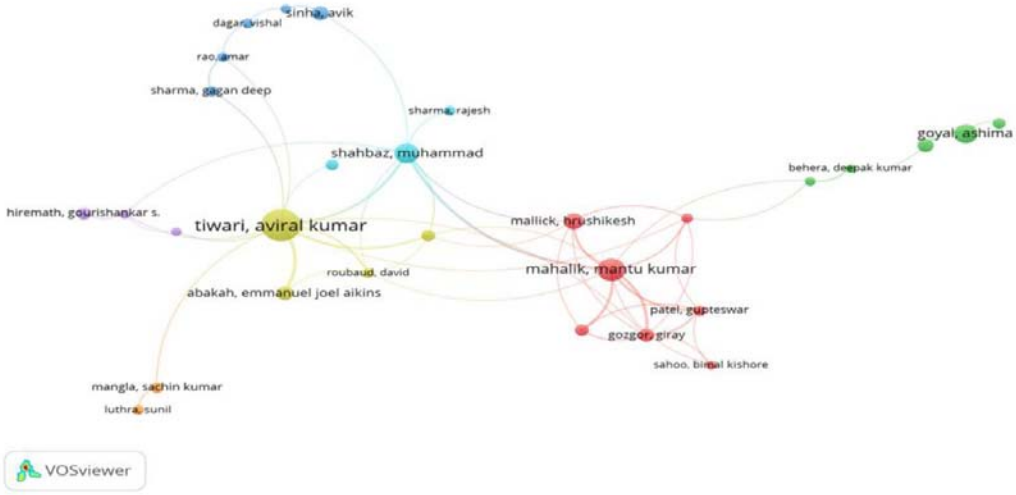

Figure 3

Author collaboration network

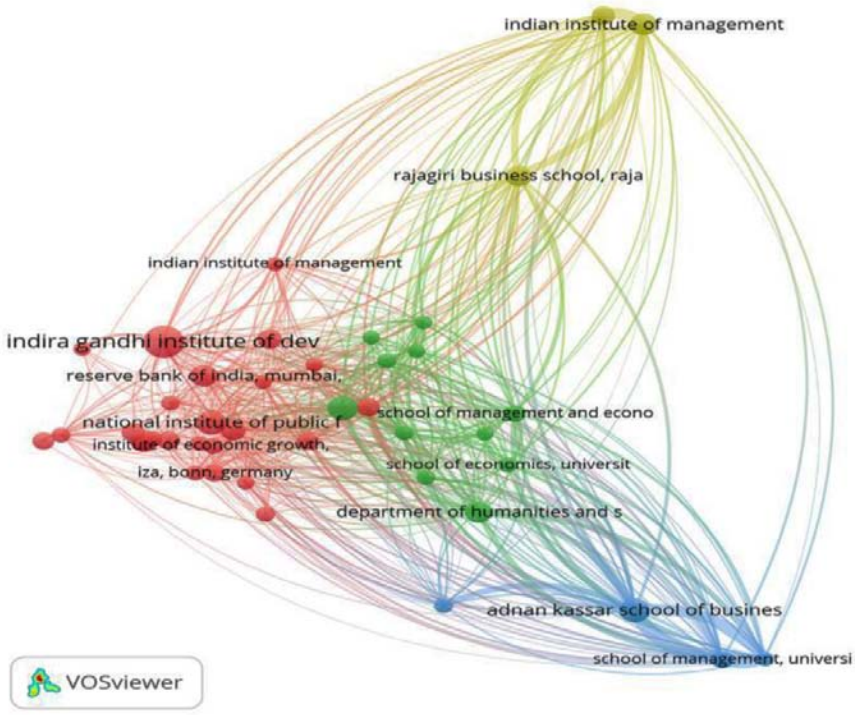

Figure 4

Institute collaboration network

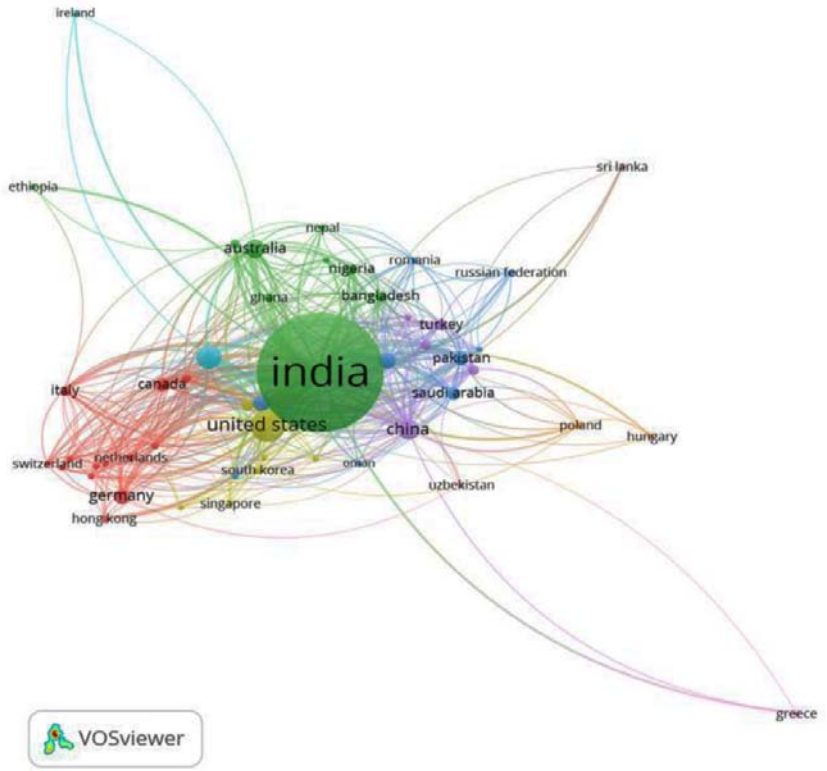

Figure 5

Country collaboration network

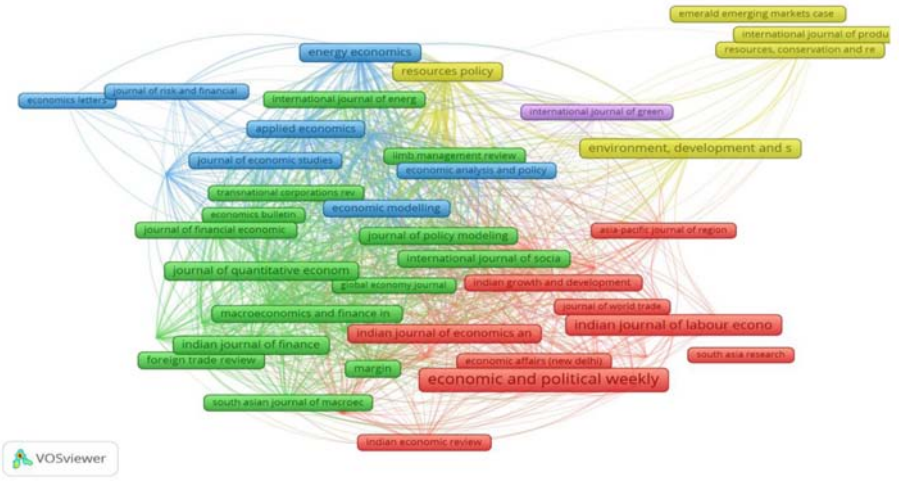

Figure 6

Journal bibliographic coupling

Figure 4 illustrates the network of institutional collaboration, comprising 43 institutions that each have five publications and minimum of 30 citations. The network is characterized by a dispersed structure, with distinct clusters marked by color to indicate groups of closely associated institutions. In red cluster, centers around the Indira Gandhi Institute, reflecting a particularly active hub. Green and blue clusters highlight additional collaborative communities, each exhibiting varying level of connectivity. Institutions such as the Indian Institute of Management and Indira Gandhi Institute function as central nodes as central nodes, linking multiple research networks [35]. Figure 5 extends the analysis to the global scale, mapping India's international collaborations in EPR. The network features 51 countries meeting the same publication and citation thresholds. The visualized structure reveals five major clusters of international cooperation. India is centrally positioned, with strong academic linkages to countries in South Asia and Europe. Notably, the United States, United Kingdom, China, Malaysia, and South Africa depicted as key international partners. These nations function as important bridges in the global EPR research ecosystem, facilitating transnational scholarly exchange and shaping the trajectory of EPR studies in India [36].

Figure 6 presents a bibliographic coupling network of academic journals. Total 58 journals selected after setting minimum criteria of 10 publications and 20 citations. The network reveals five distinct clusters, each representing closely linked journals based on shared references. Among these, the red cluster (Cluster 1) depicted most active, both in terms of publication count and the strength of inter-journal connections. The "*Economic and Political Weekly (N=51, Citation, 800)"* is the dominant journal within this cluster. In Cluster 2 (green), the "*Indian Journal of Finance (N=49, Citation, 166)"* plays a similarly central role. The presence of strong bibliographic ties particularly between Clusters 1 and 2, 2 and 3, and 3 and 4 suggests overlapping research themes and substantial citation cross-flow among journals in different clusters. These interconnections indicates a well-integrated scholarly landscape within the EPR domain [37].

3.3 *Keyword Analysis*

Subject keywords play a crucial role in identifying core research themes, emerging trends, and allow researcher to see primary focus areas in existing literature. The word cloud, trend topics and keyword co-occurrence presents insights of evolving research directions in EPR.

3.3.1 World Cloud

Figure 7 presents a visual summary of key themes in Indian economic policy research, generated through a bigram analysis of abstract keywords using the Biblioshiny interface in R. The non-informative terms were excluded to refine the results from the data corpus. The word cloud highlights frequently occurring terms. Terms like "economic growth (N=1042)" "monetary policy (N=655)" "exchange rate (N=411)" and "financial development (N=249)" feature prominently, underscoring their sustained relevance in academic

discourse. Additional notable themes include "developing countries (N=264)" "fiscal policy (N=128)" "stock market (N=223)" and "human capital (N=150)" all of which reflect the wide scope and evolving priorities within the field. This visualization provides a concise overview of dominant thematic trends of India's Economic Policy research between 2010 and 2024.

3.3.2 Trend Analysis

Figure 8 traces the shifting landscape of economic policy research in India over the period from 2010 to 2024. In the earlier years (2010–2013), scholarly efforts were primarily driven toward core economic concerns such as "healthcare costs," "urban economic dynamics," and "general equilibrium models." A shift emerges between 2014 and 2016, as researchers increasingly explored issues related to governance and development, including "poverty alleviation," the "informal economy," and "political economy." This period also saw a growing reliance on quantitative tools like "Granger causality" and "cointegration analysis" to support empirical investigations. From 2017 to 2018, the focus expanded to include structural aspects of the Indian economy, particularly "labor markets," "income distribution," and investments in "human capital." The years 2019 and 2020 marked a turning point, with heightened interest in macroeconomic themes such as "growth," "monetary policy," and "sustainable development." During (2021–2024), the research agenda focus on global and environmental concerns, with keywords such as "natural resources," "alternative energy," and "comparative policy" studies becoming more prominent. The frequency and prominence of these terms suggest a broadening of focus within the field, reflecting both domestic priorities and global shifts in economic thinking.

Figure 7

Frequency of top 50 abstract term

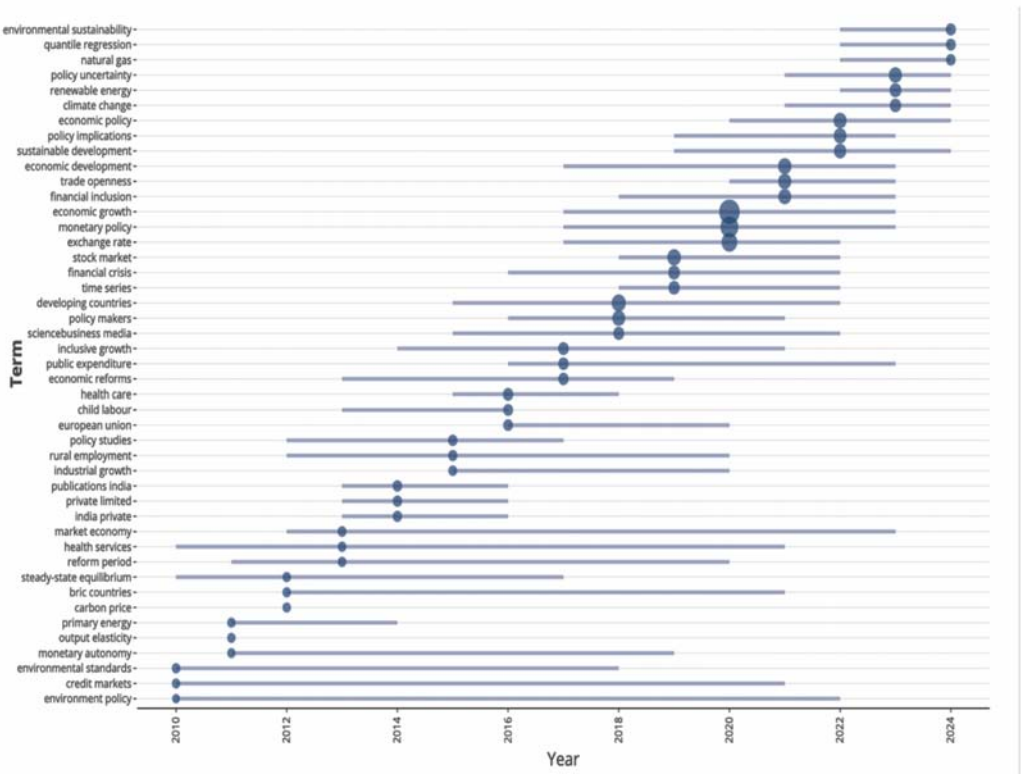

Figure 8

Trend topics of term by year

3.3.3 Keyword Co-occurrence Analysis

The keyword co-occurrence network, is created using a minimum threshold of 15 occurrences, identified 174 keywords out of a total 9,251 for detailed analysis. Figure 9 visualizes the Keyword co-occurrence network, where keywords are represented as nodes connected by curved, colored lines indicating co-occurrence strength. The visualization scale is set at 1.00, and term significance is determined by frequency-based weights. The network is depicted into six distinct clusters: Cluster 1 (red) and Cluster 2 (green) each comprise 37 terms, Cluster 3 (blue) includes 34, Cluster 4 (yellow) contains 29, Cluster 5 (magenta) consists of 28, and Cluster 6 (sky blue) encompasses 9 terms. Each cluster signifies a thematic grouping of related terms, highlighting the diverse and interconnected research domains within EPR, aligning with the methodological frameworks used in previous co-word studies [38].

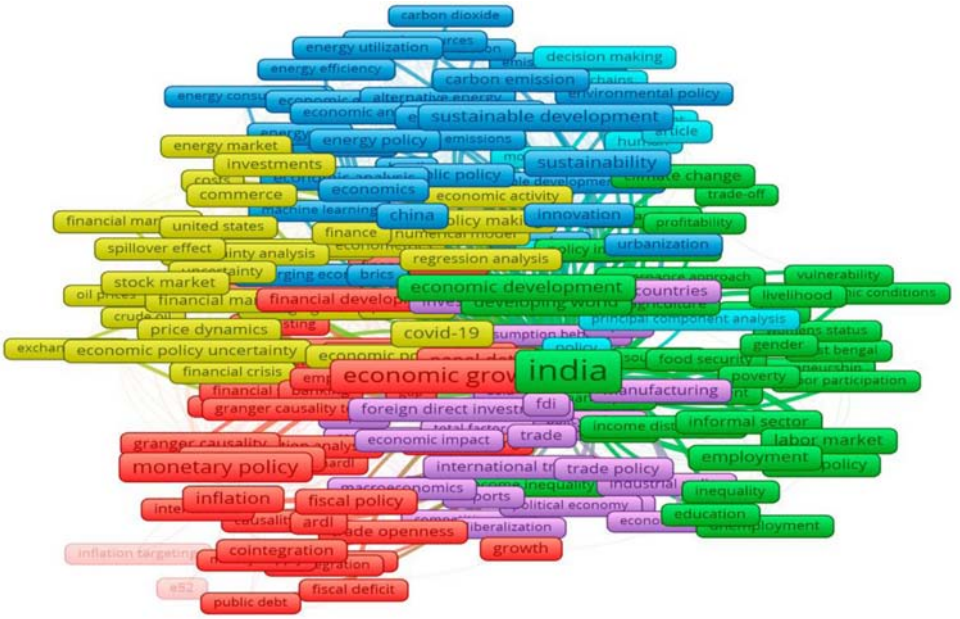

Figure 9

Keyword co-occurrence network

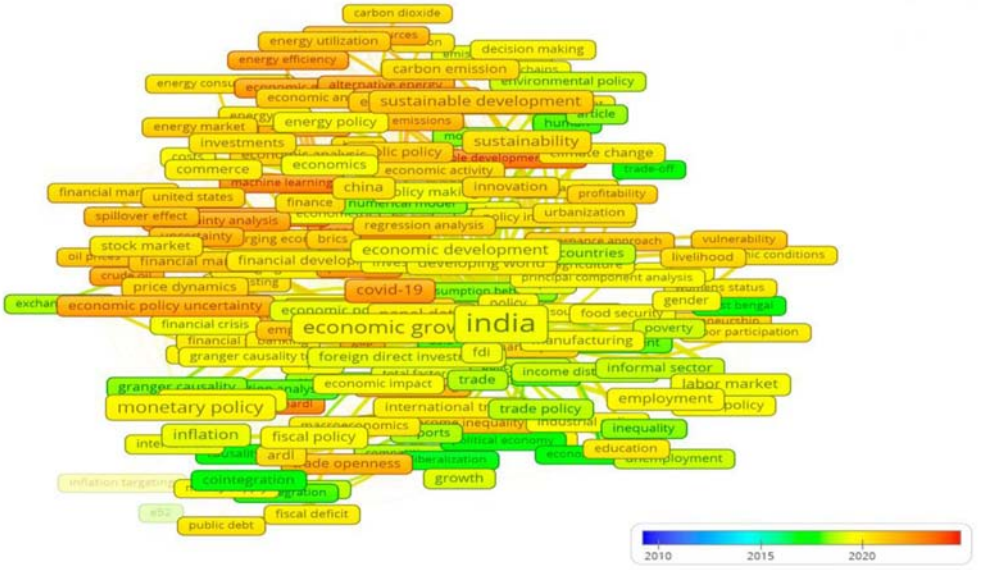

Figure 10

Keyword co-occurrence overlay visualization

Figure 9 illustrates that EPR in India aligned with interdisciplinary research domain that integrates concepts from monetary policy to employment. The highest occurrence (N=295) noticed in cluster 1 for "Economic growth" [39]. Other significant keywords in this cluster include "Monetary policy," "fiscal policy," "banking," "interest rate," "fiscal deficit," [40] "trade openness," "financial system," "forecasting," [41] "gdp," and "Indian economy," [42] together, these keywords shaping the competitiveness of Indian economy and support to achieve sustainable growth and economic resilience.

In cluster 2 (green), "India" noted highest occurrence (N=767), including "economic development," "employment," "food security," "labour policy," [43] "inequality," "climate change," "rural areas," "livelihood," [44] "agriculture," "income inequality," [45] "women status," "governance approach," and "entrepreneurship" [46]. Keywords indicating the EPR focussed on all-round economic growth for country. The quality of life through targeted policies supports overall development and reducing the gap between communities. By using these topics, a robust economic framework can create opportunities, improve living standards, and achieve sustainable progress for all.

Cluster 3 (blue) "sustainable development," (N=271) noticed as, highest occurrence term. The other relevant found "innovation," [47] "energy utilization," "public policy," [48] "urbanization," "energy policy," "renewable energy," "environmental policy," "brics," [49] "emerging economics," [50] "economic and social effect," "natural resources," suggest that innovation and coordinated policies across energy, environment, and urban planning are key to achieving sustainable development in emerging economies.

Cluster 4 (yellow) "Covid 19," (N=91) found as highest occurrence term. Other keywords "pandemic," "financial market," [51] "financial crisis" "econometrics," [52] "stock market," "investment," "economic policy uncertainty," "energy market," "spillover effect," [53] "regression analysis," emphasizing highlight the critical role of adaptive economic policies and robust market interventions to mitigate such crises and stabilize markets during periods of global uncertainty under pandemic.

Cluster 5 (magenta) "investment," (N=58) depicted as highest occurrence term. Other keywords "capital," "macroeconomics," [54] "import" "export," "capital flow," "international trade," "trade policy," "wto," "foreign direct investment," "liberalization," [55] and "industrial policy," [56] underscores the importance of cohesive policies for sustainable growth and balanced global trade. Effective industrial policies and trade strategies are essential to balance import-export dynamics and achieve sustainable economic progress.

Cluster 6 (sky blue) "policy" (N=26) visible as most occurrence followed by "government," "human," "modeling" "principal component analysis," "supply chain management," "supply chain," [57] "decision making," these keywords collectively reflect interdisciplinary approaches in addressing governance and operational challenges.

In Figure 10, Emerging keywords noted after 2020 include "covid-19", "trade openness," [58] "governance approach," "renewable energy," "alternative energy," "oil prices", "energy efficiency," "public policy," "carbon emission," "natural resources," "sdg," [59], "financial services", "pandemic," and "brics" [60]. This trend indicates that After 2020,

COVID-19 reshaped global priorities, driving research in public policy, financial stability, and crisis management. Sustainability gained prominence, with emphasis on renewable energy, carbon reduction, and SDGs. Economic studies focused on trade, oil prices, and BRICS economies, highlighting recovery, resilience, and global cooperation for sustainable development and climate action.

3.4 *Topic Modelling*

3.4.1 Thematic analysis by LDAShiny

Topic modeling was employed to extract latent themes from the EPR literature corpus, offering a structured approach to topic identification and analysis. The number of topics was determined using topic coherence scores, ensuring semantic clarity using LDAShiny. Table 3 presents the results of LDAShiny topic modeling applied to EPR literature. Ten distinct topics were identified during analysis, each labelled based on dominant terms, along with coherence scores and prevalence percentages. Topic coherence, indicating semantic consistency, ranged from 0.024 to 0.185. Topic T_2 (Author Exclusive) had the highest coherence (0.185) but moderate prevalence (7.27%), primarily focused on sustainability-related themes such as "energy," "carbon," "environmental," and "resources." In contrast, Topic T_5 (Monetary Policy) exhibited the highest prevalence (13.33%), with key terms like "inflation," "exchange," and "markets," reflecting the centrality of monetary policy discourse in EPR. Several topics reflected India's national development focus T_1 (Rights Reserved) and T_4 (Socio-economic) addressed issues like "social policy," "inequality," "education," and "health," while T_6 (Labour Market) and T_{10} (Developing Countries) explored "employment," "trade," and "globalization" themes. Topics T_7 and T_8, both labelled under Economic Growth, examined short- and long-term financial dynamics, while T_9 (Design Methodology) captured methodological aspects like data, performance, and impact analysis in EPR. This topic structure highlights the thematic diversity and depth within the EPR domain, with clear clusters around "policy formulation," "sustainability," "labor economics," and international trade affirming findings from previous topic modeling in policy literature [61].

Table 3

Top ten abstract topic using LDAShiny

Topic	Lebel 1	coherence	prevalence	top_10 terms
t_1	rights_ reserved	0.037	12.62	social, india, economic, management, business, case, policy, policies, government, role
t_2	author_ exclusive	0.185	7.27	energy, environmental, sustainable, consumption, economic, carbon, springer, sustainability, emissions, resources

Contd...

t_3	rights_ reserved	0.024	9.68	policy, model, public, government, tax, fiscal, rights, reserved, rights reserved, political
t_4	socio_ economic	0.047	11.31	income, economic, india, states, state, health, education, data, inequality, rural
t_5	monetary_ policy	0.076	13.33	policy, market, rate, monetary, inflation, monetary policy, exchange, price, stock, markets
t_6	labour_ market	0.107	9.00	sector, Indian, labour, employment, india, economy, work, sectors, market, manufacturing
t_7	economic_ growth	0.041	6.68	financial, development, economic, capital, credit, banks, human, financial development, growth, banking
t_8	economic_ growth	0.138	10.93	growth, economic, long, economic growth, relationship, study, variables, causality, short, period
t_9	design_ methodology	0.091	10.24	study, findings, implications, firms, approach, data, purpose, factors, impact, performance
t_10	developing_ countries	0.042	8.94	trade, countries, india, economies, foreign, international, developing, country, FDI, export

3.4.2 Topic modelling using BERTopic

The BERTopic modeling process begins with text preprocessing, sentence tokenization and removal of 891 predefined stop words found, suitable for refining abstract data. As illustrated in Figure 11, the top three terms from each of the eight primary topics were derived, highlighting dominant themes across the literature. The results align with established practices in text mining using models like LDA for uncovering hidden structures within large textual datasets. The visualization presents the most representative keywords associated with each topic (or terms) for each extracted topic, ranked by their importance (or relevance) to the topic. The figure contains eight subtopics, each corresponding to a topic identified in the analysis. Each subtopics (labelled Topic 0 to Topic 7) has: Words most strongly associated with the topic, listed vertically. The horizontal bars represent the contribution or importance of each word to the topic. Longer bars indicate greater relevance to the topic.

Each topic represents a distinct thematic cluster within the research corpus. The brief interpretation of the topics based on the keywords: Topic 0: Related to energy and the environment keywords like “energy,” “emissions,” “carbon,” “natural,” and “electricity” [62] suggest a focus on environmental issues and energy consumption; Topic 1: Focused on international trade and agreements keywords like “trade,” “export,” “agreements,” and

"bilateral exports" point to topics on trade policies and economic partnerships; Topic 2: Related to monetary policy and inflation keywords like "inflation," "monetary expectations," "CPI (Consumer Price Index)," and "policy" suggest a focus on economic and financial indicators; Topic 3: Centered on financial inclusion and rural access keywords like "inclusion," [63] "credit," "rural," "services," and "poor" highlight themes of economic accessibility, particularly in underserved areas; Topic 4: Discusses sustainability and supply chain issues keywords like "barriers," "sustainable," "waste," "recycling," [64] and "green" suggest a focus on sustainable development and environmental concerns; Topic 5: Related to economic growth and financial aid keywords like "financial growth," "economic development," and "foreign aid" [65] point to topics on economic relationships and developmental assistance; Topic 6: Focused on corporate performance and firm-level analysis keywords like "firms," "earnings," "dividend," [66] and "corporate performance" highlight themes in corporate economics and shareholder interests; Topic 7: Addresses gender and labor participation keywords like "women," "gender," [67] "female," "work," and "gap" suggest a focus on gender disparities in labor markets and workforce participation. Overall, the topic word score provides insights into distinct topics identified from textual data, reflecting diverse issues ranging from energy, trade to export and finance. Each topic captures a specific area of concern or focus for further analysis. Collectively, these topics reflect diverse societal challenges and provide a comprehensive framework for designing inclusive and sustainable social policies.

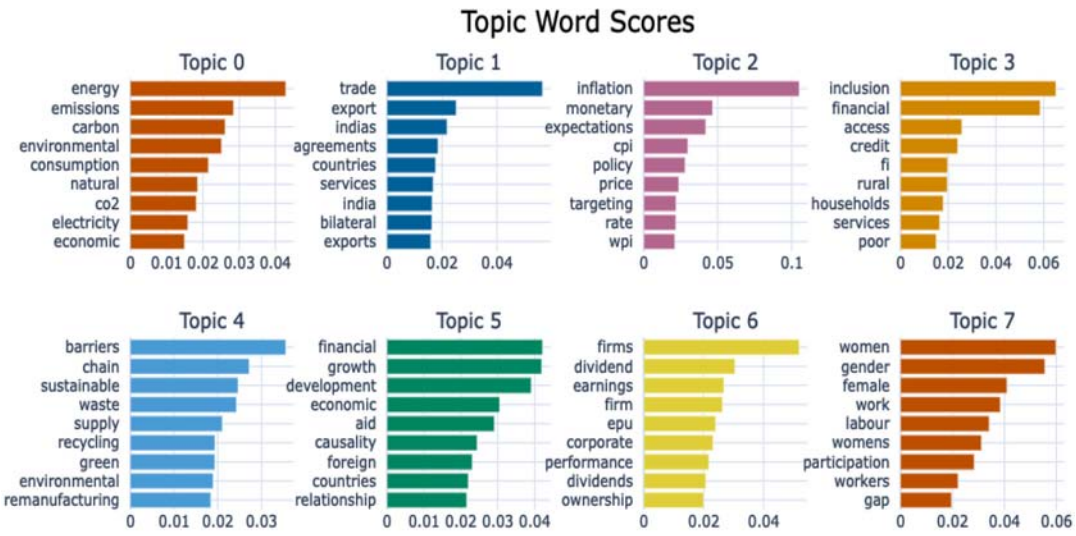

Figure 11

BERTopic modelling on EPR Abstract terms using the LDA approach

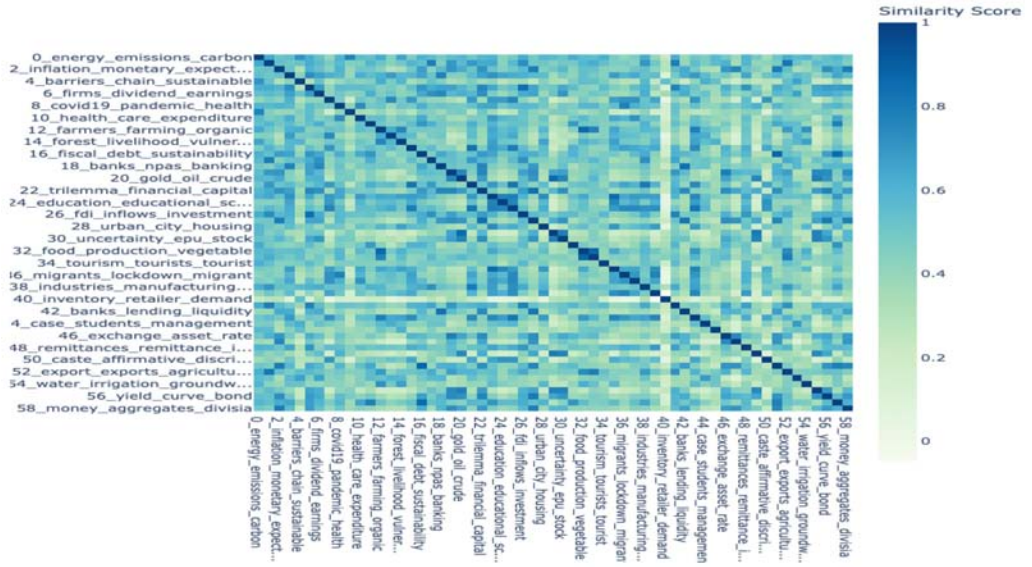

Figure 12

Similarity matrix of selected topic

The similarity matrix in Figure 12 provides a detailed visualization of the pairwise similarity between different topics or labels, with each row and column representing a specific topic, such as "energy_emissions_carbon" or "inflation_monetary_expectations." The diagonal elements (dark blue) represent self-similarity, which is always a perfect score of 1, as each topic is entirely similar to itself. Off-diagonal values indicate the similarity between different topics, measured on a scale from 0 (light green, no similarity) to 1 (dark blue, maximum similarity). Darker blue areas off the diagonal indicate thematic overlap, such as links between sustainability and energy, while lighter green regions highlight distinct topics. Clusters along the diagonal suggest related topic groups, offering insights into patterns and aiding refinement of topic modeling.

4. Future Research Directions in EPR

Future directions in EPR in India should consider various areas which are changing the national and global dynamics. A fundamental research emerge for the depth examination of monetary and fiscal policy, particularly in economic contexts, as these concpets jointly shape macroeconomic stability and growth trajectories [68]. India is an emerging market in the world and understanding the interplay between these policies is central to promoting sustainable development and trade integration [69]. The attention must be focus to addressing regional and socio-economic disparities through research on rural transformation, labor informality, and inclusive entrepreneurship [70]. The adaptation with climate impact and livelihood enhancement in marginalized communities further

needed integration of social and environmental aspect into policy discourse [71]. The interdisciplinary approaches are increasingly crucial and innovations in renewable energy, sustainable urban planning, and integrated environmental strategies should underpin India's development blueprint in the context of climate change and resource reduction [72]. These efforts must be guided by systems-level analyses to ensure flexibility in future.

The crisis management strategies, particularly after economic fallout due to COVID-19, offer another essential area of inquiry. Research on investment behavior, capital markets, and fiscal responses should be aimed for mitigating systemic shocks [73]. The pandemic revealed that research on structural weaknesses and the need for adaptive policymaking grounded in robust empirical evidence. In future trade and investment research must increasingly focus on supply chain resilience, FDI patterns, and trade policy design, particularly in light of recent world realignments and economic separation on different trends. Simultaneously, India's post-2020 policy agenda calls for deeper investigation into the adoption of clean technologies, carbon reduction strategies, and institutional reforms to achieve "Sustainable Development Goals" (SDGs). In energy and environmental policy, research need to prioritise on reducing emissions, expanding renewable energy access, and enhancing efficiency are central to climate mitigation efforts. Furthermore, research should examine the efficacy of bilateral and multilateral agreements in fostering regional integration and economic cooperation in international trade. Financial inclusion, has been noticed as longstanding challenge in India, which demands research attention to digital finance, credit innovation, and institutional mechanisms to reach underserved areas [74]. Circular economy practices and green logistics are gaining traction as central government focus of sustainable supply chain management [75]. Furthermore, studies should consider to evaluating foreign aid efficiency can help craft evidence-based frameworks for equitable development. At the corporate level, governance structures, innovation ecosystems, and firm strategy analysis are crucial to enhancing productivity and global competitiveness. Finally, addressing gender disparities in labor markets requires rigorous inquiry into wage equity, employment accessibility, and inclusive policy reform. Together, these lines of inquiry will help construct a multidimensional and future-ready economic policy framework for India.

The findings of this study align with and extend prior bibliometric research in economic studies, which has highlighted the dominance of macroeconomic and trade-related themes. However, unlike earlier studies, the present analysis demonstrates a significant post-2020 shift toward sustainability, climate policy, and digital financial systems. The integration of BERTopic further reveals nuanced thematic clusters that are not easily captured through traditional LDA-based approaches. Additionally, the observed fragmentation in collaboration networks suggests the need for stronger interdisciplinary and international partnerships. These findings contribute to the growing discourse on computational research evaluation by illustrating how hybrid analytical frameworks can uncover both structural and semantic dimensions of scholarly communication. Overall, the convergence of bibliometric indicators and semantic modeling provides a more holistic understanding of research evolution than either approach alone.

5. Conclusions, Implications, and Limitations

This study provides a comprehensive bibliometric and topic modeling analysis of Economic Policy Research in India, highlighting publication trends, collaboration patterns, and thematic evolution over the period 2010–2024. The integration of bibliometric techniques with advanced topic modeling approaches offers a deeper understanding of both structural and semantic dimensions of the research landscape. The findings reveal a dynamic shift toward sustainability, financial inclusion, and global economic integration, reflecting changing policy priorities. By identifying key research trends and emerging themes, the study contributes to both theoretical and methodological advancements in Scientometrics and research analytics. It also offers practical implications for policymakers and researchers in aligning future research agendas with national and global priorities. Overall, the study underscores the importance of adopting computational and data-driven approaches in research evaluation and knowledge management. The co-authorship, institutional, and country-level collaboration networks reveal a moderately interconnected research ecosystem. Authors such as Tiwari, A.K. and institutions like Indira Gandhi Institute and Indian Institute of Management have emerged as prominent contributors. Despite these hubs of productivity, the broader collaboration network remains fragmented, suggesting an opportunity to enhance interdisciplinary and inter-institutional cooperation. Internationally, India has shown strong collaboration with countries like the United States, United Kingdom, and South Africa, pointing toward a growing global interest in India's economic policy frameworks.

Keyword co-occurrence, indicates that economic growth, financial development, sustainability, fiscal and monetary policy, and labour markets found as dominant area. Additionally, newer themes such as climate change, renewable energy, gender inclusion, digital finance, and trade policies have begun to gain scholarly traction. The results from topic modeling (using BERTopic and LDAShiny) offering a structured understanding of the literature's intellectual areas. The similarity matrix further revealed overlaps between topics, allowing for better interpretation of cross-cutting themes in policy discourse. The study's implications are significant for researchers, institutions, and policymakers. For scholars, this research offers a map of influential authors, journals, and topics, aiding future investigations. Institutions can promote the collaboration insights to foster stronger networks and encourage cross-sector partnerships in EPR in India. Policymakers can draw on the identified trends to align research funding, policy formulation, and program development with national and global priorities.

However, several limitations must be acknowledged that study relies primarily on the Scopus database, which, while comprehensive, may exclude relevant literature from local, non-indexed, or domain-specific journals. Citation-based metrics, though valuable, do not necessarily reflect societal or policy impact and may favour older publications due to citation lag. Moreover, bibliometrics and topic modeling techniques are sensitive towards data preprocessing and parameter selection, which can influence topic coherence and interpretation. Future research could expand this analysis by incorporating additional

databases like Web of Science, Dimensions, Google Scholar, or subject databases integrating qualitative content reviews, and examining the influence of EPR on actual policy decisions. Exploring temporal shifts in research focus and linking bibliometric indicators with global outcomes would offer a more holistic view of EPR's scholarly and societal relevance. The study underscores the growing importance of computational approaches in advancing evidence-based policy research and scholarly evaluation.

Data availability

All data generated or analyzed for this study are available from the corresponding author on reasonable request.

AMS Subject Classification code Primary MSC2020 (91B82 — Statistical methods; econometrics)

Secondary MSC2020 (62P20 — Applications of statistics to economics), (68T50 — Data mining), (68T09 — Machine learning)

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