ISSN 3136-0807 (Print)
ISSN 3136-0815 (Online)

ECONOMIC RESEARCH AND MANAGEMENT DECISIONS

2026
Volume 1
Issue 1

ermd.buketov.edu.kz

ISSN 3136-0807 (Print)
ISSN 3136-0815 (Online)

ЭКОНОМИКАЛЫҚ ЗЕРТТЕУЛЕР ЖӘНЕ БАСҚАРУ ШЕШІМДЕРІ

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ЭКОНОМИЧЕСКИЕ ИССЛЕДОВАНИЯ И УПРАВЛЕНЧЕСКИЕ РЕШЕНИЯ

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ECONOMIC RESEARCH AND MANAGEMENT DECISIONS

2026

Volume 1, No. 1(1)

Founded in 2026

Published 4 times a year

Karaganda
2026

Баспагер: **«Академик Е.А. Бөкетов атындағы Қарағанды ұлттық зерттеу университеті» КеАҚ**
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Экономикалық зерттеулер және басқару шешімдері. — 2026. — 1-т., 1(1)-шығ. — 67 б. — ISSN 3136-0807 (Print). ISSN 3136-0815 (Online).

Меншік иесі: «Академик Е.А. Бөкетов атындағы Қарағанды ұлттық зерттеу университеті» КеАҚ.
Қазақстан Республикасының Мәдениет және ақпарат министрлігінде тіркелген. 31.03.2026 ж. № KZ10VPY00145640 есепке қою туралы куәлігі.

Басуға 30.06.2026 ж. қол қойылды. Пішімі 60×84 1/8. Қағазы ксерокстік. Көлемі 8,37 б.т. Таралымы 200 дана. Бағасы келісім бойынша. Тапсырыс № 81.
«Академик Е.А. Бөкетов атындағы Қарағанды ұлттық зерттеу университеті» КеАҚ баспасының баспаханасында басылып шықты.
100024, Қазақстан, Қарағанды қ., Университет к-сі, 28. Тел. (7212) 35-63-16. E-mail: printed@karnu-buketov.edu.kz

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Экономические исследования и управленческие решения. — 2026. — Т. 1, вып. 1(1). — 67 с. — ISSN 3136-0807 (Print). ISSN 3136-0815 (Online).

Собственник: НАО «Карагандинский национальный исследовательский университет имени академика Е.А. Букетова».
Зарегистрировано Министерством культуры и информации Республики Казахстан. Свидетельство о постановке на учет № KZ10VPY00145640 от 31.03.2026 г.

Подписано в печать 30.06.2026 г. Формат 60×84 1/8. Бумага ксероксная. Объем 8,37 п.л. Тираж 200 экз. Цена договорная. Заказ № 81.
Отпечатано в типографии издательства НАО «Карагандинский национальный исследовательский университет имени академика Е.А. Букетова».
100024, Казахстан, г. Караганда, ул. Университетская, 28. Тел. (7212) 35-63-16.
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Publisher: **NLC "Karaganda National Research University named after academician Ye.A. Buketov"**
Postal address: 28 University St., Karaganda 100024, Kazakhstan
E-mail: econom.karnu@mail.ru. *Web-site*: https://ermd.buketov.edu.kz

Economic Research and Management Decisions. — 2026. — Vol. 1, Iss. 1(1). — 67 p. — ISSN 3136-0807 (Print). ISSN 3136-0815 (Online).

Proprietary: NLC "Karaganda National Research University named after academician Ye.A. Buketov".
Registered by the Ministry of Culture and Information of the Republic of Kazakhstan. Registration certificate No. KZ10VPY00145640 dated 31.03.2026.

Signed in print 30.06.2026. Format 60×84 1/8. Photocopier paper. Volume 8,37 p.sh. Circulation 200 copies. Price upon request. Order № 81.
Printed in the Publishing house of NLC "Karaganda National Research University named after academician Ye.A. Buketov".
28 University St., Karaganda 100024, Kazakhstan. E-mail: printed@karnu-buketov.edu.kz

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How to Cite: Adilkhanova A., Pech G., Porter D. (2026). A Decade of Debate: A Bibliometric Analysis of Minimum Wage Research in Economics (2015–2025). *Economic Research and Management Decisions*, 2026, 1, 1 (1), 6–20.
https://doi.org/10.31489/3136-0807/2026-1-1/6-20

JEL J31, J38, D63, C88
UDC 331.215.53:001.891

Received: 01.04.2026 | Accepted: 20.06.2026

A Decade of Debate: A Bibliometric Analysis of Minimum Wage Research in Economics (2015–2025)

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Abstract

This paper provides a full-scale bibliometric analysis of the academic research output on the topic of minimum wage policies in economics from 2015 to 2025. Leveraging a rigorously constructed data sample of 4,195 WoS CC-indexed records, the research delves into the intellectual structure, thematic progression, and authorship patterns in the field. Visual network analysis through VOSviewer and statistical summarization with Microsoft Excel are used to map co-authorship networks, keyword co-occurrence, and citation networks, while identifying emerging trends and knowledge gaps.

The results show a significant surge in scholarly interest in minimum wage studies after 2020, which reflects the economic uncertainty caused by the COVID-19 pandemic. Key themes among these papers are gender wage gaps, informal labor markets, the role of education and family patterns in wage mechanisms, and the links between wage policy, health equity, and social protection.

Methodologically, the most successful work is based on panel data, natural experiments, and decomposition methods. Yet substantial gaps remain in interdisciplinary connections, particularly with respect to the relationship between wage policy, automation, climate change, caregiving, and public health. This review not only presents the current status of minimum wage literature, but also provides strategic directions for theoretical development in the future.

By focusing on underexplored areas and suggesting more comprehensive and interdisciplinary solutions, the research is relevant to larger debates on wage justice, economic justice, and labor policy formation with the aim of contributing to international development objectives.

Keywords: minimum wage; wage policy; labor market inequality; income distribution; bibliometric analysis; VOSviewer; wage gap; co-authorship; economic policy; gender disparity.

The minimum wage has become increasingly prominent in the global economic and policy discussions, especially with the growing inequality, labor market dislocation, and the attempt to recover from the COVID-19 pandemic (ILO, 2022; OECD, 2020). As technological change, platform work, and globalization shape the labor market, issues of adequacy of wages, quality of jobs, and redistribution of income have steadily risen in importance (Card & Krueger, 1995; Neumark & Wascher, 2008). To fight poverty, reduce inequality, and prop up the wages of low-skilled workers, governments in rich and poor countries alike have passed or overhauled minimum wage regulations. However, the "on-the-ground" effects of these interventions are still fiercely debated academically.

Minimum-wage advocates claim that it decreases income inequality and improves the standard of living for low-salaried workers without excessive unemployment (Blau & Kahn, 2017; Reich, Jacobs, & Bernhardt, 2014). On the other hand, opponents are concerned that wage floors could lead to disemployment effects, especially among young or low-skilled workers, and that stringent wage floors may reduce job creation or formalization (Neumark & Wascher, 2008). This dichotomy in the literature shows the difficulty in understanding wage-setting mechanisms and the importance of localized empirical analysis. The picture becomes even more complicated when formal sector and gender income inequalities and demographic wage differentials—often overlooked in orthodox economic analysis—are taken into account (World Bank, 2019).

Despite the rich empirical literature, there has been little in the way of metalevel synthesis: in particular, there have been no analyses of how the field as a whole has transformed over time. The current reviews are usually narrative in nature or oriented to a specific policy area, and there is no mapping of broader trends in authorship, institutional influence, and thematic focus. Bibliometric analysis provides a methodological approach to visualize the architecture of scholarly discourse: who is publishing, what themes are dominant, where collaborations occur, and which research streams have policy influence.

This study contributes toward filling this gap in the literature by providing a decade-long bibliometric snapshot of minimum wage research in economics, based on 4,195 Web of Science records. By citation mapping, keyword clustering, and co-authorship analysis, the article serves as a snapshot of intellectual movement, geographic distribution, and research fiefdoms constructing academic discourse, from 2015 through 2025. The paper points out important lacunae that still remain—such as wage policy and care work, automation, and sustainable development—and advocates a more comprehensive and interdisciplinary approach in wage research.

Bibliometric analyses have been increasingly recognized over the past fifty years as strong techniques in the mapping of the intellectual terrain of academic disciplines. Such analyses enable researchers to search not only the content, but also the dynamics and boundaries, of scholarly fields by mapping citation patterns, co-authorship networks, and thematic clusters (Van Eck & Waltman, 2010; Aguinis, Ramani, & Alabduljader, 2018). In the area of labor economics, bibliometric research has been extensively used for issues ranging from income inequality and gender differences to automation and job volatility (Blau & Kahn, 2017).

Although a few studies provided bibliometric analysis of employment-related subjects, relatively few have concentrated on the minimum wage. Other reviews trace the growth in research on job insecurity, labor polarization, and AI-based changes in employment (Bastian, Heymann, & Jacomy, 2009). These studies illustrate that labor economics is growing more interdisciplinary—combining sociology, political science, and public health—but they treat wage policy as something of an afterthought rather than a central focus.

Empirical research on the effectiveness of the minimum wage is inconclusive. After Card and Krueger's (1995) watershed empirical study, which reported little or no decrease in hiring following minimum wage hikes, the prevailing economic paradigms were suddenly thrown into question. On the other hand, Neumark and Wascher (2008) contend minimum wage increases decrease the employment of low-skill and young workers, particularly in competitive markets. This discussion is complicated when work includes informal labor markets, as well as the gender wage gap—factors that are of special relevance in middle-income countries (ILO, 2022; World Bank, 2019).

While minimum wage laws are of obvious policy interest, little bibliometric scrutiny has been devoted to the development of the field over time. Reich, Jacobs, and Bernhardt (2014) consider local wage ordinances but do not map the larger academic discussion and its intellectual neighborhoods. Current reviews are written as narratives, are country-specific or are single policy-focused. Nor do they provide the macro-level view necessary to explain why race- and gender-related wage considerations are heavily represented in the literature, or where gaps remain, for example in relation to wage policy, caregiving, public health, and climate sensitivity.

This paper fills the gap, providing the first specific bibliometric analysis of minimum wage studies in economics. It breaks down the most cited sources, influential authors, and institutional affiliations in a systematic fashion, and it probes into how the field of inquiry-rooted in discussions of, for example, gender wage gaps, informal work, and quantile wage modeling has evolved over time. In so doing, it adds to the wage policy literature, and to the broader methodological debate about how knowledge in labor economics is produced and received.

Materials and Methods

This bibliometric analysis was made using data retrieved from the Web of Science Core Collection, which is a multidisciplinary citation index provided by Clarivate Analytics, referred to as a key source for scientometric studies. A Boolean search was structured to locate academic articles dealing with minimum wage and labor market inequality. The search was conducted on the fields of title, abstract, and author keywords on the database and had a semantic structure which considered terms for minimum wages legislation and economic inequality.

The last search was a combination of two thematic blocks—minimum wage language and terms related to inequality—and the documents published between 2015 and 2025 were selected. The search was limited to English-language literature in the Social Sciences Citation Index (SSCI), Emerging Sources Citation Index (ESCI) and various principal databases. A total of 4,195 records were retrieved.

The dataset was screened and filtered at different steps to guarantee the relevance and analytical soundness. Titles and abstracts were reviewed for thematic relevance in order to exclude records that referred to minimum wage only tangentially or in a non-economic context. Duplicates were detected and discarded, and metadata discrepancies (author name, author affiliation, journal title, etc.) were corrected manually. The final dataset retained Web of Science document-type information, including journal articles, review articles, book chapters, editorial material, book reviews, early access records, books, letters, notes, news items, and other indexed document types.

The generated dataset was exported in various formats amenable to both statistical and visual investigation. Bibliographical data, including publication year, country of origin, document type, institutional address, and citation counting, were managed and summarized with Microsoft Excel.

Network analysis: For network analysis, a Research Information File (.RIS) was extracted from Web of Science and then imported to VOSviewer (www.vosviewer.com), a bibliometric visualization tool that allows the construction of co-authorship, co-occurrence, and citation networks. A thesaurus file—also called a custom dictionary—created for VOSviewer (to harmonize synonyms or semantically equivalent words) was used. For instance, discrepancies like “minimum wage”, “legal wage”, as well as “statutory wage”, were brought together under inclusive labels.

The keyword co-occurrence analysis was conducted based on full counting with a threshold of at least five keyword occurrences in order to identify dominant thematic clusters in the papers. The co-authorship analysis was utilized for assessing the structure of collaboration at the individual and organizational levels, and the intensity of connection among researchers and research centers. Additionally, the citation analysis showed which were the most cited journals and publications. The software’s modularity-based clustering algorithm was used to produce a thematic grouping based on term similarity, which was manually interpreted and coded around core themes such as income inequality, gender wage gaps, informal labor, and wage dynamics associated with education. Further descriptive analyses by author country, source journal category and Web of Science category were also carried out.

The integrated method of statistical and network analysis successfully provided a full picture of the intellectual structure in the field and the process of its evolution. We recognize the limitations of bibliometric analyses. Although such approaches do offer a strong macro perspective on research landscapes, they do not consider the quality of argument or theory, nor the adequacy of empirical support, in particular specific research reports. Also, focusing solely on English and ISI indexed documents could exclude studies published in non-English-speaking countries and low and middle-income economies, in particular those where wage policy is a key socioeconomic problem, and there are issues surrounding the visibility of research.

Results

This section provides a detailed analysis of the dataset, which contains 4,195 academic records published between 2015 and 2025 that address minimum wage developments. The analysis thoroughly examines changes in publication output of the dataset, the various types of documents, the productivity of authors, the affiliations of the institutions they work for, the themes of their research, and the ways they cite and are cited by others. A combination of Excel-based statistics and VOSviewer brings minimum wage scholarship to life in economics and related fields.

By and large, the data shows a consistent upward trend in academic output over the decade, with a discernible spike following the COVID-19 pandemic (Fig. 1). The dataset is dominated by peer-reviewed journal articles, while book chapters, reviews, and other document types are represented to a lesser extent, thus marking a high level of academic scrutiny and publication consistency. The top literature is authored by people in high-income countries, top institutions are concentrated in high-income countries, and high-income countries dominate the top types of institutions. In sum, authors, institutions, and countries with the utmost significance in setting the agenda for this kind of research here tend—by both force of numbers and power—to be located within high-income economies, especially the USA, UK, and Australia. Looking at thematic and citation analysis, a cross-sectional field emerges. Co-occurrence and keyword density mapping identify centers of strength around gender inequality, informal labor markets, education, and post-pandemic economic recovery. Co-authorship networks and citations also reveal a growing, yet still somewhat disjointed, international cooperation structure. The findings as a whole show how minimum wage research has grown into multiple facets of academic inquiry. It links national macroeconomic policies and international development chances with social, gender, and other fields that are based on welfare.

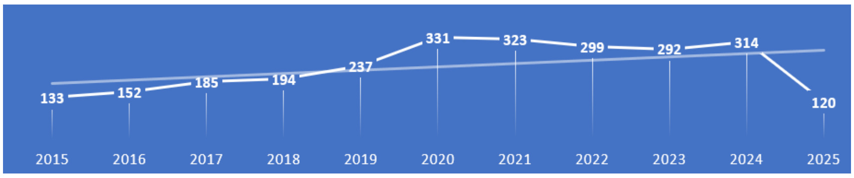

Figure 1. Annual Number of Publications on Minimum Wage Research in Economics (2015–2025)

The pie chart below reveals that within the field of minimum wage research during 2015 to 2025, journal articles constitute 87 % of the dataset (Fig. 2). Among the 4,195 records, 3,661 are articles from academic journals. Such a high rate of articles clearly indicates that the field is strongly based on scholarly standards and empirical methods. The preponderance of articles also guarantees methodological comparability and makes it suitable for bibliometric techniques such as co-citation and co-authorship network analysis. Greater numbers of review articles, while still relatively few, indicate an incipient attempt to fuse existing literature in wage studies. Entries for book chapters (120) and for book reviews (82) are present in more modest amounts. Book chapters often result from contributions to edited volumes on such subjects as wage policy and welfare economics, or work regulation. While they do not dominate the field, they play interactive roles widening interdisciplinary debates by linking wage themes with broader social frameworks in areas like public policy, sociology, and development studies. Review articles are a reflection of efforts to summarize conceptual advances and to draw policy conclusions for the various subfields of wages.

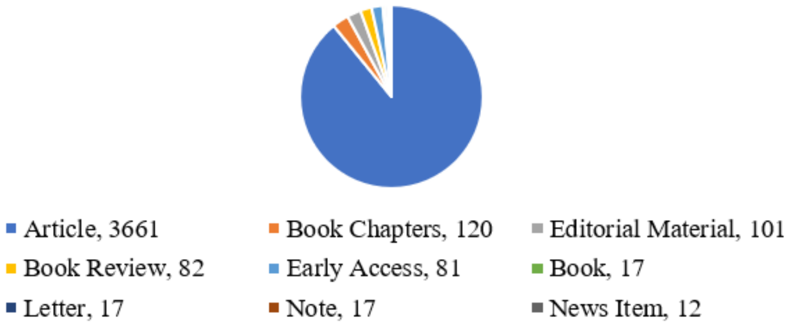

Figure 2. Distribution of Document Types in Minimum Wage Research (2015–2025)

Other document types, such as conference papers, commentaries, and corrections, show up very irregularly in the database. Their weak representation is indicative of the field's maturity and strong preference evinced for peer-reviewed, formal channels of publication. A relative shortage of research articles recently released online (or formally withdrawn) indicates that minimum wage research is a settled, regulated academic discipline within which quality is of significant concern. On the whole, the distribution of each type of document is further evidence for the data set's methodological reliability. It also confirms that on the subject of minimum wages, dialogue among scholars is still held primarily in formal publications rather than being spread lightly through ephemeral and grey literature sources.

The top contributing authors based on the number of publications are presented in Figure 3. David Neumark is the most prolific author in the dataset, with 34 publications. Neumark's research has consistently impacted the direction of empirical debate on wage floors, employment elasticity, and labor market segmentation.

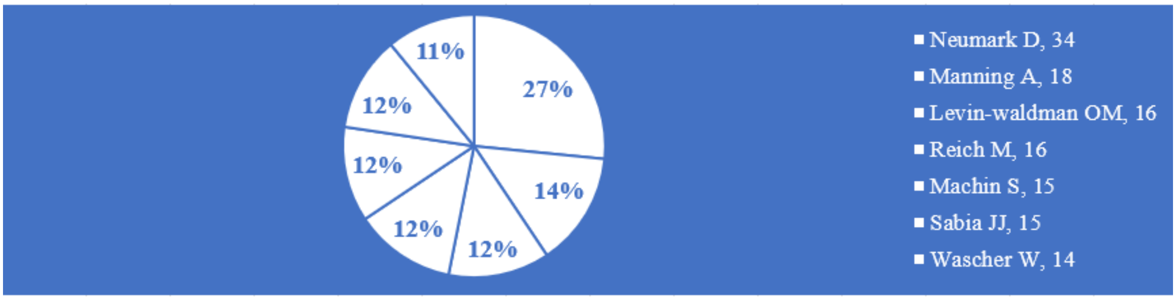

Figure 3. Most Prolific Authors in Minimum Wage Literature (2015–2025)

Neumark's position in the author productivity ranking indicates his central role in empirical research on minimum wage policy. Alan Manning (18 publications), M. Reich (16), and O.M. Levin-Waldman (16) are three key voices in policy-oriented wage discussions. Their academic contributions frequently take on the precepts of the minimum wage from both the perspective of econometrics and that focusing on the welfare state.

The skew in author productivity shows a dominant center of intellectual energy. A tiny number of researchers contribute a disproportionately large share of papers, indicating the presence of thought leaders whose findings and theoretical contributions have deeply influenced subsequent work. These authors are closely associated with leading institutions in the United States and United Kingdom, and their articles appear in prestigious publications such as the American Economic Review and Journal of Labor Economics. They also continue to collaborate frequently later on, as we can see from VOSviewer network graphs.

Significantly, the second highest-ranked "Anonymous" category is made up of 20 records. This may well be representational authorship, such as joint agency reports, or just fields where the original data did not record the proper author name. Although it is not analytically useful in the traditional sense of authorship, the fact that it occurred so frequently indicates a form of non-individualized academic production often associated with policy bodies or publicly funded research centers. Its presence as an alternative to scholarships authored by individuals shows that the field has a dual structure-mixing traditional scholarly achievement with institutional knowledge generation.

By dint of broad academic backgrounds, the publication patterns in this dataset make it clear how many different environments for minimum wage research there are (Fig. 4). Though the field is grounded in economics, the top Web of Science categories show that substantial contributions have come from Public, Environmental, and Occupational Health (354 records), Political Science (198), Sociology (183), as well as Business (136). This shows that minimum wage is increasingly regarded not only as an economic mechanism that performs vital tasks but also as a policy instrument with wide-sweeping social, political, and public health implications.

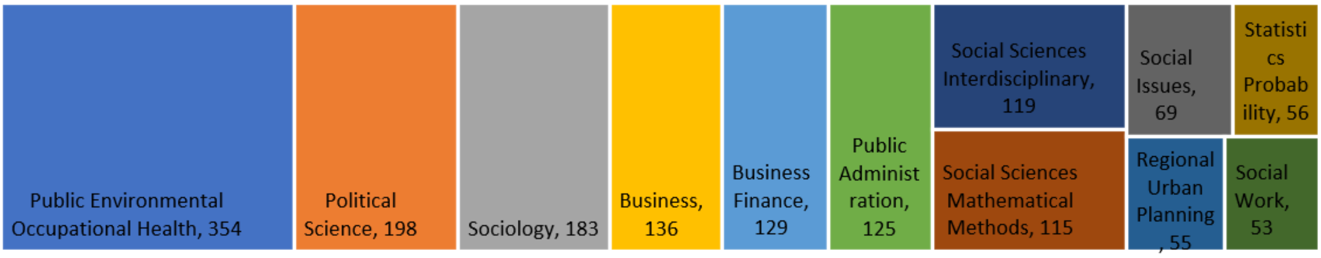

Figure 4. Top Web of Science Subject Categories in Minimum Wage Research

The prominence of these categories suggests a growing interdisciplinary engagement with wage policy. For example, studies classified under public health frequently bring up questions of the relationship between low-wage workers' health, such as access to treatment, food security, or illness due to stress. The presence of political science and sociology, meanwhile, means concentration on the institutional framework, law, industrial relations, and income distribution. Another perspective on labor reality comes into play here, as does potential for more widespread labor unrest.

The diverse array of categories in the dataset demonstrates how scholarly discourse on minimum wage has expanded at least beyond narrow technical wage-setting models to comprehensive explorations of justice as well as well-being and humanitarianism.

Figure 5 provides a mid-range thematic overview by clustering cited publications into meso-level research topics based on shared citation behavior. The leading cluster is Healthcare Policy with 122 records, followed by Autism & Developmental Disorders (38) and Palliative Care (33). At first glance, these categories may appear peripheral to wage-focused economics. However, their prominence reflects the interdisciplinary convergence between wage policy and public health outcomes—particularly for workers in caregiving roles, informal labor sectors, and under—resourced communities. The presence of these topics suggests that minimum wage research is often situated within broader social protection frameworks that deal with health equity, long-term care, and service labor markets.

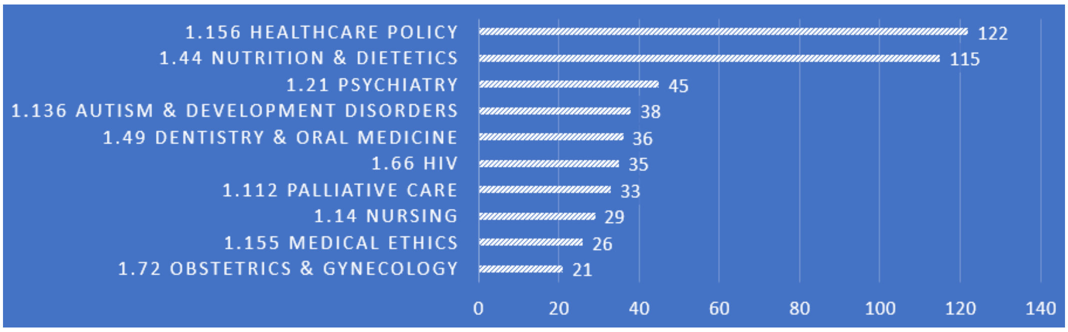

Figure 5. Most Frequent Meso-Level Citation Topics

Figure 6 presents the micro-level citation clusters, which represent more narrowly defined sub-areas or clusters of articles within the general literature on the minimum wage. The most common themes are Health Inequities (50 documents), Vulnerable Health Systems (35), Disabilities (31), and Maternal Health Equity (24).

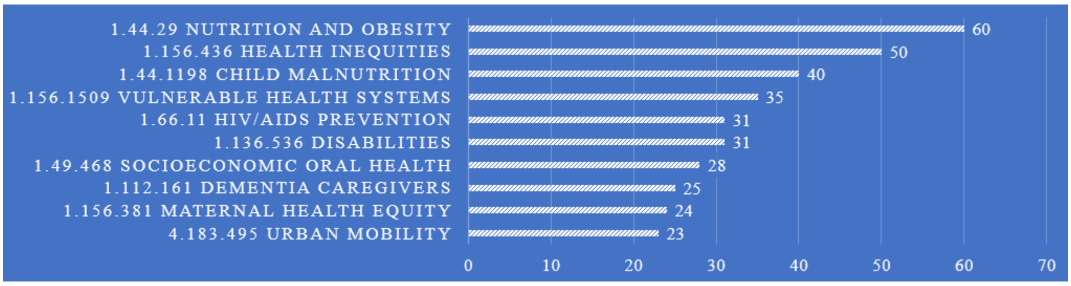

Figure 6. Micro-Level Citation Topics in Wage-Related Research

These themes illustrate that so much of the literature examines minimum wage not as an economic variable, but also as a factor in the health and well-being of low-income populations. Notably, disability- and maternal-health-related topics feature the intersections of income from labor, caregiving demands, and access to essential services. Where micro-level analysis breaks new ground is at the level of granularity—it unearths the niche clusters of research that hone in on the lived consequences of wage structures for marginalized groups. This includes studies examining wage constraints among voluntary informal care workers, intra-household dynamics in low-income settings and spillover effects of stagnating wages on health systems.

The emphasis on disparities and delivery of care indicates the emergence of a scholarship literature that questions the reductive economistic portrayal of wage discourse, linking it to issues of care as framed by considerations of social inclusion, access, and structural vulnerability. The results indicate potential for future studies to more directly engage the labor-health nexus, particularly in comparisons across income gradients and policy contexts.

Figure 7 maps the sample to specific United Nations Sustainable Development Goals (SDGs), demonstrating a strong relationship between wage policy research and global development targets. The SDG classification is based on Web of Science metadata. The strongest linkage is to SDG 1 (No Poverty) with 1,753 papers. This serves to corroborate that, at least in policy and academic exchange, minimum wage is widely perceived as a poverty instrument. SDG 3 (Good Health and Well-being, 988 records) and SDG 5 (Gender Equality, 324 records) are also common, reflecting high interest on the part of the field on issues of health equity and gender pay inequities.

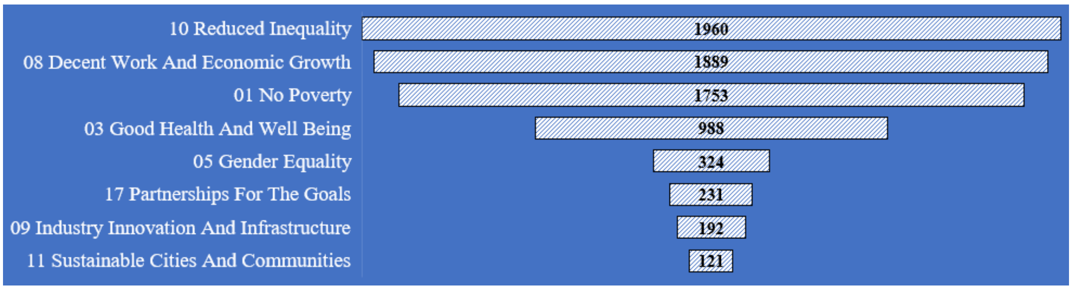

Figure 7. Alignment of Minimum Wage Research with Sustainable Development Goals (SDGs)

Concentration on these goals demonstrates that minimum wage is multidimensional beyond labor economics. Less frequent associations with SDGs such as Quality Education or Decent Work and Economic Growth may indicate avoidance of pain points or literature gaps. The patterns also capture where researchers observe policy levers—such as income security, social health outcomes, discrimination based on gender—and suggest new opportunities for broadening the base from which wage policy studies can claim to be linked to the SDGs.

Figure 8 presents the distribution of publications across Web of Science indexes, showing where minimum wage research has appeared within the Web of Science database. The majority of publications are indexed in the Social Sciences Citation Index (SSCI), followed by the Science Citation Index Expanded (SCI-EXPANDED), the Emerging Sources Citation Index (ESCI), and other indexes, including the Book Citation Index–Social Sciences & Humanities. This distribution reflects that MW research is quite widely disseminated across both higher and lower-ranked academic outlets.

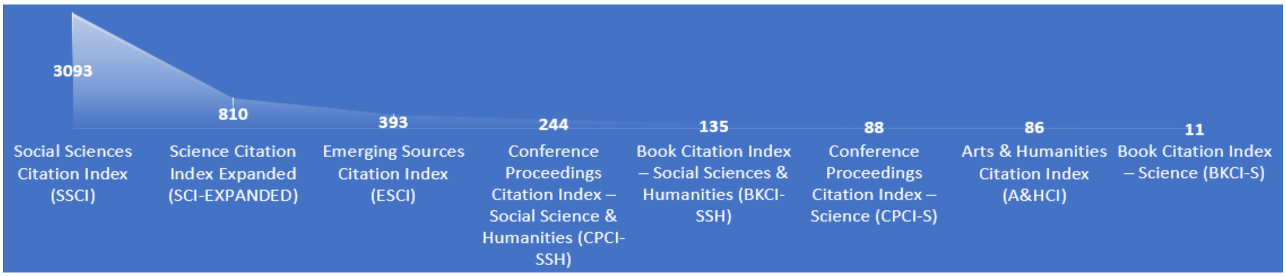

Figure 8. Web of Science Index Coverage of Publications

The distribution of articles across different index types shows that the field has become increasingly interdisciplinary. Coverage in ESCI and SSCI guarantees visibility in standardized economic and social science journals, whereas contributions to book and humanities indexes signal wider policy significance and narrative framing. Taken together, evidence supports the fact that minimum wage research is known to a variety of academic outlets and helps to confirm its status as a cross-cutting topic across economics, policy, and development studies.

Figure 9 lists the leading institutional affiliations that contributed to the literature on the minimum wage between 2015 and 2025. The top affiliations are IZA Institute of Labor Economics with 112 records, followed by the National Bureau of Economic Research with 84 records, Universidade de São Paulo with 73 records, and the London School of Economics and Political Science with 69 records. Other productive institutions include the Leibniz Association, Cornell University, the University of California Berkeley, Harvard University, the Federal Reserve System USA, and Fundação Oswaldo Cruz. Analysis shows that a small group of academic and policy institutions produce a significant share of scholarly work in this field.

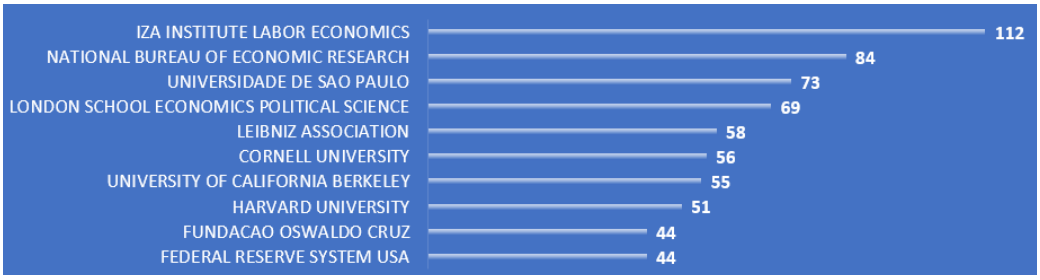

Figure 9. Most Productive Institutional Affiliations in Minimum Wage Research

Although the largest share has been maintained in elite American universities, the presence of non-Western centers such as Fundação Oswaldo Cruz (Brazil) indicates a progressive diversification of research places. Yet the broad picture is one of geographic clustering of academic production in high-income countries, especially in Anglo-American academic circuits. This asymmetry draws attention to aspects of the debate over the design of labor market institutions: on the visibility of and participation in this debate of actors from low- and middle-income countries, where, in contrast to high-income countries, wage policy is equally, if not more, important to labor market reform.

Figure 10 shows the top publication outlets of the minimum wage studies in our sample. The leading outlets include Cadernos de Saúde Pública with 42 publications, British Journal of Industrial Relations with 41 publications, ILR Review with 40 publications, Industrial Labor Relations Review with 39 publications, Ciência & Saúde Coletiva with 33 publications, Economics Letters with 32 publications, and Applied Economics with 29 publications. These sources include both mainstream economic journals and interdisciplinary journals that connect economic analysis with public health and policy studies.

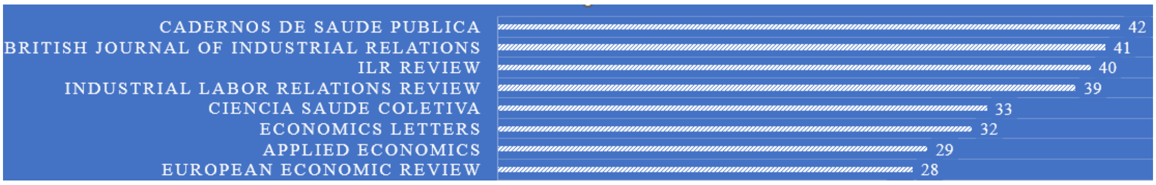

Figure 10. Leading Journals Publishing Minimum Wage Research

The distribution of the journals simply mirrors the fact that it has begun to transcend its focus on the kind of economic modeling that was the norm with traditional economics. The appearance of public health journals may reflect an increasing focus on the social determinants of labor market outcomes, and the inclusion of applied economic journals may imply ongoing interest in empirical wage policy evaluation. This mix underscores the field’s Janus-faced nature: it is rooted in quantitative analysis, yet increasingly sensitive to issues of equity, access and well-being.

Figure 11 details the distribution of output at the country level, and in this way, identifies the national contexts that dominate authorship in minimum wage research. Australia takes the top spot with 185 publications, followed by the US, UK, and Germany. The high-income countries are shown to be central contributors to the global scholarly debate on wage policy, which results from their research capabilities as well as their historical institutional orientation towards labor economics.

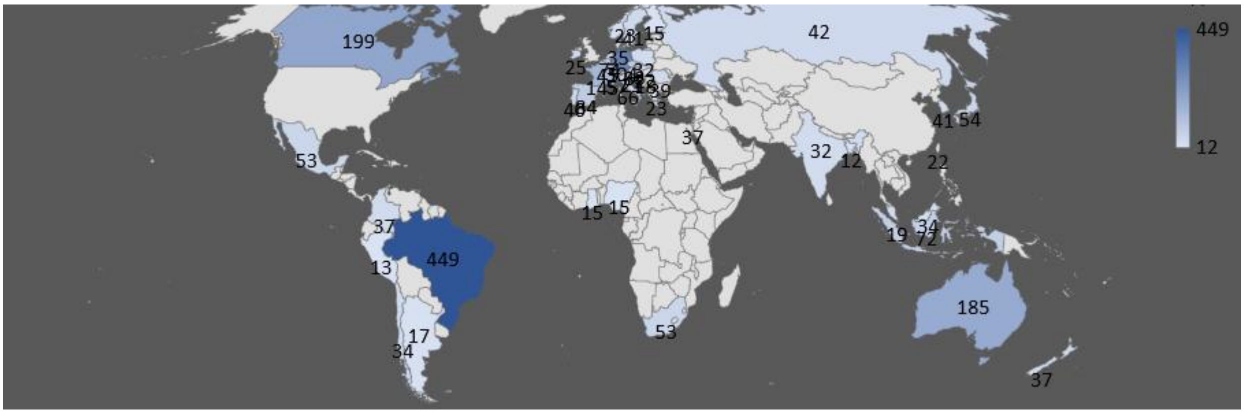

Figure 11. Geographic Distribution of Minimum Wage Research by Country

Low- and middle-income countries, however, continue to be poorly represented. There were fewer than 15 publications from countries like Bangladesh, Azerbaijan, and Kazakhstan. If nothing else, this geographical imbalance serves as a reminder that although minimum wage is a global problem, academic authorship remains focused in the Global North. That the studies from the Global South are underrepresented speaks to an enduring absence in context-specific, locally-driven studies of wage policy and to the need for greater scholarly inclusion from the regions where wage regulation is most pressing.

Based on VOSviewer keyword co-occurrence analysis, twelve clusters of thematically related terms were identified. The clusters identify the semantic landscape of minimum wage literature over the past decade, indicating the major research themes and the degree of topical fragmentation (Fig. 12):

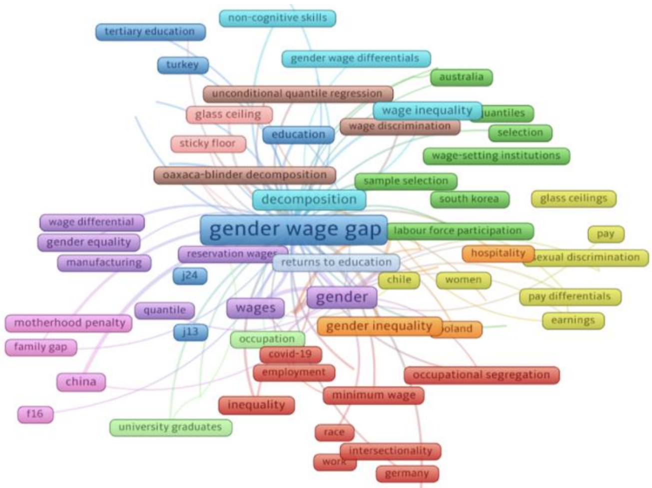

Figure 12. Thematic Clusters Map in Minimum Wage Research

1. Cluster 1 (Red): Labor Inequality and Diversity in Crisis. This is the largest and most central cluster, with high-frequency terms including “covid-19”, “employment”, “diversity”, “inequality”, “minimum wage” and “race”. It is an informed scholarship that connects pandemic-historical labor turmoil to inequality, frequently cast in terms of intersectionality, the occupational segregation of work, and racialized wage structures. The presence of country-specific terms such as Germany suggests that some of these studies are empirically based on European labor markets.
2. Cluster 2 (Green): Labor Participation, Cohorts, and Demographic Shifts. This cluster contains the words birth cohorts, labor force participation, quantiles, hazard function. These keywords indicate that these studies employ econometric models to follow life-cycle and age cohort dynamics in the labor market. Countries such as Australia and South Korea are also well-represented, indicating their comparative research on OECD labor markets.
3. Cluster 3 (Blue): Gender Gaps and the Role of Education and Human Capital. The third block features words such as education, gender pay gap, female LFP, tertiary education, and home production. These

studies focus on the extent to which levels of education and family structure explain gender wage disparities. Keywords such as selection bias and Turkey point to quantitative research across different national contexts.

4. Cluster 4 (Yellow): Career Progression and Wage Inequality. Cluster 4 contains the job mobility, glass ceilings, sexual discrimination, and earnings keywords. The inclusion of France, Spain, and Chile suggests that wage inequality within professional categories is examined through cross-national comparison. This cluster also frequently crosses with the literature on upward mobility, labor law, and promotion gaps.

5. Cluster 5 (Purple): Quantile Approaches and Sectoral Wage Gaps. This cluster is characterized by terms such as gender equality, quantile regression, manufacturing, reservation wages, Egypt, Poland. It is defined by studies that use sophisticated econometric methodology to break down wage differences by distribution percentile and sector.

6. Cluster 6 (Orange): Behavioral Labor Economics and Risk. This cluster includes terms such as cognitive skills, occupation choice, risk aversion, and schooling. Such studies typically investigate how non-cognitive characteristics and risk profiles influence wage profiles and are often based on the insights of behavioral economics and early investment in children frameworks.

7. Cluster 7 (Brown): Wage Decomposition and Discrimination. Discrimination, gender pay gap, decomposition methods, and gender segregation are some of the major terms in this group. This group is method-oriented, using decomposition methods and related techniques to estimate the pay gap between men and women and among different jobs.

8. Cluster 8 (Pink): Public Sector Wages and Robust Estimation. This smaller technical cluster includes words such as Oaxaca-Blinder decompositions, unconditional quantile regressions, public sector, and country-specific analysis like Vietnam. It is in line with sophisticated econometric modeling in the public employment sphere, frequently linked to institutional wage-setting arrangements.

9. Cluster 9 (Light Blue): Family Structure and Motherhood Penalties. Keywords are motherhood penalty, family gap, labor market, and China. This cluster focuses on the wage effects of family formation, parental leave, and care responsibilities—at least some of the time, from a gendered vantage point.

10. Cluster 10 (Dark Green): Obstacles and the Future. Terms like glass ceiling, sticky floor, India, promotion characterize this cluster. It flags obstacles to upward mobility among women and other disadvantaged groups with a focus on structural factors and workplace norms.

11. Cluster 11 (Gray): Career Labor Inequality at Early Stage. This group is composed of young, university-educated, and human capital. It targets wage returns in entry-level labor market positions, sometimes with more emphasis on generational groups and school-to-work transitions.

12. Cluster 12 (Dark Purple): Global South Labor Market Research. Cluster 12 contains gender gaps, returns to education, and Mexico. These works investigate wage behavior patterns in developing countries, paying attention to the wage premium of formal education and stubborn gender disparities.

Figure 13 presents the keyword co-occurrence density map for minimum wage research. Areas with higher density indicate terms that appear more frequently and are more strongly connected to other keywords in the dataset. The visualization highlights the concentration of research around minimum wage, employment, inequality, gender wage gaps, informal labor markets, and related policy themes.

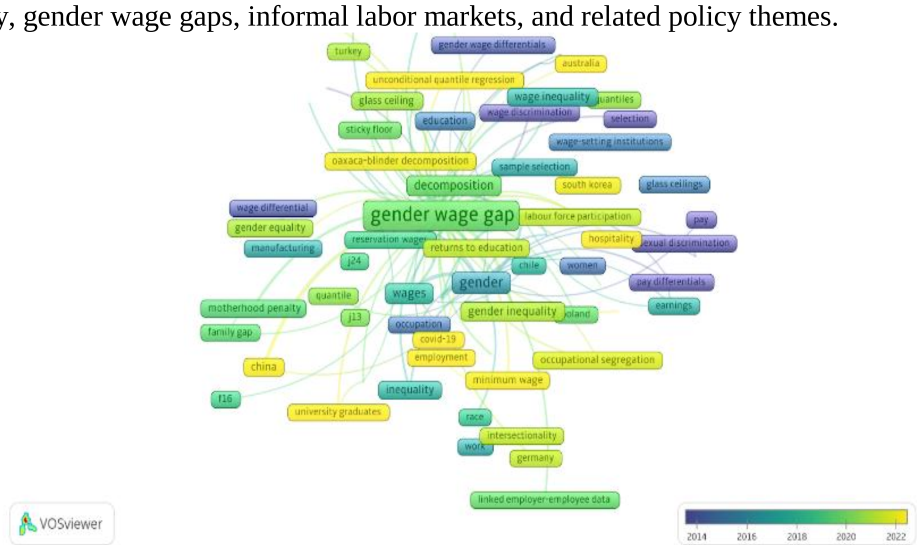

Figure 13. Keyword Co-occurrence Density Map in Minimum Wage Research

The blue clusters in the bottom-left quadrant are fundamental works on labor economics and the elasticity of the wage—many of the works were written by economists like Neumark, Card, Manning, among others. These early papers are the empirical and theoretical foundation of a large part of the field. Their tight connections and high centrality suggest that they are still frequently referred to and function as anchors of knowledge.

By contrast, the yellowish nodes indicate more recent publications in foregrounded areas of research, such as digital labor platforms, post-pandemic labor inequality, gender wage gaps, and informal work. These more recent clusters may lie on the edge of the map, indicating they are underrepresented and that they have not yet become a central area of the field. The emergent structure of isolation with rising lines also documents a transition in the focus of scholarly activity—from conventional econometric analysis to more socially embedded and policy-oriented themes.

The overlay visualization provides a vivid description of the temporal dynamics of scholarly communication, indicating the changes from structural labor theory to intersectional and global policy concerns in the field (Fig. 14). The visual transition from blue to yellow is more than chronological; it also mirrors the field's response to real-world economic shocks and changing public debates around income inequality and labor protections.

Figure 14. Citation Overlay Visualization of Minimum Wage Research

Discussion

The results of this bibliometric assessment indicate a substantial increase in the size, thematic range, and interdisciplinary appeal of research related to the minimum wage over the last ten years. This increase in the number of publications after 2020 also occurs while the world witnesses heightened labor market instability and policy adjustment in hopes of managing the consequences of the COVID-19 pandemic. This rise reflects a notable rise in academic attention to wage regulation as a strategy of economic recovery, social protection, and distributive justice. Assessment of document type and sources validates the level of scientific maturity of the discipline. The preponderance of peer-reviewed journal articles and print publication in reputable economics and policy journals indicate a sound theoretical and empirical base and high methodological rigor. But that so little comes from books or edited volumes could suggest a lack of involvement with deeper theoretical synthesis or long-form interdisciplinary research. The co-authorship network points to a strong, dense, and rather closed scientific community. There exists a small group of highly prolific authors, mainly from the U.S. and U.K., with relatively high in-degree centrality. They have a wide reach among their nations and institutions, but rarely among the Global South or emerging economies. This geographical imbalance is reflected in the relatively low representation of countries such as Bangladesh, Mexico, and Vietnam. The geographical asymmetry implies that, while income inequality is a worldwide issue, academic authorship and visibility are still unbalanced towards high-income areas. Thematic mapping using the keyword co-occurrence method indicates that research on the minimum wage has evolved into multifaceted strands. Clusters represent established topics in the literature, including gender wage gaps, labor force participation, and quantile wage modeling, as well as emerging issues such as informal labor, motherhood penalties, and digital employment. Although this is evidence of the richness of the field as a conceptual whole, it also shows themes forming clusters and fragmentation. Most clusters are strongly connected and exhibit little interconnectedness, suggesting disciplinary silos that may have inherent limitations when it comes to thematic integration or comparative policy analysis. The citation overlay visualization illustrates this thematic shift. The classic literature of labor economics retains a prominent space in the field, but new work is increasingly in the policy contexts, in structural inequality, or in previously understudied demographic groups. This transformation mirrors the increasing correlation between minimum wage studies and SDGs, especially with SDG 1 (End of Poverty) and SDG 5 (Gender Equality). However, the uneven representation of some SDGs, such as Decent Work, Quality Education, and Reduced Inequalities, indicates that future research could incorporate wage policy into more comprehensive development frameworks. Despite the methodological sophistication of the field reflected in the extensive use of decomposition procedures, hazard models, and cross-national comparisons, there are clear shortcomings. Most notably, few qualitative or mixed-method studies are present that could provide a context for wage policy effects. Moreover, the emphasis on formal sector employment in high-income countries restricts how far many findings can be generalized to informal or precarious labor markets where wage regulation is most needed.

Over the past decade, the minimum wage has been recast from a narrowly economic tool to a more expansive symbol of justice, dignity, and survival, in the United States and around the world. As the bibliometric analysis demonstrates, research in the field has increased in volume and complexity—yet it is replete with silences, blind spots, and missed connections. The recommendations that follow do not just come from citation patterns and network graphs, but from the stories embedded in these—of workers, of institutions, and of systems in flux.

1. Bring the margins to the center: rise up south voices. The world talks too much about poverty and hears too little of it. Research on minimum wage remains overly concentrated in the Global North and in the world's most unaffordable places to live. It is imperative to prioritize the research conducted by scholars from Latin America, and from South Asia, Sub-Saharan Africa, and beyond, not just as subjects but as the makers of knowledge. The voices that people hear when it comes to wages must also change in these policy forums and funding streams so they are shaping rather than just informing the global wage debate.

2. Broaden the frame: link wages to health, gender, and care. Wages do not rise and fall on their own—they reverberate through bodies, households, and futures. The prominence of keywords such as health inequities, disability, and motherhood penalty is indicative of the fact that wage policies intersect closely with considerations of wellbeing and gender justice. Policymakers should expand their analysis beyond the cost of living and view minimum wages as a mechanism for redistributing unpaid care work, protecting workers who are particularly vulnerable to exploitation, and promoting long-term health. A living wage is not a luxury; it is policy with moral clarity.

3. Cross the aisles: invest in and incentivize interdisciplinary research. The thematic clusters unveil a field which is rich but also divided. Economists, sociologists, and public health researchers frequently pose similar questions without speaking the same language. Research-funding institutions must incentivize these interdisciplinary bridges, where, for example, econometrics meets ethnography, where labor models are enriched by lived experience. The wage question is too complicated to be resolved inside disciplinary walls—it needs collaborative insight that is as complex and wide-ranging as the world itself.

4. Design wage systems that learn and adapt to future changes. The map of reference overlays mirrors a displacement: toward not only past wage trends, but toward an area of automation, platform economies, and effects of climate on changing labor conditions. Wage policy should become an adaptive system driven by real-time information, responsive to crisis, and able to self-correct. Governments and institutions also need to establish digital infrastructure and longitudinal datasets, which enable wage policies to evolve alongside the economies that they serve.

5. Co-produce change: research as a common ground. The low level of co-authorship across the borders of countries and types of institution is indeed more than a technical detail—it is indicative of a lost collaboration. It's wage research that needs to become a common ground: between policy and academia, between think tanks and trade unions, between North and South. Long-term partnerships must be cultivated that nurture ideas, translate evidence, and resonate in the places that matter—people's lives.

Conclusion

This article is a bibliometric journey through a decade of scholarly interaction with minimum wage research, revealing not just the quantity of academic response but the direction, themes, and silences of that response. The results reveal a growing body of publications, especially as of 2020-combined with the development of substantive thematic clusters in terms of gender inequality, informal labor, education, health, as well as demographic wage gaps in general. Keyword co-occurrence and citation overlay showed a field that had expanded conceptually and geographically but remained rooted in a central group of economic models and authors. The field remains fragmented, despite its growth. Authorship networks reveal a narrow footprint of cooperation that primarily exists in the Global North. The thematic clusters are diverse but often locked inside silos-deep but unconnected knowledge. The findings also indicate limited participation from the Global South and limited attention to informal work. Citation patterns suggest the field is increasingly moving toward more recent concerns, such as platform work and post-pandemic labor recovery, but a large proportion of scholarship remains situated in theoretical frameworks that pre-date the pandemic. What we have, after all, is a field in motion-growing, diversifying, and starting to cut across disciplines, but still haunted by old divisions: between North and South, theory and practice, economics and society. This reading demands more than just additional research, however; it demands more mindful research, research that hears across borders, works across sectors, and analyzes minimum wage not just as an economic quantity, but also as a lever for equity, resilience, and justice.

Acknowledgements: This research is supported by KIMEP University Economics Department through its initiative to promote student-led economic and innovation research.

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Онжылдық пікірталас: Экономикадағы ең төменгі жалақыны зерттеудің библиометриялық талдауы (2015–2025)

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Аңдатпа

Мақалада 2015 жылдан 2025 жылға дейінгі экономикадағы ең төменгі жалақы саясаты тақырыбындағы академиялық зерттеу нәтижелерінің толық көлемді библиометриялық талдауы берілген. WoS CC жүйесінде индекстелген, яғни рецензияланған 4195 мақаланың мұқият таңдалған үлгісін пайдалана отырып, зерттеу интеллектуалдық құрылымды, тақырыптық үйлесімділікті және саладағы авторлық үлгілерді зерттейді. VOSviewer арқылы визуалды желілік талдау және Microsoft Excel көмегімен статистикалық қорытындылар бірлескен авторлық желілерді, кілт сөздердің бірлескен пайда болуын және дәйексөздік желілерді құру үшін пайдаланылады, бұл қазіргі білімдегі жаңа үрдістер мен кейбір олқылықтарды анықтайды.

Нәтижелер 2020 жылдан кейін ең төменгі жалақыны зерттеуге ғылыми қызығушылықтың айтарлықтай артқанын көрсетеді, бұл COVID-19 пандемиясынан туындаған экономикалық белгісіздікті көрсетеді. Бұл мақалалардың негізгі тақырыптары — жынысқа негізделген жалақы айырмашылықтары, бейресми еңбек нарықтары, жалақы механизмдеріндегі білім беру мен отбасылық үлгілердің орны, сондай-ақ жалақы саясаты, денсаулық сақтау теңдігі және әлеуметтік қорғау арасындағы байланыстар.

Әдістемелік тұрғыдан алғанда, ең сәтті жұмыс жинақтамалық деректерге, табиғи эксперименттерге және ыдырау әдістеріне негізделген. Дегенмен, пәнаралық байланыста, әсіресе жалақы төлеу саясаты, автоматтандыру, климаттың өзгеруі, ауруларға күтім жасау және қоғамдық денсаулық сақтау арасындағы байланысқа қатысты үлкен олқылықтар сақталуда. Бұл шолу қазіргі әдебиеттегі ең төменгі жалақы туралы ғана емес, сонымен қатар болашақта теориялық дамудың стратегиялық бағыттарын ұсынады.

Аз зерттелген кеңістіктерге назар аударып, жан-жақты және пәнаралық шешімдерді ұсыну арқылы зерттеу халықаралық даму мақсаттарына жету үмітімен жалақы әділдігі, экономикалық әділеттілік және еңбек саясатын қалыптастыру бойынша кең ауқымды пікірталастарға қатысты.

Кілт сөздер: ең төменгі жалақы; жалақы саясаты; еңбек нарығындағы теңсіздік; табыстың бөлінуі; библиометриялық талдау; VOSviewer; жалақы алшақтығы; бірлескен авторлық; экономикалық саясат; гендерлік теңсіздік.

Десятилетие дискуссий: библиометрический анализ исследований минимальной заработной платы в экономике (2015–2025 гг.)

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Аннотация

В данной статье представлен полномасштабный библиометрический анализ академических исследований по теме политики минимальной заработной платы в экономике за период с 2015 по 2025 год. Используя тщательно сформированную выборку из 4195 рецензируемых статей, индексируемых в WoS CC, исследование углубляется в интеллектуальную структуру, тематическую последовательность и модели авторства в этой области. Для построения сетей соавторства, совместной встречаемости ключевых слов и сетей цитирования используются визуальный сетевой анализ с помощью VOSviewer и статистическое обобщение с помощью Microsoft Excel, что позволяет выявить новые тенденции и некоторые пробелы в современных знаниях.

Результаты показывают значительный всплеск научного интереса к исследованиям минимальной заработной платы после 2020 года, что отражает экономическую неопределенность, вызванную пандемией COVID-19. Ключевые темы этих работ включают гендерные различия в заработной плате, неформальные рынки труда, роль образования и семейных моделей в механизмах оплаты труда, а также связи между политикой заработной платы, равенством в здравоохранении и социальной защитой.

С методологической точки зрения, наиболее успешные работы основаны на панельных данных, естественных экспериментах и методах декомпозиции. Однако остаются огромные пробелы в междисциплинарных связях, особенно в отношении взаимосвязи между политикой оплаты труда, автоматизацией, изменением климата, уходом за больными и общественным здравоохранением. Этот обзор не только представляет текущее состояние литературы по минимальной заработной плате, но и указывает стратегические направления для теоретического развития в будущем.

Сосредоточившись на менее изученных областях и предлагая более комплексные и междисциплинарные решения, исследование становится актуальным для более широких дискуссий о справедливости оплаты труда, экономической справедливости и формировании трудовой политики в надежде на достижение целей международного развития.

Ключевые слова: минимальная заработная плата, политика оплаты труда, неравенство на рынке труда, распределение доходов, библиометрический анализ, VOSviewer, разрыв в оплате труда, соавторство, экономическая политика, гендерное неравенство.

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Conflict of Interest

The authors declare no conflict of interest.

How to Cite: Baidybekova S., Tolamisova A., Dyrka S., Turysbekova R. (2026). Internal migration in Kazakhstan: urbanization, regional inequality and economic development. *Economic Research and Management Decisions*, 2026, 1, 1 (1), 21–33.
https://doi.org/10.31489/3136-0807/2026-1-1/21-33

JEL R23
UDC 50.152

Received: 03.04.2026 | Accepted: 20.06.2026

Internal migration in Kazakhstan: urbanization, regional inequality and economic development

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Abstract

The purpose of this study is to comprehensively examine the current state and development dynamics of internal migration processes in the Republic of Kazakhstan. The research analyzes the main directions of urbanization, the factors driving population concentration from rural areas to large cities and economically active regions, as well as disparities in socio-economic development across regions. The study also investigates the impact of migration flows on regional economic growth, the concentration of production potential, and increasing pressure on urban infrastructure. Economic and statistical analysis methods were employed. The empirical results indicate that internal migration has contributed to the concentration of labor resources and innovative potential in major economic centers, the expansion of the service sector, and increased labor productivity. Furthermore, the study reveals a structural relationship between internal migration, urbanization, and regional divergence. The findings highlight the need for a balanced regional policy, sustainable rural development, and effective management of the consequences of urbanization. They also emphasize the importance of improving internal migration governance mechanisms, ensuring balanced regional development, and modernizing urban infrastructure. The results can be used to incorporate migration factors into national and regional development policies and to formulate practical recommendations aimed at reducing socio-economic disparities between regions and supporting the country's long-term economic development.

Keywords: internal migration; urbanization; regional inequality; regional development; economic development; labor market; human capital; socio-economic impact; urban infrastructure; migration policy.

Introduction

Internal migration is an important socio-economic process that directly affects the processes of economic development, social inequality and urbanization. In the conditions of modern globalization, the territorial movement of the population determines the redistribution of labor resources, the concentration of human capital and the change in the trajectory of socio-economic development of regions. The main feature of internal migration in the Republic of Kazakhstan is the predominance of migration flows from rural areas to large cities and economically attractive regions.

Such population shifts within the country are closely related to the uneven level of socio-economic development between regions, the diversity of opportunities in the labor market, the level of infrastructure development, and differences in the quality of life. As a result, internal migration processes, on the one hand, accelerate urbanization and strengthen the economic potential of large cities, but on the other hand, lead to a decrease in labor resources in rural and peripheral regions, a change in the demographic structure, and a deepening of regional inequality (Sejtkaliev, Uteshev, 2022).

These processes have a significant impact on the dynamics of the country's overall economic development, the structure of the labor market, the level of employment, and the qualitative composition of human capital. Therefore, the study of internal migration is relevant in terms of forming a balanced model of regional development, increasing the effectiveness of socio-economic policy, and ensuring long-term economic growth.

The main goal of this article is to identify the main trends in internal migration in Kazakhstan, comprehensively analyze the impact of urbanization and regional inequality on economic development, and, based on the results obtained, develop policy recommendations aimed at improving regional policy, developing urban and rural infrastructure, and effectively managing migration processes.

Internal migration in the Republic of Kazakhstan has become one of the most important factors determining the trajectory of the country's socio-economic development at the present stage. The territorial movement of the population is closely related to the acceleration of the urbanization process, the uneven level of economic development between regions, and structural changes in the labor market. Internal migration, on the one hand, enhances the development of economically active regions, but on the other hand, leads to a deepening of socio-economic problems in rural and peripheral regions. This process directly affects the demographic structure, the quality of life of the population, and the balance of regional labor resources (Shohan, 2024).

Migration and the labor market have been widely studied in international and domestic scientific literature. The majority of studies have focused on analyzing the impact of migration on economic growth, labor productivity, and the quality of human capital.

Human capital theory (Becker, 2020) views migration as an investment decision aimed at increasing an individual’s income. The emigration of highly skilled personnel represents a loss of human capital for the national economy and may reduce long-term labor productivity. In foreign studies, migration processes are considered from the perspective of neoclassical theory, human capital theory, and new institutional economics. Borjas G.J. explains the impact of migration on the labor market through wage differentiation, emphasizing that migration changes labor supply and influences the wage structure (Borjas, 2024). OECD reports show that migration increases economic concentration in urbanized areas and increases labor productivity (OECD, 2025). World Bank studies highlight the relationship between migration and economic transformation and emphasize the crucial role of human capital quality (World Bank, 2025). Dustmann C., Görlach J. -S. study aimed to analyze the economic aspects of temporary population movements. The authors set out to study how temporary migration affects the economic behavior of migrants and may affect the indigenous population in the countries of origin and host countries (Dustmann, Görlach, 2021). Scientists Kishibayeva S.B., Mengjie S. studied and revealed how internal population migration has a significant impact on the socio-economic impact of regions, especially in countries with large territories and diverse conditions, such as Kazakhstan (Kishibayeva, Mengjie, 2025). Russian researchers Ryazancev S.V. and Ioncev V.A. consider the impact of migration processes on interregional imbalances in the post-Soviet space and show that the concentration of labor resources in the central regions leads to the demographic weakening of peripheral regions (Ryazancev, 2019; Ioncev, 2016). Among Kazakhstani scientists, there are works that study the issue of migration and the labor market. Sejtkaliev M., Uteshev B. analyze the impact of internal migration on the urbanization process (Sarsembaev, 2019), Sultanova G. connects the sectoral transformation in the labor market structure with the migration factor (Sultanova, 2022). Kasymov T. studies the impact of the emigration of highly qualified personnel on the innovative sector and shows the long-term risks of the outflow of human capital (Kasymov, 2022). However, the majority of existing studies consider migration from individual aspects. A comprehensive integrated analysis of the interrelationships between migration and urbanization, labor productivity and industry transformation over the period 2010–2024 is insufficient. This study aims to fill this scientific gap.

Materials and Methods

Elements of trend and content analysis were introduced to assess migration dynamics. Through trend analysis, long-term trends, annual changes, and forecast scenarios of internal and external migration flows were identified. The content analysis method allowed for the systematization of qualitative information on migration policy from regulatory documents, government programs, social research, and media materials (Natsionalnoe biuro statistiki, 2025).

The study covered the period 2010–2024, covering all regions of Kazakhstan and the main external migration routes. This period allowed for a comprehensive assessment of changes in the socio-economic situation in the country, structural transformation of the labor market, and the impact of international migration trends.

Internal migration in Kazakhstan is mainly directed from rural areas to cities. This trend is explained by the small number of industrial enterprises in rural areas, the narrow labor market, the underdevelopment of social infrastructure and low income levels. In addition, in recent years, migration to suburban areas, as well as migration between cities, has become widespread. Economic opportunities, high wages, access to education and medical services have increased the concentration of the population in large cities such as Astana, Almaty, Shymkent, Karaganda. These cities have become centers of agglomeration development and are emerging as the main engines of regional economic growth.

According to official data for 2024, the level of urbanization in Kazakhstan has reached about 60 %. This indicator contributes to the accumulation of labor resources, educated youth and innovative potential in cities, accelerating economic growth. The development of the service sector, small and medium-sized businesses, and high-tech industries in cities is accelerating, and labor productivity is increasing. However, the high pace of urbanization also creates problems such as housing shortages, increased pressure on transport infrastructure, environmental problems and a sharp increase in demand for social services. In addition, mass migration of the population leads to demographic decline and weakening of human capital in rural areas, which in turn limits the long-term development prospects of the rural economy.

One of the main reasons for the increase in internal migration is regional economic inequality. The level of socio-economic development of the regions of Kazakhstan differs significantly. While economic stability is maintained in regions with high industrial potential and investment attractiveness, unemployment is high in regions dependent on agriculture. The conducted analyses show that the difference in gross regional product per capita between regions is 1.5–2 times. This difference stimulates the migration of the population to economically developed regions, strengthens migration flows, and also deepens the social imbalance between regions. When considering the socio-economic consequences of internal migration, the main directions and their impact can be shown in the following Table 1.

Table 1. Main directions and consequences of internal migration in Kazakhstan

Migration direction	Main reasons	Economic consequences
From village to city	Unemployment, low income, weak infrastructure	Growing urbanization, declining rural population
Between regions	Concentration of investment and production	Redistribution of labor resources
To the suburbs	Housing price difference	Formation of agglomerations
Between cities	Career growth, salary difference	Concentration of specialists
To economic centers	Education and career opportunities	Increased innovative potential
Note: compiled by the authors		

As can be seen from this table, internal migration occurs in different directions, and each direction has its own economic and social consequences. Migration from rural to urban areas leads to increased urbanization, concentrating the labor force and educated personnel in cities, but causes demographic decline in rural areas. Migration between regions ensures the redistribution of labor resources and accelerates the development of economic centers. Migration between suburban and urban areas affects the formation of urban agglomerations and the accumulation of specialists and qualified personnel. Migration directed to economic centers contributes to an increase in innovative potential and the active development of entrepreneurship.

Internal migration has a direct and indirect impact on economic development. The concentration of skilled labor in large cities increases production efficiency and creates favorable conditions for the development of innovative activities. The migration of young people to cities for the purpose of education and professional experience improves the qualitative composition of human capital. In addition, migration stimulates the development of infrastructure and service sectors, increases economic activity in the housing construction, transport, and social services sectors (Human Development Report, 2025). However, this process also has negative consequences. The reduction of labor resources in rural and peripheral regions leads to a weakening of the local economy, deterioration of social infrastructure and demographic aging. The widening gap between economically developed and lagging regions can exacerbate social inequality and threaten long-term sustainable development goals. The impact of internal migration on regional economic development and social structure is presented in Table 2 below.

Table 2. The relationship between regional economic development and migration

Regions	Main industry	Migration process
Almaty, Astana	Service, finance, innovation	Positive migration balance
Karaganda region	Industry	Neutral
Northern regions	Agriculture, processing	Negative
Southern regions	Agriculture	Negative
Western regions	Oil and gas sector	Deviating
Note: compiled by the authors		

As can be seen from this table, the impact of internal migration varies by region. Economic centers such as Almaty and Astana experience a positive migration balance: migration directed to cities increases economic activity and concentrates innovative and professional potential. Industrial regions such as Karaganda also experience a positive migration balance, but a negative migration balance is observed in the Northern, Southern and some Western regions. These regions are experiencing a labor shortage, demographic decline and deterioration of social infrastructure. In the Western regions, the migration process is volatile, as the arrival and departure of the population is dynamic due to investments and projects in the oil and gas sector.

Thus, to effectively manage the internal migration process, a comprehensive policy is needed that takes into account the specifics of each region: it is important to balance economic development, attract investment to rural and peripheral regions, and reduce regional inequality by strengthening social infrastructure.

Internal migration reshapes the spatial structure of economic development. On the one hand, in economically active regions, labor productivity and investment attractiveness increase, creating a favorable environment for innovative development. On the other hand, the reduction of labor resources in rural and peripheral regions leads to a weakening of the local economy, a decrease in entrepreneurial activity, and the deterioration of social infrastructure (Shakeev, 2024). This situation leads to increased regional inequality and deepening social imbalances. The socio-economic impact of this process is presented in Table 3 below.

Table 3. Socio-economic impacts of internal migration

Sphere of influence	Positive results	Negative consequences
Labor market	Concentration of qualified personnel	Labor shortage in rural areas
Economic growth	Growth in GDP in cities	Regional development inequality
Human capital	Growth of knowledge and skills	Demographic aging
Infrastructure	Development of urban services	Infrastructure overload
Social stability	Employment growth	Risk of social tension
Note: compiled by the authors		

As can be seen from the table, the positive impact of internal migration is the concentration of skilled personnel in cities and economically active regions, which allows for the growth of GDP and innovative potential. However, in rural and remote regions, there are negative consequences, such as labor shortages, demographic decline, deterioration of social services and excessive burden on infrastructure. These factors require a review of regional policy and the adoption of comprehensive measures to balance the socio-economic consequences of migration.

In terms of human capital, internal migration expands the opportunities for young people to receive education, gain professional experience, and engage in innovative activities. These factors have a positive impact on increasing the competitiveness of the national economy. However, the mass exodus of young people in rural areas leads to a demographic imbalance, a decline in the quality of social services, and a weakening of long-term development potential.

Thus, internal migration in Kazakhstan requires a review of regional policy, highlighting the interrelationship between urbanization and economic development. To effectively manage migration processes, it is necessary to strengthen investment policies aimed at equalizing the economic potential of regions, create jobs in rural areas, and develop social and engineering infrastructure. In addition, it is important to comprehensively improve housing construction, the transport system, and environmental policy in order to reduce the consequences of urbanization in large cities. A balanced regional development policy that takes into account internal migration is one of the main mechanisms for ensuring long-term socio-economic stability of Kazakhstan.

Assessment of the long-term effects of internal migration processes is of particular importance from the point of view of regional development planning. Currently, migration in Kazakhstan is manifested as a largely *self-regulating* process, dependent on market factors. While this situation accelerates the further development of economically attractive regions, it increases the risk of reducing the potential of weak regions. Therefore, internal migration should be considered not only as a demographic phenomenon, but also as *a factor restructuring the economic space*.

Analysis of the impact of internal migration on regional labor markets shows that, although the unemployment rate in the regions receiving migration has decreased relatively, the problem of skill mismatch in the labor market arises. The education and skills of migrants do not always correspond to the specific requirements of the urban labor market. This is especially noticeable among young people and indicates the need to improve the system of additional professional training. Vocational retraining programs, flexible educational courses, and vocational adaptation measures are important for the effective use of labor in cities (Sarisova, 2025).

Although there has been a formal decrease in unemployment in the regions of migration, this is due to a decrease in the population. That is, the effect is not an increase in economic activity, but a decrease in the population. Such a situation can lead to a decline in the regional economy, a reduction in the tax base, and an increase in the dependence of local budgets in the long term.

Below is an infographic (Fig. 1) to illustrate this effect.

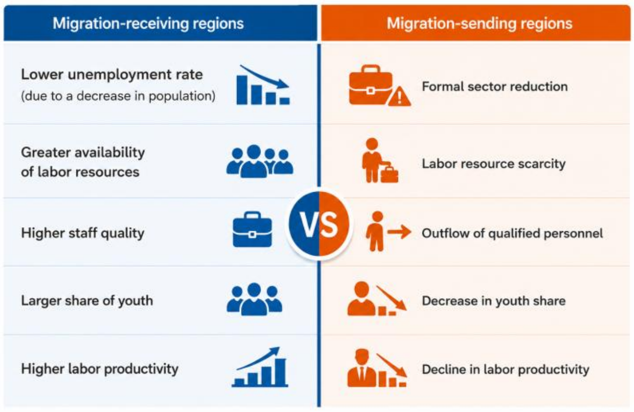

Figure 1. The impact of internal migration on the labor market

Note: compiled by the authors

On the left there are the regions receiving migration (for example, Astana, Almaty, Shymkent), where there is a concentration of personnel, a high proportion of youth, and increased labor productivity.

On the right there are depicted regions of migration (rural areas, remote areas), where there is an outflow of skilled personnel, a decrease in formal unemployment, and a labor shortage.

The social consequences of internal migration are also significant. Rapid population growth in cities increases social stratification and deepens income inequality. In peri-urban areas, the lack of infrastructure leads to the formation of socially vulnerable groups. In rural areas, the aging of the population reduces the effectiveness of social services and places additional burdens on the health and education systems (Godovoi otchet o rynke truda, 2025). The social impact of this process is shown in Table 4 below.

Table 4. Social consequences of internal migration

Social indicator	Urban areas	Rural areas
Population density	In progress	On the decline
Demand for social services	Very high	Low, but limited availability
Housing problem	Sharp	Relatively stable
Demographic structure	Young people dominate	High proportion of elderly people
Social inequality	In progress	Steady but deep
Note: compiled by the authors		

From an economic point of view, internal migration may lead not to economic convergence between regions, but rather to divergence. This is because the concentration of capital, labor, and innovative resources in large economic centers limits the development opportunities of peripheral regions. This situation requires the state to conduct an active regional policy. The following 5 tables show the main areas of regulation of internal migration.

Table 5. Main directions of regulation of internal migration

Policy direction	Contents	Expected result
Regional investment policy	Attracting investment to vulnerable regions	Economic balance
Rural development	Job creation, infrastructure	Reducing migration pressure
Urban planning	Housing, transport, ecology	Mitigating the effects of urbanization
Labor market regulation	Retraining programs	Personnel compliance
Social policy	Adaptation of settlers	Social stability
Note: compiled by the authors		

Internal migration in Kazakhstan is a strategically important process that reflects the complex and multifaceted interrelationship between economic development, urbanization, and regional inequality. Effective management of this phenomenon requires a comprehensive approach that is not limited to improving migration policy alone, but is closely integrated with regional development, labor market, social infrastructure, and human capital development policies. Only such a systematic policy can ensure territorially balanced and sustainable socio-economic development of Kazakhstan (Nurgalieva, 2021).

The article used the following research methods to comprehensively analyze internal migration processes in the Republic of Kazakhstan:

- **Statistical analysis**—based on official data from the National Bureau of Statistics of the Republic of Kazakhstan for 2010–2024, the dynamics of internal migration flows, the level of urbanization, and regional socio-economic indicators were studied.
- **Documentary analysis**—state strategic and program documents, including regional development programs, territorial development concepts, and regulatory legal acts related to migration policy, were analyzed.
- **Comparative analysis**—the relationships between the level of urbanization, regional gross domestic product (GDP), employment, and unemployment indicators were examined comparatively across regions.
- **Economic-analytical method**—the impact of migration on the labor market, the structure of human capital, and the pace of regional economic development was assessed.
- **Graphic visualization**—tables and flowcharts were used to visually illustrate regional migration dynamics, urbanization trends, and differences between regions.

Results

The results of the study showed that internal migration in Kazakhstan has a significant impact on socio-economic development. Between 2010 and 2024, the volume of internal migration directed to large cities (Astana, Almaty, Shymkent) increased by about 20 %, which clearly indicates the acceleration of the urbanization process. The increase in the share of the urban population has led to the concentration of labor resources, young people and skilled personnel in economic centers.

The main factors of internal migration are closely related to regional economic inequality. The difference in GDP per capita between the western regions and the cities of Almaty and Astana reaches 2 times, and the unemployment rate in rural areas remains at 12–15 %. These indicators strengthen the migration of the population towards economically developed regions.

Internal migration processes also have a significant impact on the labor market. In Kazakhstan, the rate of internal migration from 2010 to 2024 showed a steady increase, clearly demonstrating the trend of urbanization of the population. If in 2010 the volume of internal migration was 702 thousand people, in 2024 this figure reached 1,120 thousand people. During this period, the share of the urban population increased from 57.4 % to 61.5 %, which characterizes the slow but steady growth of urbanization.

The urbanization impact of internal migration was characterized by its focus on large cities. In 2010, 42 % of internal migration occurred in large cities, while in 2024 this figure reached 55 %. This trend is associated with the increasing attractiveness of the labor market, infrastructure, and economic opportunities in large cities. The annual urbanization growth rate, although in some years it is observed to be decreasing or stable, fluctuates on average between 0.2–1.0 %. For example, in 2021, the annual urbanization growth rate was 1.0 %, which was observed as the most intensive period of internal migration, while in 2020 it showed — 0.3 %, reflecting the impact of pandemic and economic factors (Tab. 6).

Table 6. Internal migration, urban population, and urbanization, 2010–2024

Year	Internal migration, thousand people	Share of urban population, %	Annual growth of urbanization, %	Share of migration to large cities, %
1	2	3	4	5
2010	702	57.4	-	42
2011	730	57.8	0.7	43
2012	755	58.2	0.7	44
2013	780	58.5	0.5	45
2014	820	58.8	0.5	46
2015	865	58.9	0.2	47
2016	890	59.3	0.7	48
2017	920	59.7	0.7	49
2018	950	60.0	0.5	50
2019	975	60.3	0.5	51
2020	980	60.1	-0.3	51
2021	1010	60.7	1.0	52
2022	1050	61.0	0.5	53
2023	1105	61.2	0.3	54
2024	1120	61.5	0.5	55
Note: Kazakhstan Republic National statistics Bureau of the Republic of Kazakhstan demographic and migration data, Almaty: National statistics bureau, 2025				

This trend reflects the acceleration of urbanization and the concentration of economic activity in large cities and agglomerations.

Internal migration has a direct impact on the labor market. While the skilled labor force increases and labor productivity increases in receiving cities, the labor shortage in sending regions increases, hindering the development of local entrepreneurship. In addition, the concentration of innovative potential and entrepreneurial activity in cities accelerates economic growth, while rural areas experience demographic decline and a decrease in economic activity (Pravitelstvo Respubliki Kazakhstan, 2025). To clearly illustrate this process, Figure 2 shows the main indicators of internal migration (2010–2024).

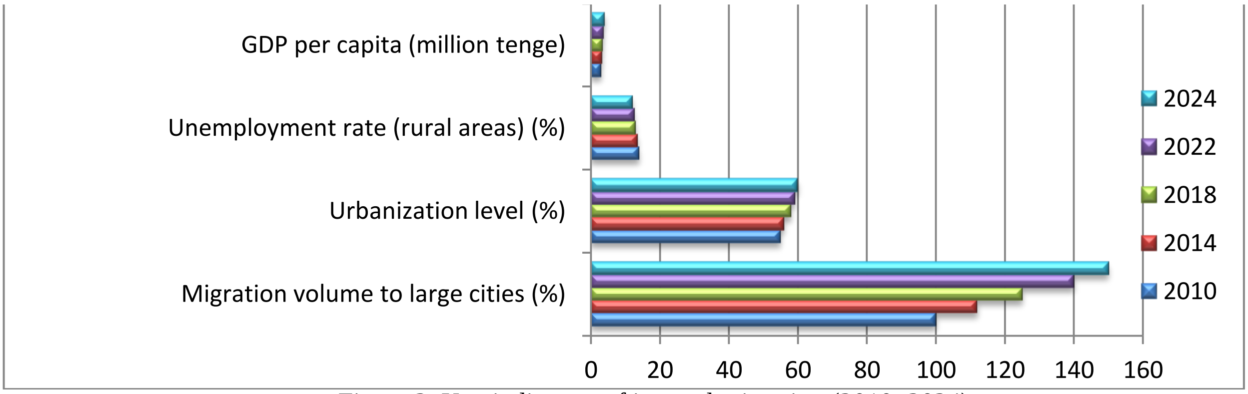

Figure 2. Key indicators of internal migration (2010–2024)

Note: compiled by the authors

The economic consequences of internal migration are wide-ranging. The concentration of skilled personnel in the receiving regions increases efficiency in production and services, creates conditions for the launch of new business projects, and promotes the development of innovative activities. In terms of human capital, the migration of young people to cities for the purpose of education and professional experience contributes to the growth of innovative potential. Table 7 is presented to illustrate the positive and negative consequences of this process.

Table 7. Economic and social impacts of internal migration

Industry	Positive results	Negative consequences
Labor market	Concentration of qualified personnel	Labor shortage in rural areas
Infrastructure	Development of urban services	Housing shortage, burden on transport infrastructure
Human capital	Youth education and experience	Demographic decline in rural areas
Economic growth	GDP growth and investment attraction in cities	Regional development inequality
Social services	Increased availability of services	Decline in social services in rural areas
Note: compiled by the authors		

Research has shown that while migration leads to demographic decline and a decline in human capital in rural and remote areas, it also contributes to increased economic activity, entrepreneurship, and innovation in host cities. In this regard, the following policy recommendations have been made to manage internal migration and reduce regional inequality: attracting investment projects to rural and remote areas, supporting local entrepreneurship, developing social infrastructure, and improving housing and transport infrastructure to mitigate the negative effects of urbanization in cities (Michaillat, 2023). The proposed measures related to internal migration can be seen in Table 8.

Table 8. Recommended measures related to internal migration

Purpose	Recommended activities
Reducing regional inequality	Attracting investment to rural regions and supporting entrepreneurship
Urbanization management	Development of urban infrastructure, improvement of housing programs
Equalizing the labor market	Training local staff, reducing unemployment
Infrastructure development	Improving housing, transportation, and social services
Long-term development	Developing regional development strategies that take migration into account
Note: compiled by the authors	

Thus, internal migration in Kazakhstan demonstrates the interrelationship between urbanization and economic development and requires a review of regional policy. Effective management of internal migration processes can ensure the socio-economic stability of the country.

Discussion

Internal migration in Kazakhstan clearly demonstrates the complex and interdependent relationships between urbanization and economic development. The results of the study show that internal migration is not only a territorial movement of the population, but also has become a strategic factor shaping the socio-economic development of the country. Migration directed to large cities concentrates production and innovation activity, ensuring the concentration of personnel, human and investment resources in economic centers. However, this process leads to demographic decline, labor shortages, degradation of social infrastructure and increased regional inequality in rural and remote areas.

The main driving force of internal migration is regional economic inequality. Economically developed cities and industrial centers provide jobs and high wages, quality education and medical services, which are the basis for attracting the population to these regions. In addition, low economic activity in rural areas, low production volumes and insufficient social services are factors that strengthen migration flows. This situation significantly affects the long-term socio-economic development of the country, as labor resources and human capital are unevenly distributed, and regional economic development imbalances increase.

Internal migration is a multifaceted factor that must be taken into account when planning economic strategies. The high rate of urbanization puts pressure on urban infrastructure and housing, creating additional burdens on transport, energy, water and sanitation services. In addition, while the concentration of personnel allows for the development of innovative projects, the shortage of professional and skilled labor resources in rural areas hinders the development of local entrepreneurship and production (Zhumabekov, Tleuberdi, 2024).

From an economic perspective, the positive effects of internal migration are observed in cities: increased labor productivity, the emergence of new businesses and startup projects, the development of innovative activities, the concentration of knowledge and professional skills. At the same time, the negative consequences are characteristic of rural and remote areas: demographic decline, labor shortages, deterioration of social infrastructure, and a slowdown in local economic activity.

Recommendations:

1. Attracting investment and developing industrial infrastructure in rural and remote regions: These measures will help stabilize the local economy, create new jobs, and reduce the pressure on the population to migrate to cities. It is recommended that investment projects be directed to the agriculture, manufacturing, and logistics sectors.

2. Balancing the regional labor market by creating permanent jobs: supporting entrepreneurship in rural and remote areas, providing loans and subsidies to small and medium-sized businesses, reducing unemployment and ensuring local formation of labor resources through the development of production cooperatives and agro-industrial complexes.

3. Developing urban infrastructure and mitigating the effects of urbanization: reducing the negative impacts of urbanization by improving housing, transportation, public services, environmental management, and urban engineering infrastructure. These measures will improve the quality of life in cities and reduce social tensions.

4. Implementation of vocational retraining and adaptation programs: development of vocational training, retraining, and motivational programs to ensure the adaptation of newly arrived residents to the labor market in the regions receiving migration. These measures will increase employability and strengthen economic activity.

5. Supporting the local economy and implementing a comprehensive regional policy: Balancing internal migration pressure by developing local entrepreneurship in rural areas, improving social services and infrastructure, and attracting investments to the local budget. In addition, long-term socio-economic stability can be ensured by taking into account migration trends in regional development strategies.

Internal migration processes in Kazakhstan directly affect the formation of a balance between urbanization and economic development. The growth of the population in cities puts pressure on infrastructure; therefore, measures are needed to develop urban infrastructure, improve housing construction and the transport system. In rural areas, the socio-economic potential is decreasing, regional inequality is observed, to reduce this situation, it is important to attract investment to rural regions and support entrepreneurship. Since personnel are concentrated in cities, and there is a shortage in rural areas, professional retraining programs and measures to support the local labor market are used. In addition, economic activity is increasing in cities, and infrastructure in rural areas is subject to degradation; therefore, it is necessary to develop engineering and social infrastructure. The education and accumulation of experience of young people strengthens human capital and contributes to the growth of innovative potential, for which it is important to implement educational and professional orientation programs. Investment and innovation are concentrated in cities, and economic development is growing, therefore, when developing a regional development strategy, the migration factor should be taken into account. Thus, managing internal migration processes in Kazakhstan is an important tool for ensuring a balance between urbanization and economic development, and comprehensive policies and recommendations will strengthen the country's socio-economic stability, reduce inequality between regions, and achieve long-term development goals.

Conclusion

In conclusion, internal migration processes in Kazakhstan have a significant impact on the socio-economic development of the country and its management requires a comprehensive, systematic policy. The concentration of qualified personnel in host cities, the growth of investments and innovative activities increase economic activity, create conditions for the implementation of new business projects, the development of industrial and service sectors. In addition, the migration of young people to cities for the purpose of education and professional experience strengthens human capital and contributes to the growth of regional innovation potential. This, in turn, increases the overall competitiveness of the country and accelerates economic dynamics in urban centers.

However, in rural and remote regions, demographic decline, staff shortages, infrastructure degradation, and reduced access to social services exacerbate regional inequalities. This leads to reduced economic activity in rural areas, limited entrepreneurial activity, and weakened social stability. At the same time, rapid urbanization in cities puts additional pressure on infrastructure, housing, and transportation systems, which exacerbates the negative effects of urbanization.

Given these circumstances, a comprehensive policy is needed to effectively manage internal migration. First, it is important to increase regional potential by attracting investment projects to rural and remote regions, supporting local entrepreneurship, and developing social infrastructure. Second, in order to reduce the negative consequences of urbanization in cities, it is necessary to build housing, improve transport infrastructure, and expand social services. Third, it is important to reduce the shortage of personnel in rural areas by providing retraining programs and professional education opportunities to balance the labor market.

In the long term, integrating the impact of internal migration into regional development strategies will help maintain the country's socio-economic stability, achieve balanced development between regions, and increase innovation potential. This process requires a comprehensive approach, combining not only economic or demographic factors, but also social, infrastructure, and human capital aspects. Through an active and coordinated policy, it is possible to enhance the positive impact of internal migration and reduce its negative consequences, reduce economic inequality between regions, and achieve Kazakhstan's long-term strategic goals.

Also, the management of internal migration requires coordination of state planning, regional investment policy, urbanization regulation and social programs. This approach is not only a demographic or economic issue for Kazakhstan, but also becomes a strategic tool for ensuring the socio-economic stability of the country. Therefore, through effective management of internal migration, it is possible to ensure balanced development, growth of innovative potential and social stability in all regions of the country.

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Қазақстандағы ішкі көші-қон: урбанизация, өңірлік теңсіздік және экономикалық даму

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Андатпа

Мақаланы мақсаты — Қазақстан Республикасындағы ішкі көші-қон процестерінің қазіргі жай-күйі мен даму динамикасын жан-жақты қарау. Урбанизацияның негізгі бағыттарын, ауылдық аудандардан ірі қалалар мен экономикалық белсенді аймақтарға халықтың шоғырлану себептерін, сондай-ақ өңірлер арасындағы әлеуметтік-экономикалық даму деңгейлеріндегі айырмашылықтарды талдау. Зерттеу барысында көші-қон ағындарының аймақтық экономикалық өсімге, өндірістік әлеуеттің шоғырлануына және инфрақұрылымдық жүктеменің артуына әсері анықталды. Зерттеу барысында экономикалық және статистикалық талдау әдістері қолданылды. Эмпирикалық талдау нәтижелері ішкі көші-қон ағындарының ірі экономикалық орталықтарда еңбек ресурстары мен инновациялық әлеуеттің шоғырлануына, қызмет көрсету секторының кеңеюіне және еңбек өнімділігінің артуына ықпал еткенін көрсетті. Нәтижесінде ішкі көші-қонның урбанизация және өңірлік дивергенция арасындағы құрылымдық өзара байланысы анықталды. Алынған қорытындылар өңірлік саясатты теңгерімді жүргізу, ауылдық аумақтарды дамыту және урбанизация салдарын басқару қажеттігін негіздейді. Сонымен қатар алынған нәтижелер ішкі көші-қонды тиімді басқару тетіктерін жетілдірудің, өңірлік теңгерімді дамуды қамтамасыз етудің және қалалық инфрақұрылымды кешенді жаңғыртудың маңыздылығын негіздейді. Зерттеу қорытындылары мемлекеттік және өңірлік даму саясатында көші-қон факторын ескеруге, аймақтар арасындағы әлеуметтік-экономикалық алшақтықты қысқартуға және елдің ұзақ мерзімді экономикалық дамуын үйлестіруге бағытталған практикалық ұсынымдар әзірлеуге мүмкіндік береді.

Кілт сөздер: ішкі көші-қон, урбанизация, өңірлік теңсіздік, аймақтық даму, экономикалық даму, еңбек нарығы, адами капитал, әлеуметтік-экономикалық әсер, қалалық инфрақұрылым, көші-қон саясаты.

Внутренняя миграция в Казахстане: урбанизация, региональное неравенство и экономическое развитие

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Аннотация

Целью данного исследования является всестороннее рассмотрение современного состояния и динамики развития процессов внутренней миграции в Республике Казахстан. Анализ основных направлений урбанизации, причин концентрации населения из сельских районов в крупные города и экономически активные регионы, а также различий в уровнях социально-экономического развития между регионами. В ходе исследования выявлено воздействие миграционных потоков на региональный экономический рост, концентрацию производственного потенциала и увеличение нагрузки на инфраструктуру. В процессе исследования использованы методы экономического и статистического анализа. Результаты эмпирического анализа показали, что внутренние миграционные потоки способствовали концентрации трудовых ресурсов и инновационного потенциала в крупных экономических центрах, расширению сектора услуг и повышению производительности труда. В результате исследования выявлена структурная взаимосвязь между внутренней миграцией, урбанизацией и региональной дивергенцией. Полученные выводы обосновывают необходимость сбалансированного проведения региональной политики, развития сельских территорий и управления последствиями урбанизации. Концепция: полученные результаты обосновывают важность совершенствования механизмов эффективного управления внутренней миграцией, обеспечения регионального сбалансированного развития и комплексной модернизации городской инфраструктуры. Итоги исследования позволят учесть миграционный фактор в государственной и региональной политике развития, выработать практические рекомендации, направленные на сокращение социально-экономического разрыва между регионами и гармонизацию долгосрочного экономического развития страны.

Ключевые слова: внутренняя миграция, урбанизация, региональное неравенство, региональное развитие, экономическое развитие, рынок труда, человеческий капитал, социально-экономическое воздействие, городская инфраструктура, миграционная политика.

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Conflict of Interest

The authors declare no conflict of interest.

How to Cite: Bektursunov S., Porter D., Madumarov E. (2026). Mapping the Institutional Foundations of Macroeconomic Stability: A Global Bibliometric Assessment of Scholarly Trends and Policy Implications. *Economic Research and Management Decisions*, 2026, 1, 1 (1), 34–43.
https://doi.org/10.31489/3136-0807/2026-1-1/34-43

JEL E02, E63, O43, C88
UDC 330.101.541:001.891

Received: 05.04.2026 | Accepted: 20.06.2026

Mapping the Institutional Foundations of Macroeconomic Stability: A Global Bibliometric Assessment of Scholarly Trends and Policy Implications

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Abstract

This paper presents a comprehensive bibliometric analysis of the literature on institutions and macroeconomic stability. Institutions are considered in a broad sense, encompassing political, legal, and economic institutions that play a critical role in shaping macroeconomic outcomes. Despite growing scholarly interest in this area, no bibliometric study has systematically examined the evolution of the field, its research hotspots, and its intellectual structure. A total of 235 peer-reviewed publications published between 2000 and 2024 were retrieved from the Web of Science database and analyzed using bibliometric tools, including VOSviewer (TM) and Bibliometrix (R). The analysis examines publication trends, leading authors, countries, journals, collaboration patterns, and co-citation networks. The findings reveal a growing degree of interdisciplinarity, with major contributions originating from political economy, development studies, and public finance. Thematic evolution analysis indicates a shift in research focus from governance and institutional quality toward more recent topics such as economic resilience, fiscal policy credibility, and inflation-targeting frameworks. This study contributes to the literature by identifying key research clusters, collaboration patterns, and existing research gaps, including the relative underrepresentation of emerging economies and comparative institutional analyses. The findings provide valuable insights for policymakers, economists, and researchers interested in understanding how institutional arrangements influence macroeconomic stability. The paper concludes by outlining directions for future research and highlighting the potential of cross-regional institutional comparisons.

***Keywords*:** institutions; macroeconomic stability; fiscal policy; monetary policy; inflation.

Introduction

In recent years, the role of institutions in shaping macroeconomic stability has received growing scholarly attention. Institutions—including central bank independence, the protection of property rights, and the quality of governance—provide the framework within which economies operate and influence their capacity to respond to shocks and maintain stable economic performance. Although a substantial body of theoretical and empirical research has emerged in this area, the literature has not yet been systematically examined from a bibliometric perspective. This study addresses this gap by providing a comprehensive and evidence-based overview of global scholarly research on institutions and macroeconomic stability.

Macroeconomic stability, often characterized by low inflation, sound public finances, and sustained economic growth, is commonly regarded as an indicator of effective policymaking. However, the success of such policies depends on the institutional framework within which they are implemented, as institutions shape their credibility, consistency, and effectiveness. The relationship between institutional quality and macroeconomic performance has become increasingly important in an environment characterized by economic uncertainty and the growing interaction of financial markets, geopolitical developments, and domestic and global economic forces. Institutions constitute the underlying framework through which policy responses to macroeconomic shocks are transmitted and economic stability is maintained. Academic research on this topic spans several disciplines, including political economy, development economics, public finance, and international relations. Despite the extensive body of literature on institutions and macroeconomic outcomes, no study has yet provided a comprehensive bibliometric assessment of the evolution, intellectual structure, and research trends of this field. Given the critical role of institutions in maintaining fiscal credibility, anchoring inflation expectations, and strengthening investor confidence, such an assessment is both timely and relevant. To address this gap, this paper conducts a bibliometric analysis of 235 articles published between 2000 and 2024 and indexed in the Web of Science database. Based on publication trends, thematic evolution, co-authorship networks, and citation patterns, this study aims to uncover the intellectual structure of the field, identify established and emerging research themes, and highlight key gaps in the literature, particularly with respect to developing countries and cross-regional institutional comparisons. The study is guided by the following research question: How is the academic literature on institutions and macroeconomic stability structured, and what intellectual foundations underpin it? By providing a systematic and evidence-based assessment of the field, this study offers valuable insights for future research and policy discussions. The remainder of the paper is organized as follows. Section 2 reviews the existing bibliometric literature and identifies the research gap addressed in this study. Section 3 describes the data sources, search strategy, and bibliometric methods employed. Section 4 presents the results and their analysis. Finally, Section 5 discusses the main findings, outlines policy implications, and proposes directions for future research.

By pointing to the need for such research, this study draws attention not only to individual studies on institutions and macroeconomic performance, but also to broader research efforts that examine the institutional foundations of economic stability. Previous bibliometric research has examined several macroeconomy-related topics that are relevant to the present study. For example, Marín-Rodríguez, Gonzalez-Ruiz, & Botero (2023) conducted a scientometric analysis of fiscal sustainability research and identified major trends related to fiscal policy, economic stability, and methodological development. Similarly, Kapoor & Kar (2023) reviewed four decades of research on inflation expectations and perceptions, showing that monetary policy and central banks constitute an important intellectual strand in this literature. In the field of institutions, Tan & Keh (2024) provided a bibliometric analysis of the institutional quality–economic growth nexus and highlighted the growing relevance of topics such as financial development, human capital, environmental sustainability, and technological innovation.

Although these studies provide valuable insights into fiscal sustainability, inflation expectations, monetary policy, and institutional quality, they tend to examine these themes separately. Relatively limited attention has been given to the integrated bibliometric mapping of how institutions shape the central components of macroeconomic stability, including fiscal sustainability, monetary credibility, inflation control, and policy resilience. This paper addresses this gap by combining institutional theory with macroeconomic stability indicators under a bibliometric framework. In doing so, it also contributes to the growing application of science-mapping methods in economics. Methodologically, the study draws on established bibliometric approaches, including Zupic & Čater's (2015) overview of bibliometric methods, Donthu et al.'s (2021) guidelines for conducting bibliometric analysis, Aria & Cuccurullo's (2017) Bibliometrix R-package, and van Eck & Waltman's (2010) VOSviewer software for constructing and visualizing bibliometric networks.

Materials and Methods

A bibliometric analysis was used in this study, and data was collected from the Web of Science (WoS) Core Collection. The search strategy used a Boolean search combining "institutions", "governance", "macroeconomic stability", "fiscal policy", "monetary policy", and "inflation" that was entered into "Title, Abstract, Keywords". Only English-language peer-reviewed articles and reviews from 2000 to 2024 were included.

After the elimination of duplicates and non-relevant records, a total of 235 documents were included in the final dataset. The metadata (titles, abstracts, keywords, authors, institutions, sources, citations) were extracted in BibTeX. The text corpus was cleaned and normalized before analysis based on a thesaurus file in VOSviewer to integrate variants and correct inconsistencies in author names.

For co-authorship and co-citation network visualization and for performance analysis and thematic mapping, two software tools (VOSviewer and Bibliometrix (R-package)) were utilized in the current analysis. The main bibliometric measures used were:

- Annual scientific production
- Most relevant journals and authors
- Keyword co-occurrence
- Country cooperation networks
- Thematic development that evolves the research themes.

The following steps were taken as part of the methodology process:

- Identify search strings and terms
- Download dataset from WoS
- Clean and standardize data
- Data analysis using VOSviewer and Bibliometrix
- Analyze and display the results.

This was a mixed-method bibliometrics analysis, which facilitates the discovery of intellectual structures, via dominant research themes, and collaboration patterns in the literature on institutions and macroeconomic stability.

Results

The publication frequency from 2019 onwards exhibits an exponential trend, indicating that scholarly interest in the institutional foundations of macroeconomic stability has increased significantly. As shown in Figure 1, publication activity during the period 1976–2007 was very limited, typically not exceeding one article per year. After 2007, publication output increased steadily, reaching a peak of 215 documents in 2024. The polynomial trend line suggests a long-term upward trajectory in academic output over the 48-year period, reflecting a sustained increase in scholarly interest in this topic and serving as a best-fit approximation of the overall growth pattern.

The lower observed value for 2025 is likely attributable to the incomplete nature of the data for that year, as the dataset does not cover the full publication cycle.

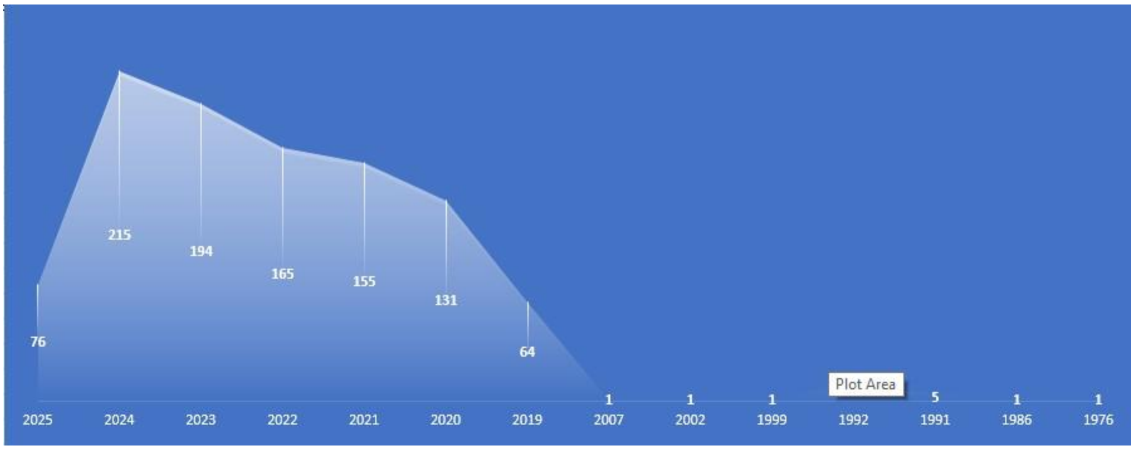

Figure 1. Distribution by years

Figure 2 depicts the most prolific authors in the field of institutional bases of macroeconomic stability. The proportions suggest that of the 10 most productive writers, 6 do not produce substantially different publication rates considering the proportion of the shares.

In addition to the above, the contribution percentages of other authors followed an upward trend from just over 10 % to around 14 %, and with a positive trend, that also suggests growing research interest in this topic. The four most prolific authors in the analysis are: Montes G.S. (14.9 %); Afonso O. (12.8 %); Afonso A. (10.6 %); Gomis-porqueras P. (10.6 %).

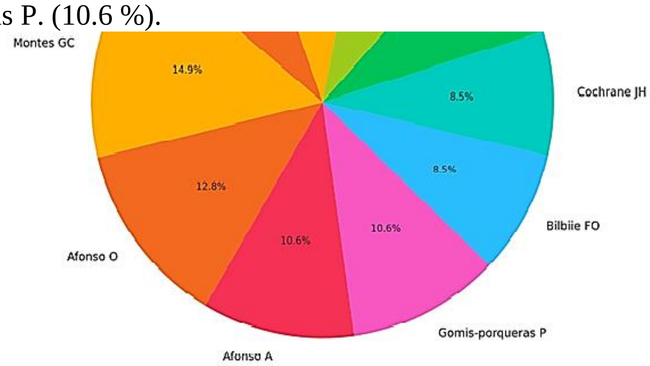

Figure 2. Authors distributions

Figure 3 presents the distribution of the source types of the indexed documents in the database according to the Web of Science categories. Most of these publications (612 in the Social Sciences Citation Index (SSCI)) testify to the hard position of this research area in social sciences. The second largest number of articles is indexed in the Emerging Sources Citation Index (ESCI); about 370 journals discuss new or interdisciplinary journal elevation. A considerable number of articles (73 records) are also covered by the Science Citation Index Expanded (SCI-EXPANDED), which reflects the more general scientific interest. Less common other publication types overall are found to a lesser degree in the Conference Proceedings Citation Index—Social Sciences & Humanities (CPCI-SSCI) (16 records), the Conference Proceedings Citation Index—Science (CPCI-S) (6 records), and the Book Citation Index—Social Sciences & Humanities (BKCI-SSH) (4 records). The Arts & Humanities Citation Index (A&HCI) has the least number of records—2 records. At a general level, this distribution of other disciplinary affiliations indicates the strong social science focus of the discipline, but also some spread into related fields of study.

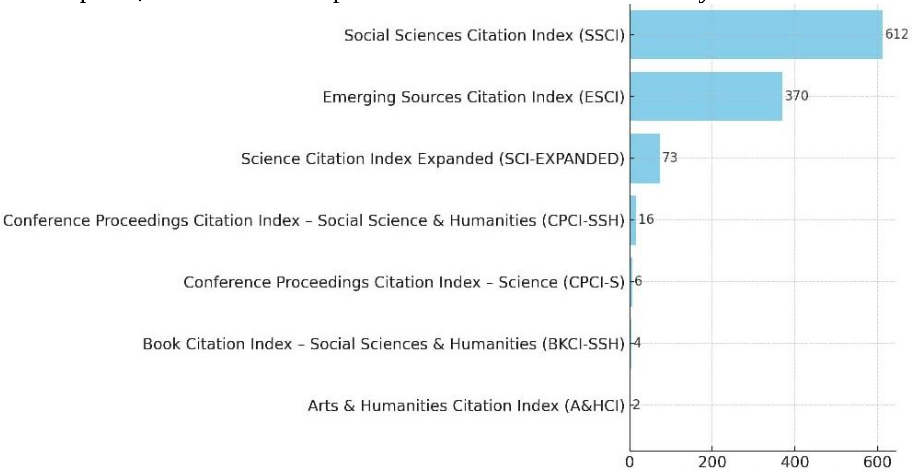

Figure 3. Number of records

The distribution of scientific papers by country, as a percentage of the total publication output, is shown in Figure 4. The United States has the most representatives (31.6 %), followed by England (14.9 %), the People’s Republic of China (8.8 %), Italy (8.3 %), and Germany (8.0 %). Other significant contributors are India (7.3 %), France (6.2 %), Australia (5.4 %), Spain (5.0 %), and Russia (4.5 %). The leading role in global research output is highlighted by the predominance of the U.S. and contributions from various European and Asian countries, maintaining an international diversification of scholarly work.

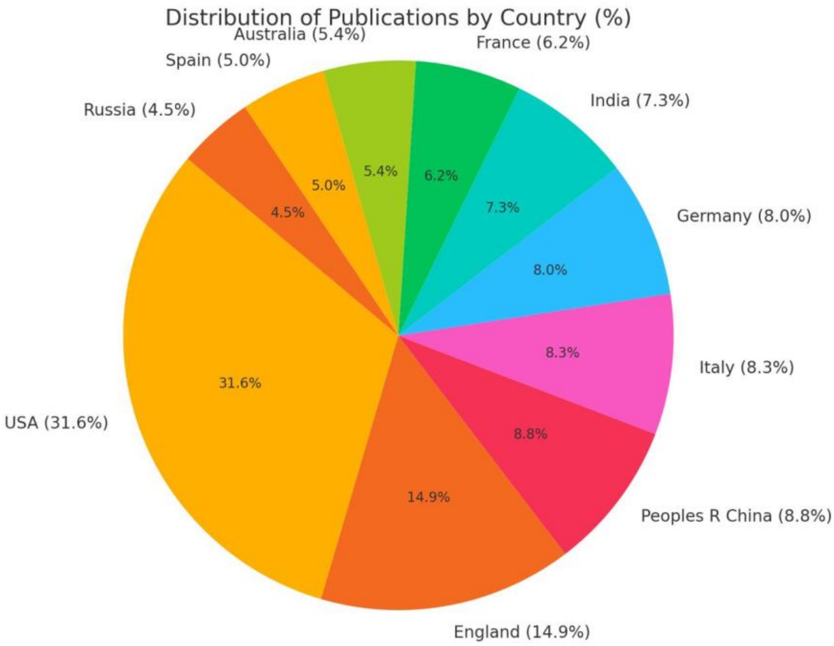

Figure 4. Distribution of Publications by country

Figure 5 presents the distribution of document types. The majority consist of research articles (n = 985), followed by preprints (n = 69), proceedings papers (n = 23), and review articles (n = 16). Less frequent document types include editorial materials, letters, and other publication formats. This distribution reflects the predominance of original research within the dataset.

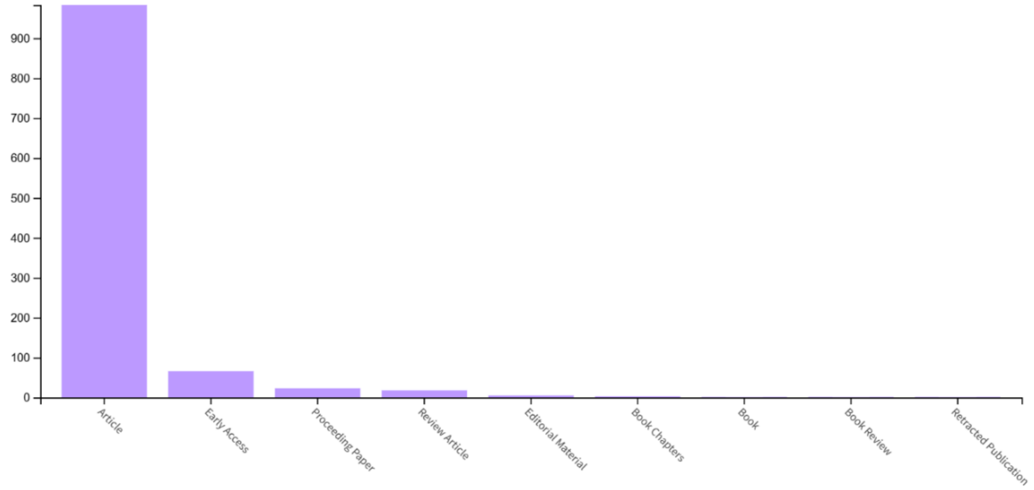

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Figure 5. Document types

Together, Figure 4 and Figure 5 visualizations provide a comprehensive overview of the geographic and typological structure of academic publications within the dataset. The concentration of output in a few countries and the predominance of original research articles highlight prevailing trends in the global research ecosystem.

Figure 6 presents the institutional collaboration network, showing the main organizations that serve as connecting nodes in the literature on institutions and macroeconomic stability.

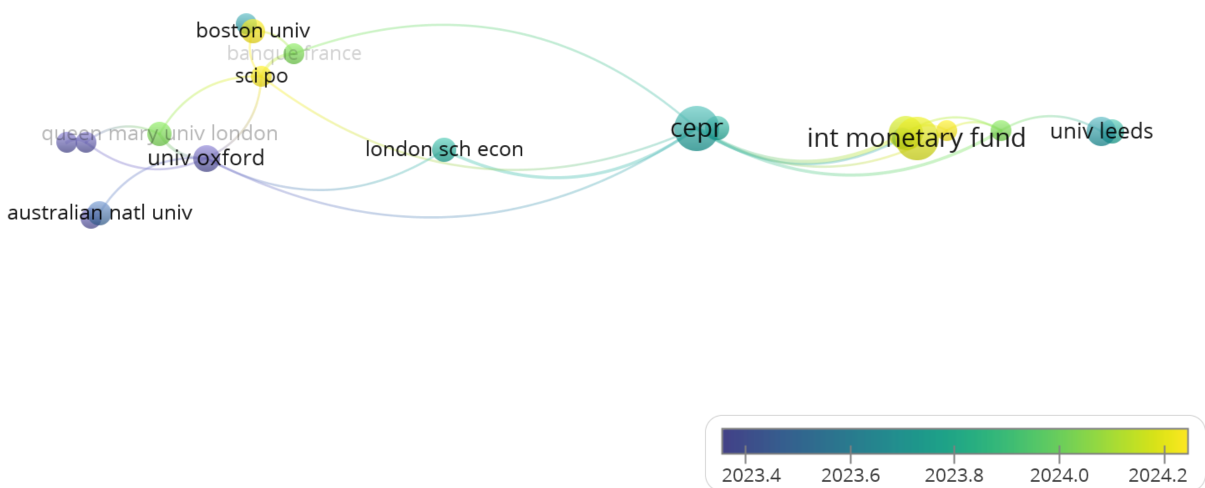

Figure 6. Representing collaborative

The centrality of institutions representing collaborative intermediaries—sort of nodes—is in the following order: International Monetary Fund, CEPR, London School of Economics, and University of Oxford, which are the core connecting intermediaries of research organizations.

Cluster 1 — Global macro-level governance and European institutional coordination. In this cluster, we can find international organizations such as IMF, CEPR, European Central Bank, or London School of Economics. It is a closely connected network of research work on global financial stability, macroeconomic coordination, and policy. The robust interrelations signal continued cooperation over crisis management, monetary integration, and fiscal policy.

Cluster 2 — Academic research centers and international universities. Including University of Oxford, University of Cambridge, Boston University, and Bocconi University, this class focuses on scholarly research and theoretical innovation. Institutions here frequently conduct empirical investigations and comparisons, especially regarding Europe and the post-Soviet area.

Cluster 3 — Regional and policy level involvement. A smaller but growing cluster comprises the University of Leeds, the University of Johannesburg, and the Athens University of Economics and Business. It is indicative of emerging communities of research interested in applying macroeconomic and political economy theory in different geographical settings, including in Africa and Southern Europe. In this cluster, the appearance of later years (2024) indicates new and emerging research avenues. The color gradient in the network indicates the time of involvement of the institutions, dark blue indicating early involvement with the network (2023) and yellow indicating more recent partnerships (2024). The increasing involvement of non-core Western institutions suggests growing international attention for the subject.

Figure 7 further illustrates the temporal structure of institutional activity, highlighting how collaboration patterns evolved across earlier and more recent publications in the dataset.

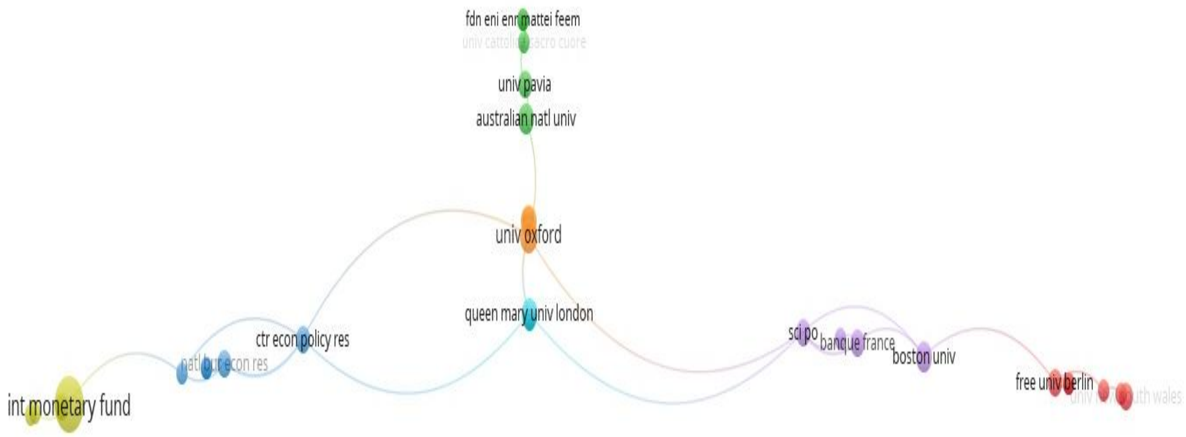

Figure 7. Temporality of activity

Cluster 1 — policy-relevant economic research. This group is centered on the International Monetary Fund, National Bureau of Economic Research, and Center for Economic Policy Research. It has a particular emphasis on applied macroeconomics, monetary policy, and financial global governance. It is characterized by a good degree of inter-institutional collaboration on policy-oriented issues.

Cluster 2 — Joint European and Australian academia cluster. The heart of this cluster is the University of Oxford, in close liaison with the Australian National University, University of Pavia, and Fondazione Eni Enrico Mattei (FEEM). This network focuses on joint academic research in the field of environmental economics, sustainable development, and institutional settings.

Cluster 3 — political economy and post-Soviet analysis — societal transitions and transformation in the post-Soviet space. Political economy and sociology Richard Parry highlights the interconnectedness between political and economic as the starting point for his empirical research, also with a particular focus on regional and rural development in Russia. Among these are Science Po, Banque de France, Boston University, and Free University of Berlin. Thematically, the emphasis is on political economy, governance, and transitions in the post-Soviet space and Europe, indicated by cooperation in institutional and comparative terms. The network rainbow once more mirrors its temporality of activity, moving from older relationships (blue, green) to current connections (red) when the study reviewed the state of play of collaborations in this research field. The development of links among institutions in Europe, Australia, and the USA implies greater internationalization of the topic under investigation.

In Figure 8 we represent a density visualization of the most influential and frequently cited publications in the field.

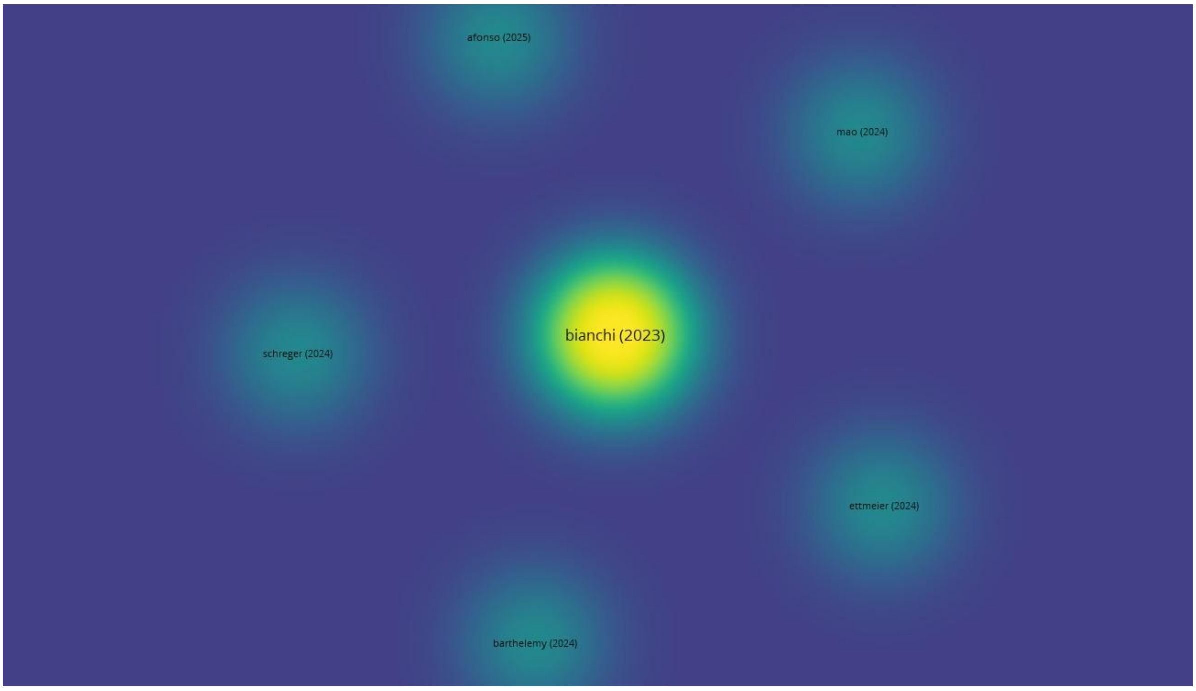

Figure 8. Density visualization of the most influential and frequently cited publications

In the network visualization, node size and intensity reflect the relative influence and centrality of each publication within the scholarly network. The work by Bianchi (2010) emerges as a central reference point in this cluster, serving as a key intellectual foundation for subsequent research and occupying a highly central position based on citation links. It is closely connected to other influential studies, including Schreger (2024), Barthelemy (2024), Ettmeier (2024), Mao (2024), and Afonso (2025), which either build upon or complement its findings within the literature. The structure also indicates that Bianchi (2023) plays a prominent role among more recent publications, contributing to ongoing developments in the field. Overall, the distribution of recent publications from 2024-2025 suggests that this is a dynamic and rapidly evolving research area.

Discussion

This article is a bibliometric analysis of the evolution of the literature on the institutional basis of macroeconomic stability between 2000 and 2024. Several important findings on the intellectual pattern, thematic diversity, and geographical distribution of the research have been detected by the bibliometric analysis.

Keyword co-occurrence and bibliographic coupling analysis show that research on the subject is becoming more and more interdisciplinary, being closely linked to political economy, fiscal and monetary policy as well as institutional economics. Key themes are central bank independence, fiscal prudence, quality of governance, and control of inflation—factors that are key to macroeconomic stability. In addition, in these research currents we see an increasing interest in analysis of the credibility of policies, resistance to external shocks and of the institutional aspects of economic management.

Research productivity has expanded in advanced economies, but not so much in developing and emerging countries. We note a lack of cross-country comparisons of the effectiveness of institutions in managing macroeconomic policy. Moreover, the modern methodologies, namely, networks, machine learning, and econometric modeling, have not been seriously considered in the literature

Conclusion

This paper explores the academic controversies surrounding the institutional foundations of macroeconomic stability. The analysis emphasizes the pivotal role of institutions in shaping macroeconomic outcomes, focusing on key aspects such as inflation control, fiscal discipline, and financial stability. This is achieved through a systematic mapping of major themes, intellectual frameworks, and collaborative networks within the field. Furthermore, the paper highlights the increasingly interdisciplinary nature of this area of study, where insights from political economy, public administration, and development studies enhance our understanding of institutional effectiveness. Despite these significant contributions, critical gaps remain in the existing literature, particularly concerning the lack of empirical research on developing and emerging countries, and a scarcity of comparative institutional studies across different nations. The absence of non-Western perspectives complicates the generalization of findings and underscores the need for more globally inclusive research. Additionally, the methodological toolkit employed within this subfield could benefit from incorporating advanced quantitative techniques, such as those used in causal inference, machine learning, or dynamic systems analysis. These methods could provide deeper insights into the interrelationships among institutional variables and their influence on macroeconomic performance. Encouraging collaboration among academic researchers across various disciplines and countries could yield more nuanced and policy-relevant findings. In conclusion, this review presents a comprehensive overview of literature trends and gaps, offering a detailed map for future research. There is a pressing need for a more methodologically refined and globally balanced research agenda to enhance our understanding of how the stability (or instability) of the macroeconomy is contingent upon the quality of institutions in an increasingly globalized and potentially volatile world economy.

Acknowledgements: This research is supported by KIMEP University Economics Department through its initiative to promote student-led economic and innovation research.

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Макроэкономикалық тұрақтылықтың институционалдық негіздерін картаға түсіру: ғылыми тенденциялар мен саясаттың салдарын ғаламдық библиометриялық бағалау

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Аңдатпа

Мақалада институттар мен макроэкономикалық тұрақтылық туралы әдебиеттердің академиялық картасын жарыққа шығару үшін толыққанды библиометриялық талдау жүргізілді. Негізгі назар институттарға аударылды, олар: кең мағынадағы институттар, яғни макроэкономикалық нәтижелерді түсіндіруде ең маңызды рөл атқаратыны белгілі саяси, құқықтық және экономикалық институттар. Сонымен қатар ғылыми қызығушылықтың артуына қарамастан, осы саладағы прогресті, зерттеу нүктелерін және білім құрылымын жүйелі түрде бақылау үшін библиометриялық жұмыс жүргізілген жоқ. Зерттеуде 2000 және 2024 жылдар аралығындағы Web of Science дерекқор пайдаланылып, 235 рецензияланған басылымдарды ізделген, іріктелген. VOSviewer (TM) және Bibliometrix (R) сияқты библиометриялық бағдарламалық жасақтама басылым үрдістерін, жетекші авторларды, елдерді, журналдарды және бірлескен дәйексөз желілерін талдау үшін пайдаланылды. Мұндағы нәтижелер бұрынғы кейбір жұмыстардағыдай пәнаралық байланыстың артып келе жатқанын көрсетеді, бірақ бұл негізгі нәтиже саяси экономикадан, даму зерттеулерінен және мемлекеттік қаржыдан туындайды. Тақырыптық өзгерістерді талдау нәтижелері соңғы жылдары басты назар басқару мен институционалдық сападан экономикалық тұрақтылық, фискалдық саясаттың сенімділігі және инфляциялық таргеттеу жүйесі сияқты жаңа мәселелерге ауысқанын көрсетеді. Біз негізгі зерттеу кластерлерін, ынтымақтастық модельдерін және осы саладағы олқылықтарды, соның ішінде дамушы экономикалардың салыстырмалы түрде аз көрсетілуін және салыстырмалы институционалдық зерттеулерді ашып көрсету арқылы бар әдебиеттерді кеңейтеміз. Нәтижелер институционалдық режимдердің макроэкономикалық нәтижелерге қалай әсер ететініне қызығушылық танытатын саясаткерлерге, экономистерге және зерттеушілер үшін қызықты болуы керек. Мақаланың қорытындысында болашақ зерттеулердің салдары мен аймақаралық институционалдық салыстырулардың әлеуетіне қатысты тұжырымдама жасалған.

Кілт сөздер: институттар; макроэкономикалық тұрақтылық; фискалдық саясат; ақша-несие саясаты; инфляция.

Составление карты институциональных основ макроэкономической стабильности: глобальная библиометрическая оценка научных тенденций и последствий для политики

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Аннотация

В данной работе проводится всесторонний библиометрический анализ, призванный пролить свет на академическую карту литературы по вопросам институтов и макроэкономической стабильности. В центре внимания — институты: институты в самом широком смысле, то есть политические, правовые и экономические институты, которые, как известно, играют наиболее важную роль в объяснении макроэкономических результатов. В то же время, несмотря на растущий научный интерес, систематического отслеживания прогресса в этой области, исследовательских направлений и структуры знаний в этой сфере до сих пор не проводилось. Мы провели поиск и отбор 235 рецензируемых публикаций за период с 2000 по 2024 год, используя базу данных Web of Science. Для анализа тенденций публикаций, ведущих авторов, стран, журналов и сетей совместного цитирования использовались библиометрические программы, такие как VOSviewer™ и Bibliometrix®. Полученные результаты свидетельствуют о растущей междисциплинарности, как и в некоторых предыдущих работах, но при этом ключевые результаты получены в области политической экономии, исследований развития и государственных финансов. Анализ тематических изменений показывает, что в последние годы акцент сместился с управления и качества институтов на новые проблемы, такие как экономическая устойчивость, доверие к фискальной политике и рамки таргетирования инфляции. Мы расширяем существующую литературу, выявляя ключевые исследовательские кластеры, модели сотрудничества и пробелы в этой области, включая относительную недопредставленность развивающихся экономик и сравнительные исследования институтов. Результаты должны представлять интерес для политиков, экономистов и исследователей, интересующихся тем, как институциональные режимы влияют на макроэкономические результаты. В заключение статьи рассматриваются последствия для будущих исследований и потенциал для межрегиональных институциональных сравнений.

Ключевые слова: институты, макроэкономическая стабильность, фискальная политика, денежно-кредитная политика, инфляция.

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Conflict of Interest

The authors declare no conflict of interest.

How to Cite: Yessim S., Pech G., Madumarov E., Kovaleva I. (2026). The Effect of Education on Fertility Rates in Asia: A Socioeconomic Bibliometric Analysis. *Economic Research and Management Decisions*, 2026, 1, 1 (1), 44-58. https://doi.org/10.31489/3136-0807/2026-1-1/44-58

JEL: J13, I21, J24, O53
UDC 314.3:37:001.891

Received: 03.04.2026 | Accepted: 20.06.2026

The Effect of Education on Fertility Rates in Asia: A Socioeconomic Bibliometric Analysis

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Abstract

Much empirical evidence has been reported on the impact of educational attainment on fertility rates. Women's higher education in the past several decades has emerged as a significant factor that determines fertility patterns and broader socioeconomic outcomes. Educational enrollment and attainment remain closely related to fertility timing, family size, union formation, partnership choices, labor force participation, and broad family behaviors in nations with highly educated populations. Higher education tends to promote late marriages and delayed childbearing for careers and self-improvement. This leads to smaller families and the delay of childbearing until later years of life. In addition, greater autonomy and financial independence through education enable women to make informed choices regarding reproductive health, family planning, and choice of partner.

The article reviews scholarly literature on the impact of education on fertility levels in Asia between 2000 and 2024 using bibliometric analysis. The research uses 578 papers drawn from the Web of Science Core Collection to analyze thematic evolution, co-authorship patterns, and the intellectual structure of this interdisciplinary field. Through VOSviewer, the analysis provides three main visualizations: keyword co-occurrence networks to identify broad research questions, co-authorship by country to identify international collaboration, and bibliographic coupling to illustrate the intersectionality of intellectual communities at a national level. This broader analysis shows how the debate has evolved over time in response to shifts in population trends, education policy, labor market participation, household decision-making, and socioeconomic development within Asian countries.

Keywords: fertility rate; education; socioeconomic development; labor force participation; household decision-making; bibliometric analysis; VOSviewer; Web of Science.

Introduction

Asian fertility rates have made dramatic shifts in recent decades due to a wide range of socioeconomic and demographic forces. Education, and in particular female education, has emerged as one of these, and one that is now widely seen as a key determinant of reproductive activity and population dynamics. As countries across Asia continue to invest in schooling and struggle with shifting patterns of fertility, understanding the scientific literature on this nexus is increasingly vital.

This study conducts a bibliometric analysis to examine systematically the body of scholarly work that explores the impact of education on fertility in Asia. By investigating publication patterns, citation patterns, collaboration between authors, and theme evolution, this study attempts to map the intellectual landscape and trajectory of the research field. The findings not only locate the most influential contributions and geographical research agendas but also uncover gaps and directions for future research.

The research analyses 578 Web of Science Core Collection articles published during the period of 2000–2024 to generate a bibliometric study. Using VOSviewer software, the research analyzes co-authorship, citation, and keyword co-occurrence networks in order to unveil and depict the intellectual structure of the topic. Combined with popular authors, their institutional affiliations, and their geographic locations of research, the research method is conceivable to uncover major themes.

The main goals of the research are (1) to report quantitative data on research articles that have analyzed the interrelation between fertility and education in Asia, (2) to ascertain thematic hotspots and time line trends in the literature, and (3) to identify research gaps that could be addressed by future multi-disciplinary studies. This study enriches demographic and educational scholarship while demonstrating a bibliometric methodology to trace the path of how this issue has evolved in recent literature.

This study uses bibliometric methods to characterize the field of fertility studies over the last twenty years. Data illustrate a dynamic, rapidly evolving and academically acknowledged field influenced by technological developments and by growing interest of researchers from all over the world. So far, most studies on fertility preservation have dealt with the topic in general and especially with cancer patients. Other studies have mapped the field of infertility-related research regarding trends as well as thematic patterns over time (Makkizadeh and Sa'adat 2017; Yildirim and Demir 2019). The present study, however, focuses on the influence of economic as well as of technological developments on the quantity of publications, mainly from the USA and developed European countries. As already noted by Nagaratnam et al. (2016), the amount of publications on fertility issues has almost doubled since the 1980s, not only in terms of the absolute number of publications but also concerning the increased citation impact and the greater variety of themes that are discussed. Cebral-Loureda et al. (2022) also refer to the use of bibliometric approaches when studying issues of social and human development related to fertility. Most recently, there have been studies on current fertility-related research that apply bibliometric and knowledge-graph studies (Du et al. 2024). Zhang et al. (2016) and Baskaran et al. (2019) described a move away from basic reproductive biology to multidisciplinary and collaborative research with Asia, led by China and Japan, emerging as an increasingly significant contributor. Recent studies, such as Ahmad et al. (2025), indicated the growing complexity and centralization of female infertility research networks and credited advances in assisted reproductive technology to institutional and regional productivity. In the course of these studies, bibliometric techniques have been helpful in tracing thematic evolution, author collaboration, and the geopolitical spread of research, providing a helpful methodological precedent for exploration of the influence of education as a social determinant of fertility outcomes in the Asian setting.

The nexus between education and fertility has been a leading topic of demographic and social science research, and Asia has posed a challenging and dynamic context in which to study this. Bibliometric research has played a significant role in unveiling the structure and evolution of this knowledge domain. Work such as that of Yildirim and Demir (2019) and Nagaratnam et al. (2016) demonstrates how fertility research has expanded exponentially over the past two decades, driven by technological advancement, economic development, and increasing academic interest. Whereas the discipline used to be monopolized by medical and clinical concerns—fertility preservation and infertility treatments, for example—the research focus has gradually been broadened to include socio-demographic determinants such as education, gender, and reproductive behavior.

Research by Zhang et al. (2016) and Baskaran et al. (2019) illustrates a thematic shift towards interdisciplinary studies, with educational attainment, especially for women, increasingly being investigated as a cause of fertility decline. These analyses also bring to view the growing contribution of Asian countries—China, India, and Japan particularly—to global fertility research, supported by the expanding institutional networks and collaboration across countries. Ahmad et al. (2025) also refer to the growing complexity of scholarly debate, noting how education is embedded in such broad themes as women's empowerment, family planning, and demographic transition.

Across the literature, bibliometric tools have extracted main clusters of research covering female education, reproductive health, and policy interventions. Bibliometric study of gender gaps in school education has found that recently and even recently, there are still some structural constraints on the access to primary and lower secondary education for girls and girls' completion of same. However, recently, there has been significant increase in the respective research output even after SDG 4 (Quality Education) and SDG 5 (Gender Equality) goals have been set and are being implemented (Temirtayeva, Kovaleva, & Kudebayeva, 2025). Keyword co-occurrence and citation network analyses suggest that education is an omnipresent variable at the hub of research investigating fertility intentions, delayed childbearing, and low fertility. The Asian context, with regional variation in education access, urbanization, and cultural norms, is revealed as fertile ground for comparative and policy-relevant research.

Cumulatively, these bibliometric findings not only chart the intellectual evolution of the field but also confirm the salience of education as a key driver of fertility patterns across Asia. This evolution warrants the necessity of continued research that bridges demographic, economic, and sociological perspectives using quantitative and bibliometric approaches.

Materials and Methods

This study employed a bibliometric approach to examine scientific productions concerning the impact of education on fertility in Asian countries. A search in the Web of Science (WoS) Core Collection, one of the most globally recognized cross-disciplinary citation databases which contains numerous of scholarly articles, was conducted to identify relevant studies. The initial search yielded 2,293 documents, which were subsequently filtered by title-field geographic locations, languages, document types, and relevance to the thematic scope of this study. The applications of the mentioned filters resulted in 578 English-language documents, which were written by authors in various disciplines from around the world and were published in numerous countries over time.

An advanced search was conducted through a well-structured Boolean query to capture instances of papers. The used search term was: TS=("education" OR "educational attainment" OR "female education" OR "education women " OR "schooling" OR "literacy rate" OR "access to education") AND TS=("fertility rate" OR "birth rate" OR "childbearing" OR "reproductive behavior" OR "total fertility rate" OR "population growth") AND TI=("Asia" OR "South Asia" OR "Southeast Asia" OR "East Asia" OR "Central Asia" OR "Asian countries" OR "developing Asia" OR India OR China OR Bangladesh OR Vietnam OR Pakistan OR Indonesia OR Philippines OR Nepal OR Sri Lanka OR Malaysia OR Thailand OR Myanmar OR Laos OR Cambodia). This search was restricted to the topic (TS) and title (TI) fields to offer topical similarity with breadth of coverage. In total, 578 documents were collected from diverse disciplines, regions, and years of publication. The dataset was exported in tab-delimited form (with full records and cited references) and imported into VOSviewer for bibliometric mapping and network analysis. Three analyses were carried out:

1. Co-authorship Analysis (by Country): This analysis was designed to reveal research collaboration patterns at the country level. A threshold of 2 documents per country was established. Countries that reached this level were plotted in terms of co-authorship links and total link strength, identifying central points of academic collaboration in the discipline.

2. Keyword Co-occurrence Map: To identify top research areas and conceptual themes, a co-occurrence map was established based on author keywords. The keywords appeared at least 6 times in the visualization, and it indicated top topics like "female education", "fertility rate", "population growth", and "reproductive behavior".

3. Citation Analysis (by Author): Here, the focus was on identifying influential authors in the topic. Authors with at least 2 papers were taken into account, and their influence on the number of citations was mapped to identify leading scholars and their share of the debate.

These bibliometric methods offer a detailed description of the research landscape, which can be used to identify leading trends, top contributors, and imminent themes. This method presents a foundation for gaining a perspective on how education and fertility have been investigated across Asia, and what research areas are bound to gain popularity in the future.

Results

During the initial 12 years (2000–2011), production was low and irregular, fluctuating between 1 and 10 documents per year, with only an average of around 5 publications annually (Fig. 1). This shows that the research topic of education's effect on fertility was still in its early stages and likely addressed sporadically within the framework of more broad-ranging demographic or health research.

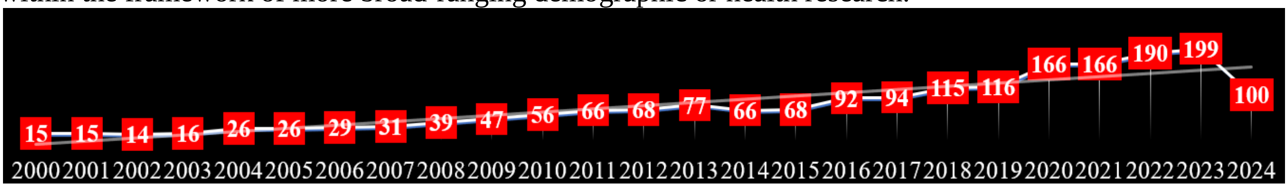

Figure 1. Publication Years

From 2012 onwards, one can see a definite increase in scholarly interest, with publications increasing more steadily. The output per year varied between 14 and 19, reflecting more continued interest in the subject and the start of a discernible growth trend. The growth in publications during these years aligns with mounting global policy attention to women's education, family planning, and sustainable development, particularly after the launch of the UN's Sustainable Development Goals (SDGs) in 2015. Starting in 2019, the field of research experienced a high rate of publication spike. From 35 publications in 2019, the numbers almost doubled in 2020 to 57, increased to 61 in 2022, and peaked at 71 in 2024. The years 2020–2024 alone account for over 50 % of all publications in the dataset—a clear indication of a research boom. This dramatic rise suggests that the topic has reached research maturity, driven by increasing awareness of gender and education issues, demographic change in Asia, as well as the increasingly common use of advanced analytical methods (e.g., econometrics, machine learning in demography).

Of the 578 indexed articles that relate to education and fertility rate studies, most are peer-reviewed journal articles. Journal articles account for approximately 88 % of all publications (Fig. 2), indicating scholarly journals have been the primary publication outlet for research in this subject area. This high concentration is a sign of a strong scholarly foundation and sustained academic interest.

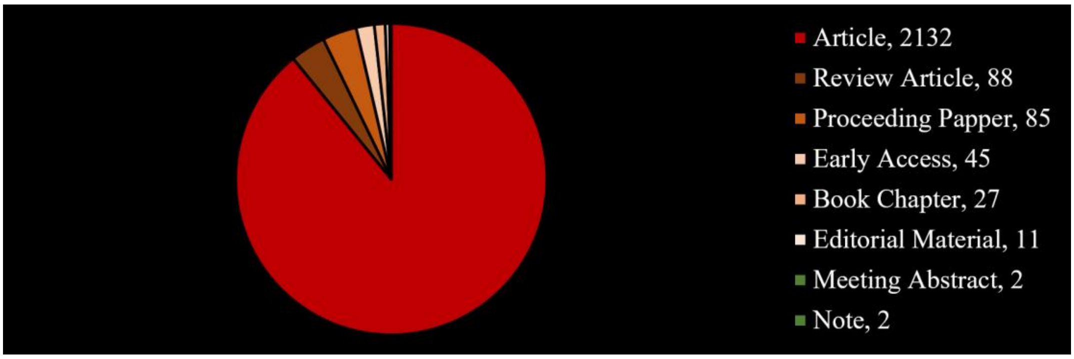

Figure 2. Document Types

The set includes a limited sample of other genres of documents that complete the bulk of journal-based scholarship. Proceedings papers (26) report early-stage findings and conference presentations, and constitute a limited share of total outputs. Review articles (22) give synthesized knowledge and critical syntheses of the literature, indicating thematic maturity. Early access documents (17) report the dynamic unfolding and adaptability of the field to new academic arguments. Book chapters (6) contribute additional richness, often in broader interdisciplinary or edited scholarly books. Document distribution shows high evidence of academic legitimacy, with no retracted or low-quality records evidence.

The analyses of the Asian studies on education and fertility rate during 2000–2024 illustrate the most productive authors according to the contribution of work, as indicated in Figure 3. The most productive authors have contributed between 4 and 6 articles during the study period, which indicates a stabilized and balanced contribution of the scholars. The top three authors—Marphatia A.A., Padmadas S., and Saville N.—have all released six pieces each, indicating their ongoing interest in this research area. Authors such as Manandhar D.S., Laksono A.D., and Wels J. are close by, while Dandona L., Swaminathan S., Bhutta Z., Varghese C., Bittles A., Dandona R., and Kumar A. also feature as frequent authors with four articles each.

Public, Environmental, and Occupational Health leads the literature on fertility and education in Asia with 154 indexed articles, indicating the significance of maternal and reproductive health, public health interventions, and social determinants of fertility outcomes (Fig. 4). Other fields are contributed by Sociology (23) and Education Educational Research (14), suggesting an emphasis on structural and cultural variables affecting educational access and reproductive decision-making. Disciplines such as Family Studies, Nutrition and Dietetics, and Health Policy Services further highlight how family functioning, nutrition, and health policy institutions intersect with fertility outcomes.

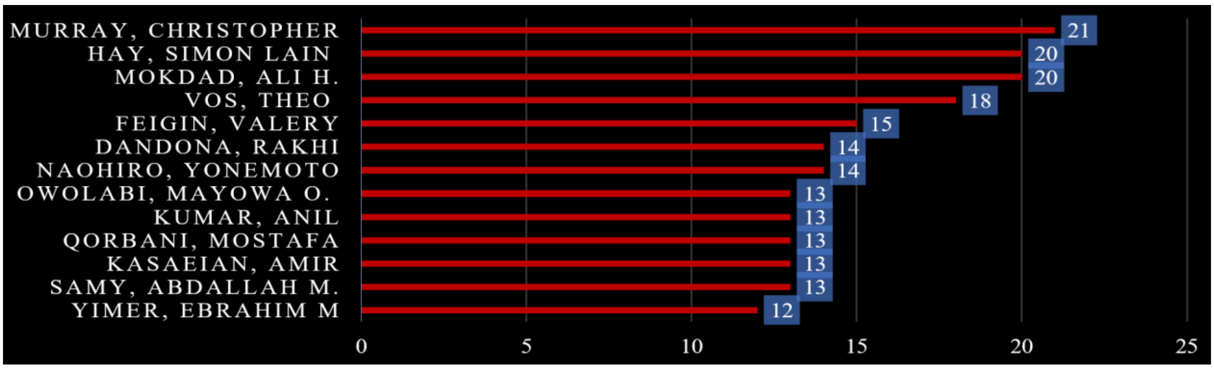

Figure 3. Most Prolific Authors

The addition of fields such as Environmental Studies, Green & Sustainable Science, Development Studies, and Geography attests to a growing interest in how environmental and spatial dimensions intersect with fertility and education—particularly in rapidly growing or climatologically exposed places in Asia.

Individually, these categories illustrate how very interdisciplinary the research field is, merging public health, economics, social sciences, education, and environmental research in order to study the contributions of education to fertility choice and outcomes. The extensive disciplinary engagement illustrates how this field engages with individual-level determinants (such as education and health) as well as broader policy and development agendas, making it more relevant to both academic and policy communities in Asia.

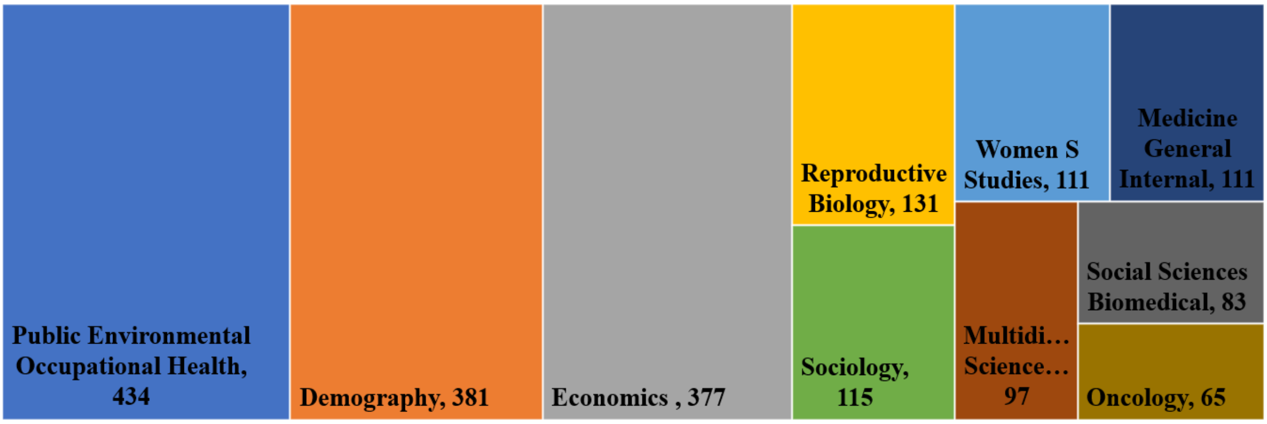

Figure 4. Top Web of Science Subject Categories

The meso-level citation topics, as seen from Figure 5, are a wide and often interdisciplinary set of scholarly linkages in education and Asian fertility studies. Gender & Sexuality Studies (6.178) is the most frequent topic, appearing in 223 records, an indication of the salience of gendered lenses such as women's empowerment, reproductive rights, and social-cultural norms that shape fertility conduct and access to education. This dominant theme succeeds in encapsulating the degree to which fertility experiences are connected to structural gender inequalities within various Asian contexts.

Health Policy (1.156) appears in 48 records, illustrating how fertility and education are entrenched in broader institutional and policy-based environments, such as national reproductive health strategies, family planning initiatives, and access to maternal care. Obstetrics & Gynecology (1.72) and Nutrition & Dietetics (1.44)—both of which have 19 and 29 citations, respectively—highlight the biomedical and nutritional basis of fertility, most notably in adolescent health, early marriage, and maternal health.

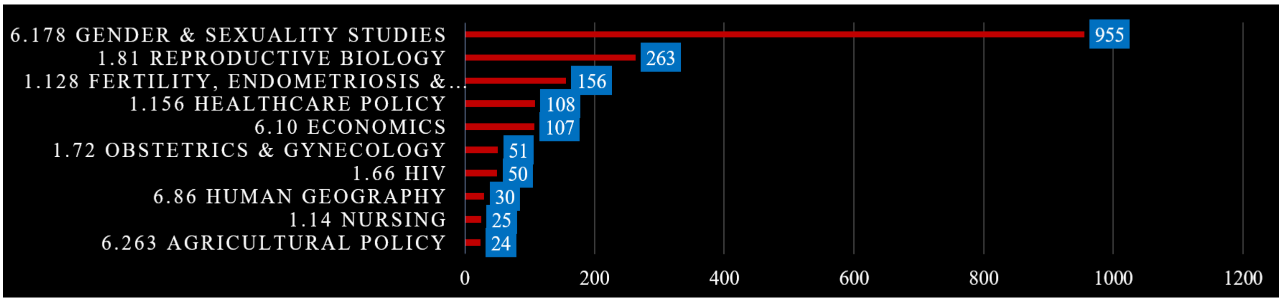

Figure 5. Most Frequent Meso-Level Citation Topics

Other frequently cited topics are Economics (6.10) with 18 citations, illustrating how fertility trends are commonly analyzed by education-based income mobility, work force participation, and childbearing opportunity cost. Sustainability Science (6.155) with 17 citations reflects growing attention to the long-term demographic and environmental impacts of fertility trends, especially in Asian regions with resource shortages or climatic exposure.

Niche topics such as Fertility, Endometriosis & Hysterectomy (1.128) and HIV (1.66) reflect the intersection of clinical fertility concerns and reproductive health risks, typically examined in regard to disadvantaged or risk groups. Asian Studies (6.227) with 9 citations, on the other hand, positions the research within its regional specificity, providing meaningful socio-political and cultural context to fertility processes in multi-diverse Asian societies. These findings show the interdisciplinary nature of fertility and education studies and its rooted linkages to public health, gender studies, economics, clinical medicine, and regional studies. The broad thematic range also suggests that researchers are increasingly conscious of macro-level policy issues and micro-level social and health determinants, which shows how the subject is of greatest concern to academic research and pragmatic policy intervention.

Figure 6 illustrates the micro-level citation themes, providing a more nuanced overview of the thematic emphasis across the literature on Asian fertility and education. Not surprisingly, the topic "Family Fertility Dynamics" (6.178.516) is cited most frequently, appearing in 215 records. This reinforces the dataset's primary interest in how family size, reproduction behavior, and fertility goals are influenced by educational and socioeconomic factors across different Asian settings.

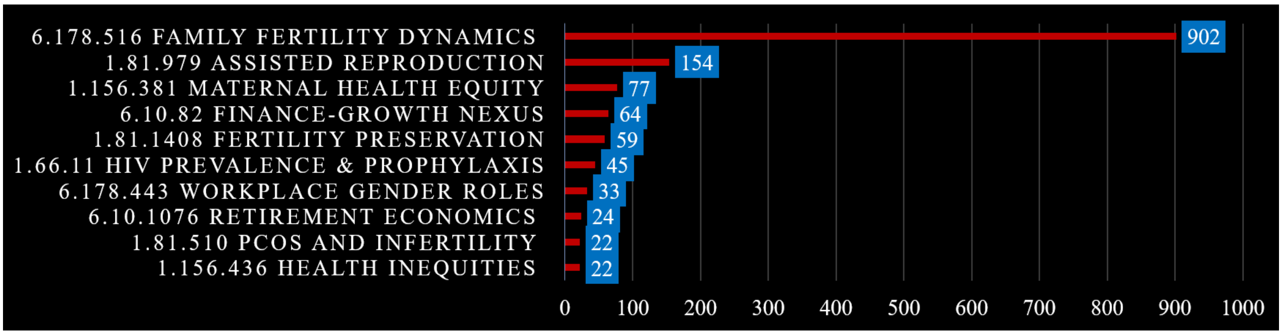

Figure 6. Micro-Level Citation Topics

The findings illustrate the rich thematic layering of the literature that currently spans demography, health equity, education, environmental sustainability, and economic development. Micro-level concerns confirm that the work is no longer reduced to fertility rates but encompasses multifactorial thinking that takes into account maternal health, policy environments, and local development paths—providing it with policy relevance and interdisciplinarity.

The literature reviewed demonstrates close alignment with the United Nations Sustainable Development Goals (SDGs), as revealed by Figure 7. The most prevalent SDG represented is Goal 3: Good Health and Well-Being, represented in 443 records and reflective of the field's keen emphasis on maternal and child health, reproductive health, and overall well-being as it concerns fertility and educational attainment. The records for Goal 5 Gender Equality total 319 and look at the role of female education, gender roles and women's empowerment in the fertility trends of Asia.

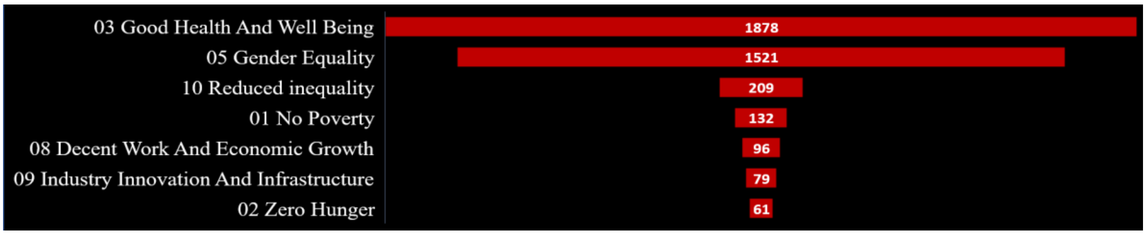

Figure 7. Alignment with Sustainable Development Goals (SDGs)

The overwhelming portrayal of health and gender-related goals indicates the field is firmly in the social dimension of sustainable development, and particularly in decreasing inequities in health systems and education for women and girls. The portrayal of economic and environmental goals, however, indicates an emerging multidisciplinary interest in linking fertility and education to long-term sustainability, development planning, and resilience in the face of climate and economic hardship.

Figure 8 illustrates the distribution of the studied publications according to several Web of Science (WoS) citation indexes. The majority of the papers, 346 out of 578, are indexed by the Social Sciences Citation Index (SSCI), indicating that education and fertility research in Asia is based primarily on social sciences such as sociology, demography, public health, and education.

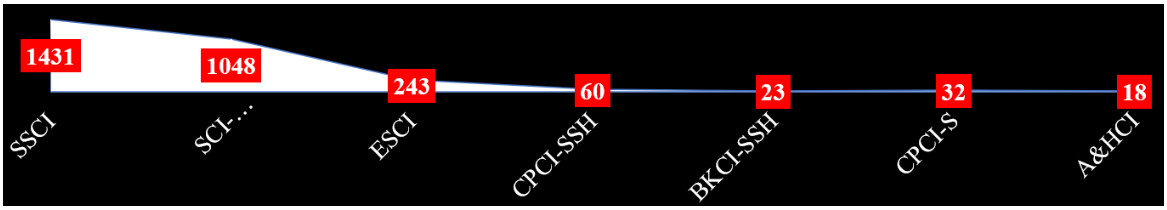

Figure 8. Web of Science Index Coverage of Publications

The Science Citation Index Expanded (SCI-EXPANDED) is the second closest, having 289 publications, reflecting the field's strong connection to medical, epidemiological, and environmental science studies, particularly maternal health, reproductive care, and clinical outcomes of fertility studies. The Emerging Sources Citation Index (ESCI) has 86 records, which suggest that most of newer and potentially impactful research is still in the process of securing citation visibility within the core WoS indexes.

Figure 9 illustrates the highest activity institutions on research of education and fertility in Asia for the period 2000–2024. From the figure above it is clear that the highest activity is held by Peking University from China with 20 publications. The Peking University is holding the highest position not only on research of education and fertility in Asia, but also on research of education and fertility in China. Other highest active institutions on research of education and fertility in Asia are the International Institute for Population Sciences (IIPS) from India with 18 publications. The IIPS has published various publications in the recent years on the trends and determinants of fertility, on reproductive health and on population studies in South Asian countries.

UC System has 17 publications on fertility and maternal health with the majority of the North American publications on global health, migration and education development for development, ranking third in volume of publications for this topic. In addition, the University of London is publishing 15 articles on similar topics most likely from public health, gender studies, and economics development studies. Aga Khan University and the International Centre for Diarrhoeal Disease Research (ICDDR) in Bangladesh each have 12 publications which tallies with their role in public health and in studying issues related to fertility and maternal health. Additionally, universities in China—Wuhan University, Xi'an Jiaotong University, and Renmin University of China—as well as Airlangga University in Indonesia, have each contributed 10 or more publications, confirming the active engagement of regional academic institutions in Asia.

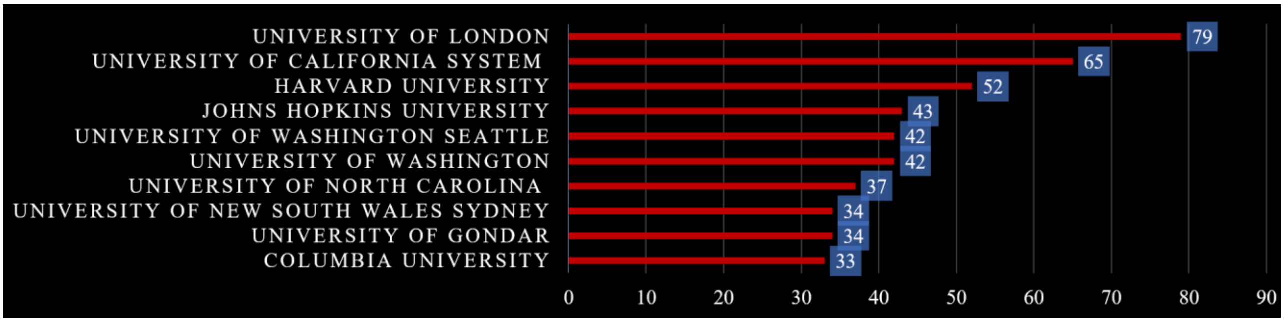

Figure 9. Most Productive Institutional Affiliations

Institutions such as Indian Council of Medical Research (ICMR) and Monash University (Australia), both with 9 publications, bear witness once again to internationalization and collaboration in the discipline. University College London's presence once again with 9 publications bears witness to the contribution made by interdisciplinary educational, demographical, and public policy research institutes.

These findings show that education and fertility research in Asia is supported by a broad and diverse institutional web, stretching across Asia, North America, Europe, and Australia. Affiliation distribution mirrors the interdisciplinarity of the field by adding demography, sociology, education, public health, and development studies, and demonstrates growing global collaboration to deal with fertility issues through education and health actions.

Around 580 education and fertility research articles have been authored for Asia as a whole across a wide range of countries, as shown in Figure 10.

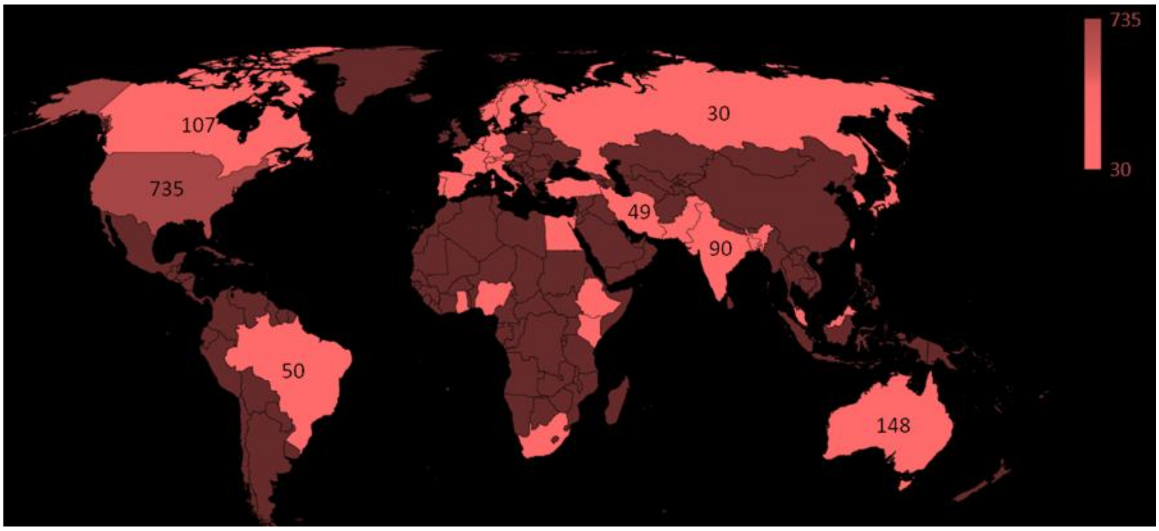

Figure 10. Geographic Distribution by countries

The People's Republic of China leads the list with 204 articles, reflecting its large academic community, population concern with fertility policy (historic one-child policy and ongoing population-recovery strategies), and large literature on maternal schooling and population health. The United States follows with 114 publications, driven by the country's strong research centers, funding of global development problems, and collaboration on collaborative projects on gender, education, and reproductive health in Asia.

India (87 articles) captures high local scholarly enthusiasm regarding issues of fertility transition, women's education, and socio-economic inequalities—often from leading demographic research centers such as the International Institute for Population Sciences. Bangladesh (54) and Pakistan (47) similarly evidence high visibility, perhaps due to the priority attached to maternal health, gender empowerment, and family planning programs within national development strategies.

England (50) and Australia (45) document extensive academic output from Western sources, specifically in development, global health, and gender research. Southeast Asian countries such as Indonesia (31), Malaysia (21), Thailand (20), and Nepal (19) contribute significantly, demonstrating growth in regional scholarly contribution on education and fertility studies by developing economies.

Canada (18), Vietnam (15), Japan (10), and Singapore (9) also reflect steady engagement in comparative and cross-country research, particularly in public health and population education. Sweden, Switzerland, the Netherlands, and Spain (6–9 each) add to European academic interest in fertility research at the global and regional levels.

The broad geographical scope of publication output—ranging from mainstream academic titans to new regional entrants—demonstrates the global importance and collaborative nature of education and fertility research. The contribution of smaller but notable ones from Sri Lanka, the Philippines, Saudi Arabia, and South Korea confirms the presence of multi-country networks and South-South collaboration.

Such widespread involvement from across Asia, North America, Europe, and beyond underscores the interdisciplinary and international nature of the topic. It maps how work on fertility and education is increasingly situated within global health, sustainable development, and gender equality agendas, supported by a range of academic systems working toward similar developmental objectives.

The co-author network in Figure 11 illustrates the collaborative culture between research countries examining the relationship between education and fertility rates in Asia from 2014 to 2022. People's Republic of China is the focal point of scholarly collaboration, forming extensive networks with countries like India, Bangladesh, Pakistan, Australia, and England. The focal role signifies the increased investments and leadership of China in population as well as research into education across the continent.

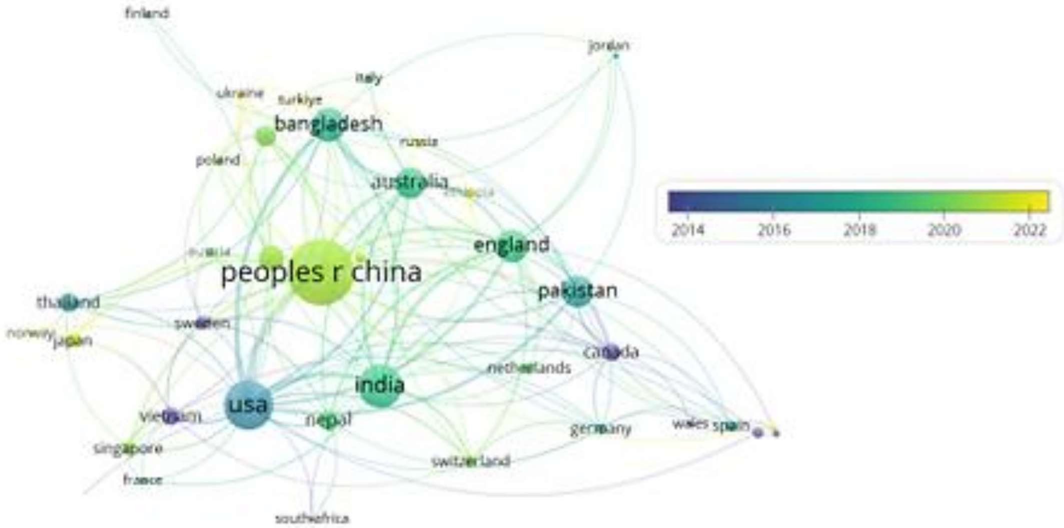

Figure 11. Co-authorship Overlay Visualization

The United States also is highly active, co-authoring internationally in numerous occasions, particularly with India, Vietnam, Nepal, and the Philippines, evidencing its continued global presence of social science research and interest in transnational scholarly interconnectedness. The network shows a regional cluster model: e.g., South Asian countries (India, Pakistan, Nepal, Bangladesh) are equally linked with each other and with foreign academic centers like China and the U.S., showing a shared regional interest in demographic patterns based on education. Such countries as England, Germany, Canada, and Australia serve as crucial bridging points, linking Asian-focused research with institutions in the West and therefore integrating regional population studies into global debates. Active but marginal participants like Jordan, Ethiopia, Switzerland, and Norway have more limited bilateral cooperation, typically overlapping with limited case studies or comparative international education studies. Application of overlie colors (blue to yellow) marks the median year of publication, with a host of recent cooperation in the last couple of years (2018–2022) reflecting increased global concern with the implications of education policy on fertility patterns. In most cases, the visualization depicts the increasingly international and interdisciplinary nature of this research field, in which countries with varying academic capabilities and regional interests cooperate to address socio-demographic issues.

VOSviewer network visualization in Figure 12 depicts 134 keywords across six thematic clusters, each symbolizing an overarching conceptual domain within academic literature addressing education and fertility in Asia. The map represents how often keywords co-occurred to identify the intellectual structure and dominant themes of the literature.

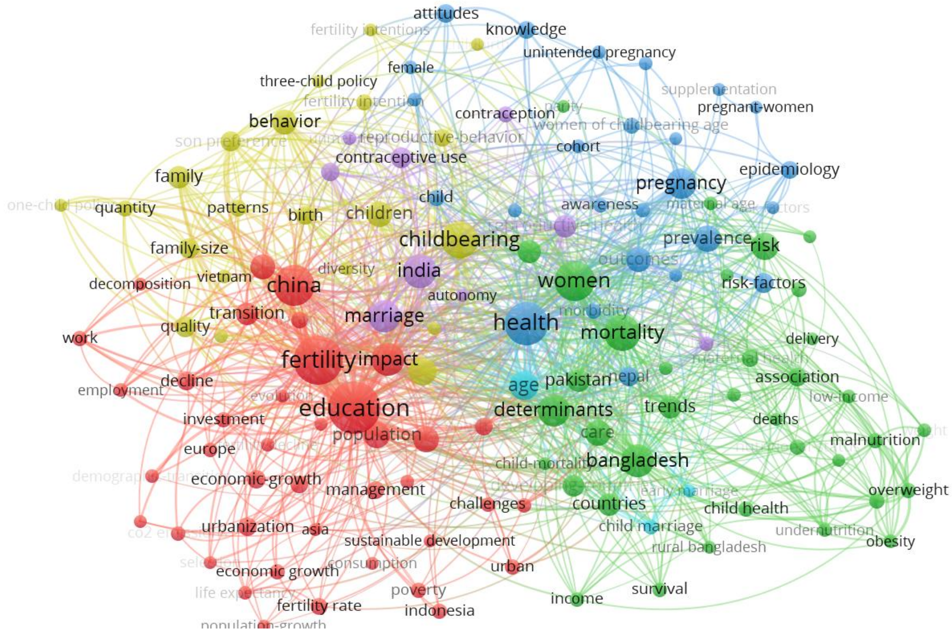

Figure 12. Keyword Co-occurrence Network Map

The most prominent words—“fertility”, “education”, “women”, “health”, “childbearing”, and “China”—are focal nodes, connecting subtopics across demographic, health, social, and economic contexts.

Cluster 1 — Fertility, Education, and Developmental Policy. The red cluster is located in the center of the map. This cluster contains words related to the issues of fertility, education, population, economic development, employment, urbanization, poverty and policy. The words in this cluster are relevant to a wide range of socio-economic indicators and how they are affected by changes in fertility. The discussion on the transition to lower levels of fertility, its decline and management of fertility is relevant to this cluster of demographic variables and their inter-relationship with other developmental indicators in Asian economies. The words that particularly characterize China are those that are related to its fertility control policy and its education system.

Cluster 2 — Child Health, Nutrition, and Socioeconomic Context. This green cluster deals with child health, mortality, malnutrition, overweight, undernutrition, deaths, care, and determinants, linking fertility to public health outcomes. Bangladesh and Pakistan are repeated, showing an emphasis on low- and middle-income Asian countries where fertility trends are directly related to child and maternal health. Survival and delivery keywords identify the life-course impacts of fertility and socioeconomic vulnerability decisions.

Cluster 3 — Pregnancy, Risk, and Reproductive Health. The blue cluster contains words like pregnancy, prevalence, risk factors, supplementation, contraception, unintended pregnancy, and epidemiology with a focus on maternal and reproductive health. It is biomedical and public health research-oriented that focuses on education, awareness, and accessibility to services as the determinants of fertility behavior. It differs from the economic and sociological orientations in Cluster 1 by drawing attention to the biological and risk factors of childbearing.

Cluster 4 — Women, Agency, and Social Determinants. This purple cluster is all about keywords such as women, agency, knowledge, awareness, attitudes, cohort, and female that represent gendered perspectives when it comes to fertility. It highlights how education, empowerment of women, and decision-making are fertility determinants. Frequency-of-childbearing-and-marriage also suggests looking into social norms as well as reproductive agency in the context of patriarchal or transitional societies.

Cluster 5 — Family Systems, Behavior, and Cultural Patterns. The yellow cluster contains terms like family, behavior, patterns, family-size, one-child policy, and three-child policy, focusing on cultural and behavioral drivers of fertility. This includes state-imposed policies (mainly in China and Vietnam), family planning desires, and household structure’s effect on fertility choice. It also reflects longitudinal interest in shifting fertility intentions and family building over time.

Cluster 6 — Antenatal Care and Fertility Intentions. The small orange cluster includes the words like antenatal care, fertility intentions, and intimate partner violence. It deals with access to pre-natal care and the reproductive desires of women, for instance, the obstacles to fulfilling fertility intentions. This suggests an interest in policy and health care delivery services, most notably for under-represented or vulnerable groups. That the clusters overlap demonstrates the interdisciplinary character of Asian fertility studies through their convergence of demography, economics, public health, gender studies, and policy science. That country names like China, India, Bangladesh, and Vietnam are present reflects the regional emphasis of the literature. This ideational map provides a point of departure to distinguish the fundamental arguments and empirical foci in the area and shapes lines of future research, particularly as regards the interface of education with demographic action and health.

Figure 13's VOSviewer citation network visualization represents the citation relationships among 37 authors in the literature regarding education's relationship to fertility. The authors are grouped in six clusters, represented by colors corresponding to citation-based subfields or study groups.

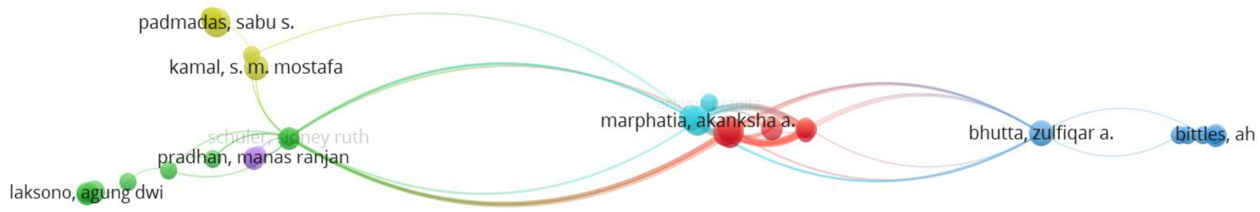

Figure 13. Author Citation Network

Author Marphatia, Akanksha A., principal author in the middle of the citation cluster. Her work serves as an intellectual hub which connects other citation clusters and consolidates research streams in gender, education and reproductive health outcomes for low- and middle- income countries.

Cluster 1 — Gender, Education, and Reproductive Health. The Extremely Well-Cited Cluster 1 is headed by Marphatia, Akanksha A. Note that this principal author is a key intellectual bridge for this cluster of highly cited references and other citation clusters. This cluster consists of references by authors who have conducted research on gender, education and reproductive health in South Asia. The Extremely High Centrality of this Cluster indicates that it contains the core theoretical and empirical work of the field. The research by authors in this cluster is often jointly cited to support investigation of the relationship of female education and gender empowerment and reproductive health in South Asia.

Cluster 2 — Global Public Health and Child Outcomes. This cluster includes Bhutta, Zulfiqar A. and Bittles, A. H., both of whom are high-quality cited authors in the context of making contributions to research in maternal and child health. Their work is particularly valuable for fertility and public health perspectives regarding risk factors and early childhood development, typically in the form of education or socioeconomic determinants.

Cluster 3 — Indonesian and South Asian Demographic Studies. Laksono, Agung Dwi anchors this cluster, which deals with fertility, health systems access, and Indonesian and regional educational policies. It is more country- or region-oriented and employs regional application of global demographic models.

Cluster 4 — Sociodemographic Transitions and Gender Dynamics. This cluster has Padmadas, Sabu S. and Kamal, S.M. Mostafa, who look at fertility decline, reproductive behavior, and demographic transitions focused on Bangladesh, Nepal, and India in some parts. Their citation referring to other clusters indicates that their research integrates policy, public health, and sociological work.

Cluster 5 — Structural Drivers and Policy-Oriented Work. Centered on Pradhan, Nanas Ranjan, this cluster is marked by an interest in macro-level policy, structural drivers of fertility, and inequality in education. Similar to the rest but compact in nature, this cluster is highly interlinked with others through mutual citation, i.e., a supportive role in overall policy-relevant discourse.

Cluster 6 — Cross-Cutting Theoretical Contributions. With authors like Achyut, Pratik and Marphatia, this team denotes concept and interdisciplinary work and is often quoted for building theoretical frameworks that interlink gender, education systems, and fertility decisions.

The visualization illustrates the citation flow between authors and how specific researchers (e.g., Marphatia and Bhutta) act as conceptual hubs, cited across the disciplines. Curved lines indicate that academic conversation is not compartmentalized but instead networked highly, bringing to light the interdisciplinary nature of education and fertility research. Clusters are connected by interests in gender equality, child well-being, reproductive behavior, and demographic transition in the Asian context.

Discussion

This bibliometric review provides a systematic overview of scholarly research on education and fertility in Asia between 2000 and 2024. Several key findings are based on keyword co-occurrence network analysis, co-authorship visualization, and citation analysis, all of which together chart the intellectual landscape, thematic density, and geographic dispersion of the discipline.

The keyword co-occurrence map revealed six general thematic clusters: (1) fertility, education, and development policy; (2) socioeconomic status, child health, and nutrition; (3) reproductive health and pregnancy risks; (4) women's autonomy and gendered social determinants; (5) family systems and cultural behavior; and (6) antenatal care and fertility intentions. These clusters reflect the field's vast interdisciplinary synthesis, in which demography models, public health paradigms, gender theories, and economic analysis intersect. Cross-regional coverage of themes such as reproductive risk, labor force participation, contraception, and child malnutrition reflects an empathetic understanding of how educational attainment—especially women's—shapes fertility-linked choices, behaviors, and outcomes across various sociocultural contexts across Asia.

The network of country-level co-authorship revealed strong collaborative patterns among countries such as China, India, Bangladesh, and Pakistan working regularly with researchers from the United States, England, and Australia. China's central location parallels its policy-relevance across demographics and rising academic dominance, whereas the United States and England act as global anchors linking Asian scholarship to international scholarly institutions. The South Asian countries evince close regional collaboration, which is in line with shared academic interest in fertility transition, family planning, and education access. These findings accentuate how universal development agendas and regional policy imperatives drive transnational coordination of research in the subject matter.

Together, these findings suggest that Asian educational and fertility studies have become a sophisticated multidimensional and policy-focused field. New evidence for Central Asia on how reproductive choices translate into or fail to translate into women's economic empowerment has recently emerged. Specifically, the linkages between fertility-related choices and gender differences in income are found to be influenced by a set of institutional and labor market structures, Kovaleva, Taylor, Korosteleva, & Kudebayeva (2025). This field not only responds to issues of population control or school access but also issues of gender equity, health inequity, sustainable development, and structural inequity. The increase in academic interest and collaboration patterns is a manifestation of the field's shift from traditional demographic modeling to more contextualized and interdisciplinary science, responsive to local diversity and global policy concerns.

Conclusion

This bibliometric review presents a broad overview of the effects of education on fertility in Asia, from 578 articles between 2000 and 2024. It identifies influential areas of research—anything from health to gender, policy, and socioeconomics—and top authors, institutions, and emerging themes such as environmental sustainability, reproductive health, gender equality, and socioeconomic development. While the study provides valuable insights into gaps and trends in research, it is marred by the application of the Web of Science and quantitative methods. The studies should apply more local and qualitative perspectives, investigate causal influences, and evaluate the long-term effects of education policy on fertility behavior in future research. More broadly, this research adds to the understanding of the education–fertility nexus and offers a blueprint for researchers and policymakers looking to address demographic change through inclusive evidence-based policy.

Acknowledgements: This research is supported by KIMEP University Economics Department through its initiative to promote student-led economic and innovation research.

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Білімнің Азиядағы туу деңгейіне әсері: әлеуметтік-экономикалық библиометриялық талдау

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Аңдатпа

Білім деңгейінің туу көрсеткіштеріне әсері туралы едәуір эмпирикалық дәлелдер бар. Соңғы онжылдықтарда әйелдердің жоғары білімі туу үлгілерін және кеңірек әлеуметтік-экономикалық нәтижелерді айқындайтын маңызды факторға айналды. Біліммен қамтылу және білім деңгейі бала туу уақытымен, отбасы көлемімен, некелік одақтардың қалыптасуымен, серіктес таңдаумен, еңбек күшіне қатысумен және білім деңгейі жоғары елдердегі кеңірек отбасылық мінез-құлық үлгілерімен тығыз байланысты. Жоғары білім, әдетте, әйелдердің кешірек тұрмыс құруына және мансап пен өзін-өзі дамыту мақсатында бала тууды кейінге қалдыруына ықпал етеді. Бұл отбасы көлемінің кішіреюіне және бала туудың өмірдің кейінгі кезеңдеріне жылжуына әкеледі. Сонымен қатар білім арқылы қалыптасатын үлкен дербестік пен қаржылық тәуелсіздік әйелдерге репродуктивті денсаулық, отбасын жоспарлау және серіктес таңдау мәселелері бойынша саналы шешімдер қабылдауға мүмкіндік береді.

Мақалада 2000–2024 жылдар аралығында Азиядағы білімнің туу деңгейіне әсері туралы ғылыми әдебиеттер библиометриялық талдау арқылы қарастырылады. Зерттеуде Web of Science Core

Collection дерекқорынан алынған 578 жарияланым пайдаланылып, осы пәнаралық саланың тақырыптық эволюциясы, бірлескен авторлық үлгілері және интеллектуалдық құрылымы талданды. VOSviewer арқылы талдау үш негізгі визуализацияны қамтиды: кең зерттеу сұрақтарын анықтау үшін кілт сөздердің бірлесіп кездесу желілері, халықаралық ынтымақтастықты анықтау үшін елдер бойынша бірлескен авторлық, сондай-ақ ұлттық деңгейдегі интеллектуалдық қауымдастықтардың қиылысын көрсету үшін библиографиялық байланыс. Бұл кеңейтілген талдау Азия елдеріндегі халық саны үрдістерінің, білім беру саясатының, еңбек күшіне қатысудың, үй шаруашылықтарындағы шешім қабылдаудың және әлеуметтік-экономикалық дамудың өзгерістеріне жауап ретінде ғылыми пікірталастың уақыт өте қалай дамығанын көрсетеді.

Кілт сөздер: туу деңгейі, білім, әлеуметтік-экономикалық даму, еңбек күшіне қатысу, үй шаруашылықтарында шешім қабылдау, библиометриялық талдау, VOSviewer, Web of Science.

Влияние образования на уровень рождаемости в Азии: социально-экономический библио-метрический анализ

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Аннотация

Существует значительный объем эмпирических данных о влиянии уровня образования на показатели рождаемости. За последние десятилетия высшее образование женщин стало значимым фактором, определяющим модели рождаемости и более широкие социально-экономические результаты. Уровень охвата образованием и образовательные достижения тесно связаны со временем рождения детей, размером семьи, формированием брачных союзов, выбором партнера, участием в рабочей силе и более широкими семейными практиками в странах с высоким уровнем образования населения. Высшее образование, как правило, способствует более позднему вступлению в брак и откладыванию рождения детей ради карьеры и саморазвития. Это ведет к меньшему размеру семьи и переносу рождения детей на более поздние годы жизни. Кроме того, большая самостоятельность и финансовая независимость, полученные благодаря образованию, позволяют женщинам принимать более осознанные решения в отношении репродуктивного здоровья, планирования семьи и выбора партнера.

В статье представлен обзор научной литературы о влиянии образования на уровень рождаемости в Азии за период с 2000 по 2024 год с использованием библиометрического анализа. В исследовании используются 578 публикаций, полученных из Web of Science Core Collection, для анализа тематической эволюции, моделей соавторства и интеллектуальной структуры данной междисциплинарной области. С помощью VOSviewer анализ включает три основные визуализации: сети совместной встречаемости ключевых слов для выявления широких исследовательских вопросов, соавторство по странам для определения международного сотрудничества и библиографическое сочетание для иллюстрации пересечения интеллектуальных сообществ на национальном уровне. Более широкий анализ показывает, как научная дискуссия развивалась со временем в ответ на изменения демографических тенденций, образовательной политики, участия в рабочей силе, принятия решений домохозяйствами и социально-экономического развития в странах Азии.

Ключевые слова: уровень рождаемости, образование, социально-экономическое развитие, участие в рабочей силе, принятие решений домохозяйствами, библиометрический анализ, VOSviewer, Web of Science.

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Conflict of Interest

The authors declare no conflict of interest.

How to Cite: Ыбырай Н.Н., Куттыбаева Н.Б., Кадиров А.М. (2026). Оценка инвестиционной привлекательности вузов Казахстана. *Economic Research and Management Decisions*, 2026, 1, 1 (1), 59-67.
https://doi.org/10.31489/3136-0807/2026-1-1/59-67

JEL: I22, I23, I25, R58, O15 Received: 31.03.2026 | Accepted: 20.06.2026
УДК 378.014.54:332.1(574)

Оценка инвестиционной привлекательности вузов Казахстана

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Аннотация

В условиях экономики знаний высшее образование становится стратегическим объектом инвестиций, однако существующие подходы к оценке инвестиционной привлекательности вузов либо ограничены финансовыми показателями, либо опираются на глобальные рейтинги, недостаточно учитывая региональный контекст. Цель исследования — обосновать комплексный подход к оценке инвестиционной привлекательности казахстанских вузов с учётом региональной дифференциации. Методологической основой служат обзор литературы и анализ открытых данных Бюро национальной статистики Республики Казахстан и ОЭСР за период 2019–2025 годов. На основе синтеза теории человеческого капитала, стейкхолдерского подхода и региональной экономики предложена система из четырёх групп показателей: академический потенциал, финансово-экономическая устойчивость, региональная комплементарность и инфраструктурная зрелость. Сформирована матрица приоритетов для четырёх типов инвесторов (государство, частный инвестор, международные фонды, бизнес-сообщество). Показано, что без учёта региональной специфики сравнение столичных и областных вузов приводит к систематическим управленческим ошибкам, что особенно актуально в условиях усиливающейся пространственной концентрации студенческого контингента: за 2019–2025 годы доля студентов Алматы, Астаны и Шымкента выросла с 53,2 до 60,8 процента. Предложенный подход имеет практическую значимость для региональных управлений образования, потенциальных инвесторов и самих вузов. Сформулированы направления государственной политики для активизации инвестиций в региональное высшее образование.

Ключевые слова: высшее образование, инвестиционная привлекательность, региональная экономика, Казахстан, человеческий капитал, государственно-частное партнёрство.

Введение

В последние десятилетия высшее образование перестало рассматриваться как изолированная социальная сфера и приобрело статус ключевого сектора экономики знаний. Университеты сегодня — это не просто «фабрики» человеческого капитала. Они также служат опорными узлами региональных инновационных экосистем, а значит, остро реагируют на долгосрочные инвестиционные решения (Agasisti et al., 2024; OECD, 2023).

Для Казахстана данный сюжет особенно актуален. Согласно данным Бюро национальной статистики РК, к началу 2025/26 учебного года в республике действовало 116 вузов, в которых обучалось 678,1 тыс. студентов — на 8,6 % больше, чем годом ранее. Однако распределение этого контингента крайне неравномерно: на три города республиканского значения приходится 60,8 % всех обучающихся — 219,0 тыс. в Алматы, 101,6 тыс. в Астане и 91,6 тыс. в Шымкенте (Бюро национальной статистики РК, 2025).

Складывается парадокс. Студентов в стране становится больше, но региональные университеты при этом одновременно сталкиваются с двумя проблемами — демографическим оттоком и хроническим недофинансированием. Принятая Концепция развития высшего образования и науки РК на 2023–2029 годы провозглашает курс на создание международных образовательных хабов и расширение академической автономии вузов (Правительство РК, 2023). Тем не менее без рабочего инструментария оценки инвестиционной привлекательности эти ориентиры рискуют остаться декларацией.

Существующие подходы к оценке инвестиционной привлекательности образовательных организаций можно условно разделить на три группы. Глобальные рейтинговые системы (QS, THE, ARWU) фокусируются на академических индикаторах и репутационных переменных, что нивелирует региональный вклад вуза (Marginson, 2014). Финансово-аналитические модели рассматривают университет по аналогии с коммерческим предприятием, что плохо согласуется с социальной природой образовательных эффектов. Стейкхолдерские модели интегрируют интересы различных групп, но в канонических версиях, восходящих к работам Freeman (2010), не предлагают чёткого механизма агрегации.

Теоретической рамкой исследования служит синтез трёх научных традиций. Первая — теория человеческого капитала, восходящая к работам Becker (1993) и развитая в моделях эндогенного роста Romer (1990); она трактует расходы на образование как инвестиции с долгосрочной отдачей. Вторая — стейкхолдерский подход (Freeman, 2010), позволяющий рассматривать инвестиционную привлекательность как функцию, чьё значение зависит от типа инвестора. Третья — подходы региональной экономики, в которых университет рассматривается как актор территориального развития (Etzkowitz & Zhou, 2017).

Marginson (2014) показал, что глобальные рейтинги институционализируют вертикальную стратификацию и завышают вес репутационных переменных, искажая реальный социально-экономический вклад университетов. Hazelkorn (2015) развивает этот тезис, демонстрируя, как рейтинговая логика трансформирует приоритеты национальных систем высшего образования. Библиометрический анализ Agasisti et al. (2024) на материале 150 публикаций за 1985–2022 годы устанавливает, что рейтинговая логика плохо переносится на развивающиеся экономики, в которых региональный мандат университета доминирует над международной академической конкуренцией.

Применительно к Казахстану существенный вклад внесли Kireyeva (2025), построившая эконометрическую модель связи показателей высшего образования и социально-экономических индикаторов на материале страны за 2004–2024 годы, и Saparova et al. (2023), зафиксировавшие значительную межрегиональную дисперсию по показателям публикационной активности и доходности от грантов. В отчёте OECD (2017) подчёркивается, что без целевого учёта регионального контекста сравнение вузов в столице и в малых городах ведёт к управленчески ошибочным решениям. Sun & Liu (2024) на материале китайских провинций показали, что инвестиции в высшее образование оказывают наибольший мультипликативный эффект на регионы среднего уровня развития.

Несмотря на содержательность этих работ, в литературе сохраняется методологический пробел: отсутствует комплексная модель, которая интегрирует академические, финансовые, региональные и инфраструктурные измерения и предусматривает дифференциацию приоритетов в зависимости от типа инвестора. Восполнение этого пробела составляет основной вклад настоящей статьи. Цель исследования — обосновать комплексный подход к оценке инвестиционной привлекательности казахстанских вузов с учётом региональной дифференциации.

Материалы и методы

Исследование носит концептуально-аналитический характер и опирается на синтез качественных методов работы с теоретическими источниками и количественного анализа открытых статистических данных. Эмпирическую базу исследования составили: данные Бюро национальной статистики АСПР Республики Казахстан о численности и структуре высших учебных заведений за 2019–2025 годы (Бюро национальной статистики РК, 2025); аналитические материалы и индикаторы ОЭСР (OECD, 2017, 2023); нормативно-правовые акты Республики Казахстан в области высшего образования (Правительство РК, 2023; Закон «Об образовании», 2007); англоязычные академические публикации, индексируемые в базах Scopus и Web of Science.

Применённые методы анализа включают: критический обзор литературы для выявления исследовательского пробела; контент-анализ нормативных и стратегических документов; сравнительный анализ агрегированных показателей высшего образования в динамике; синтез теоретических подходов (теория человеческого капитала, стейкхолдерская теория, подходы региональной экономики) для построения концептуальной модели; матричный метод для систематизации приоритетов разных типов инвесторов.

Инвестиционная привлекательность вуза в настоящем исследовании рассматривается как многомерная характеристика, отражающая совокупность качественных и количественных параметров, определяющих целесообразность вложения ресурсов в развитие организации с целью получения экономического или социального эффекта в долгосрочной перспективе. При этом разграничиваются понятия инвестиционной привлекательности (потенциальная готовность принять инвестиции) и инвестиционной активности (фактически осуществлённые вложения): первая выступает необходимым, но не достаточным условием второй.

Методическая логика построения предлагаемой системы показателей предполагает три этапа: (1) выделение содержательно завершённых групп показателей, охватывающих ключевые измерения деятельности вуза; (2) обоснование принципа сопоставимости значений в рамках сопоставимой выборки (по категории или региону); (3) построение матрицы соответствия между группами показателей и приоритетами различных типов инвесторов. Ограничением исследования является преимущественная опора на вторичные открытые источники; апробация модели на первичных данных финансовой отчётности конкретных вузов составляет задачу дальнейшей работы.

Результаты

Для комплексной оценки инвестиционной привлекательности вуза предлагается система из четырёх групп показателей, охватывающих ключевые измерения деятельности образовательной организации (таблица 1). Каждая группа представляет собой содержательно завершённый блок и может рассматриваться как самостоятельно, так и в составе общего профиля.

Таблица 1. Система показателей оценки инвестиционной привлекательности вуза

Группа показателей	Состав
Академический потенциал	Доля ППС с учёными степенями; публикационная активность (Scopus / Web of Science); патентная активность; доля иностранных студентов и преподавателей
Финансово-экономическая устойчивость	Доля внебюджетных доходов; доходы от грантов и НИОКР; рентабельность образовательной деятельности; наличие и объём эндаумент-фондов
Региональная комплементарность	Соответствие профилей подготовки структуре экономики региона; совместные лаборатории с местными предприятиями; доля выпускников, трудоустроенных в регионе; объём заказных НИОКР от региональных предприятий
Инфраструктурная зрелость	Состояние материально-технической базы; уровень цифровизации (LMS, smart campus); обеспеченность общежитиями; транспортная и социальная доступность кампуса
Примечание: составлено авторами на основе (Бюро национальной статистики РК, 2025; Kireyeva, 2025; OECD, 2017)	

Принципиальная особенность подхода состоит в том, что показатели разных групп необходимо рассматривать в сопоставимом виде. Прямое сравнение абсолютных значений вузов, расположенных в разных социально-экономических условиях, ведёт к «эффекту масштаба»: столичные университеты автоматически выглядят привлекательнее областных по большинству количественных индикаторов, хотя в действительности могут отставать по показателям региональной комплементарности. Поэтому при сопоставлении вузов целесообразно приводить значения показателей к единой шкале относительно сопоставимой выборки — например, вузов одной категории или одного региона.

Один и тот же вуз может обладать различной привлекательностью для разных категорий инвесторов. Это обусловлено различием в их целевых установках: государство ориентировано на социальный эффект, частный инвестор — на коммерческую отдачу, международные фонды — на академическую репутацию, бизнес-сообщество — на доступ к кадрам и совместные исследования. Соответствующие приоритеты и индикаторы возврата инвестиций представлены в таблице 2.

Таблица 2. Матрица типов инвесторов и их приоритетов

Тип инвестора	Ключевой приоритет	Индикаторы возврата
Государство	Социальный эффект, региональный баланс	Охват населения, число рабочих мест, налоговые поступления
Частный инвестор	Окупаемость, коммерческий потенциал	Доходы от общежитий и технопарков, прикладные исследования
Международные фонды	Академическое качество, репутация	Публикационная активность, позиции в международных рейтингах
Бизнес-сообщество	Доступ к кадрам и R&D	Качество выпускников, совместные патенты, заказные НИОКР
Примечание: составлено авторами		

Для государственного инвестора ведущее значение приобретает группа региональной комплементарности: финансирование вузов рассматривается прежде всего как инструмент сглаживания межрегионального дисбаланса. Частный инвестор, напротив, концентрируется на финансово-экономической устойчивости и сроках окупаемости. Международные фонды и донорские организации в первую очередь оценивают академический потенциал, для них ключевыми становятся показатели публикационной активности и интернационализации. Бизнес-сообщество демонстрирует наиболее сбалансированный профиль интересов, объединяющий качество выпускников и интеграцию в региональную экономику.

Анализ открытых данных Бюро национальной статистики Республики Казахстан позволяет охарактеризовать общеинституциональный контекст высшего образования (таблица 3). Динамика показателей за 2019–2025 годы выявляет три значимые тенденции (Бюро национальной статистики РК, 2025): после периода консолидации сектора число вузов вновь выросло до 116; численность студентов увеличилась на 12,2 % -до 678,1 тыс. человек, причём только за последний год прирост составил 8,6 %; и, что особенно значимо для настоящего исследования, доля студентов трёх городов республиканского значения выросла с 53,2 % до 60,8 %, что свидетельствует об углублении пространственной поляризации системы.

Таблица 3. Динамика основных показателей высшего образования Казахстана

Показатель	2019/2020 учебный год	2022/2023 учебный год	2024/2025 учебный год	2025/2026 учебный год
Число вузов, ед.	125	116	113	116
Численность студентов, тыс. чел.	604,3	578,2	624,5	678,1
Доля студентов в Алматы, Астане, Шымкенте, %	53,2	57,4	59,8	60,8
Доля иностранных студентов, %	3,4	4,1	4,7	4,9
Примечание: составлено авторами по данным Бюро национальной статистики Республики Казахстан (Бюро национальной статистики РК, 2025).				

Применение предложенного подхода позволяет описать два качественно различных типа инвестиционного профиля казахстанских вузов. Столично-агломерационные университеты Алматы и Астаны обладают сильными позициями по группам академического потенциала и финансово-экономической устойчивости: они располагают развитой академической средой, доступом к международным грантам и широким рынком коммерческих образовательных услуг. Вместе с тем их региональная комплементарность нередко оказывается ниже ожидаемой: значительная доля выпускников ориентирована на национальный или международный рынки труда, а не на локальные нужды.

Региональные вузы, напротив, демонстрируют высокую комплементарность с местной экономикой, выступая фактически безальтернативными поставщиками квалифицированных кадров для определённых секторов в своих областях. При этом они уступают столичным по финансовой устойчивости и академическому потенциалу. Именно здесь государственные и квазигосударственные инвестиции способны обеспечить наибольший мультипликативный эффект — при условии целевого финансирования приоритетных для региона направлений подготовки. Этот вывод согласуется с результатами Sun & Liu (2024), показавших на материале китайских провинций, что инвестиции в высшее образование оказывают наибольший мультипликативный эффект на регионы среднего уровня развития, тогда как в наиболее развитых регионах эффект отдачи снижается из-за насыщения.

Обсуждение

Полученные результаты позволяют по-новому взглянуть на дискуссию об инвестиционной привлекательности вузов в развивающихся экономиках. В отличие от подходов, опирающихся на глобальные рейтинговые системы (Marginson, 2014; Hazelkorn, 2015), предложенная модель явно встраивает региональное измерение в качестве самостоятельного блока показателей, а не как корректирующий фактор. Это соответствует общему тренду пересмотра рейтинговой логики применительно к развивающимся экономикам, зафиксированному в библиометрическом обзоре Agasisti et al. (2024).

Новизна предложенного подхода состоит в трёх взаимосвязанных аспектах. Во-первых, осуществлён синтез теории человеческого капитала, стейкхолдерского подхода и региональной экономики в единой методологической рамке, что позволяет рассматривать инвестиционную привлекательность не как универсальную скалярную величину, а как функцию от типа инвестора. Во-вторых, введена группа «региональная комплементарность», операционализирующая вклад вуза в локальную экономику через измеримые индикаторы (трудоустройство выпускников в регионе, заказные НИОКР, совместные лаборатории). В-третьих, построена матрица приоритетов, обеспечивающая дифференцированную интерпретацию одних и тех же количественных показателей в зависимости от инвестиционной перспективы.

Анализ открытых данных и отчётов ОЭСР (OECD, 2017) позволяет выделить четыре системных барьера, тормозящих рост инвестиционной активности в региональном высшем образовании Казахстана. Первый — институциональный разрыв между республиканским и местным уровнями управления: ограниченность полномочий акиматов в отношении вузов республиканского подчинения снижает гибкость реагирования на региональные инициативы. Второй — информационная асимметрия: недостаточная прозрачность финансовой и академической отчётности значительной части региональных вузов затрудняет объективную оценку их потенциала со стороны инвесторов. Третий — слабая институционализация связей вуз-бизнес, особенно в индустриальных областях с высокой долей добывающих производств. Четвёртый — дефицит инвестиционной культуры в самих вузах: отсутствие профессиональных служб развития и компетенций в области эндаумент-менеджмента, фандрайзинга и работы с международными донорами.

Симметрично выявленным барьерам можно идентифицировать драйверы, способные активизировать инвестиционные потоки. К ним относятся: развитие государственно-частного партнёрства в форме концессионных соглашений на строительство студенческих кампусов и исследовательских центров; создание специализированных образовательных и технологических зон с особым налоговым режимом для инвесторов, вкладывающихся в региональную образовательную инфраструктуру; цифровая трансформация образовательных процессов, снижающая барьеры входа для гибридных инвестиционных моделей; формирование региональных образовательных консорциумов, объединяющих вузы, предприятия и акиматы для агрегирования инвестиционного спроса. Логика этих драйверов согласуется с моделью «тройной спирали» Etzkowitz & Zhou (2017), в которой устойчивое развитие региональной инновационной системы обеспечивается институционализированным взаимодействием университетов, бизнеса и государства.

Полученные выводы согласуются с результатами Saparova et al. (2023), зафиксировавшими значительную межрегиональную дисперсию казахстанских вузов по показателям публикационной активности и доходности от грантов, и с эконометрической моделью Kireyeva (2025), демонстрирующей нелинейную связь показателей высшего образования с социально-экономическим развитием. Достоверность полученных результатов опирается на два основания. Во-первых, использовались верифицируемые официальные источники — данные Бюро национальной статистики РК и ОЭСР. Во-вторых, выводы сопоставлялись с независимыми эмпирическими исследованиями.

Вместе с тем у работы есть свои ограничения. Предложенная модель носит концептуальный характер, а значит, нуждается в дальнейшей эмпирической проверке на полной выборке вузов. Кроме того, опора на агрегированные показатели неизбежно «сглаживает» картину: уловить специфику отдельных образовательных организаций такой подход не позволяет.

Заключение

Во-первых, инвестиционная привлекательность вуза — явление многоуровневое. Свести его только к финансовым или академическим показателям нельзя. Корректная оценка возможна лишь при синтезе четырёх измерений: академического, финансового, регионального и инфраструктурного.

Во-вторых, региональный контекст — это самостоятельный уровень анализа, причём методологически значимый. Если его не учитывать при сравнении вузов, неизбежны систематические управленческие ошибки и неверная расстановка инвестиционных приоритетов. Для Казахстана с его растущей пространственной концентрацией высшего образования эта проблема особенно болезненна. В-третьих, дифференциация подхода по типам инвесторов позволяет формировать более точные инвестиционные стратегии и избегать универсалистских решений, неэффективных в условиях неоднородной образовательной системы.

Гипотеза, выдвинутая во введении, о необходимости интеграции регионального измерения в оценку инвестиционной привлекательности вузов и о различии приоритетов разных типов инвесторов, нашла подтверждение в результатах теоретико-аналитического исследования. Научная новизна работы состоит в построении интегрированной модели, объединяющей четыре группы показателей и матрицу инвесторских приоритетов в единой методологической рамке.

Практическая значимость предложенного подхода связана с возможностью его применения тремя группами пользователей: региональными управлениями образования и акиматами — для формирования инвестиционных карт вузов и приоритизации финансирования; потенциальными инвесторами — для предварительной оценки целевых организаций; самими вузами — для самодиагностики и формирования стратегий повышения инвестиционной привлекательности.

Исследование имеет ряд ограничений. Эмпирическая база сформирована из открытых вторичных источников; для углублённого анализа необходимы первичные данные финансовой отчётности вузов и экспертные оценки. Перспективы дальнейшей работы связаны с эмпирической апробацией подхода на полной выборке казахстанских вузов с использованием методов экспертного опроса, а также с разработкой инструментария для автоматизированного мониторинга инвестиционной привлекательности образовательных организаций.

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Қазақстан жоғары оқу орындарының инвестициялық тартымдылығын бағалау

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Аңдатпа

Білімге негізделген экономика жағдайында жоғары білім беру стратегиялық инвестициялық нысанға айналды, алайда жоғары оқу орындарының инвестициялық тартымдылығын бағалаудың қазіргі тәсілдері қаржылық көрсеткіштермен шектеледі немесе аймақтық контексті жеткілікті ескермейтін жаһандық рейтингтерге сүйенеді. Зерттеудің мақсаты — Қазақстанның жоғары оқу орындарының инвестициялық тартымдылығын аймақтық саралауды ескере отырып, бағалаудың кешенді тәсілін негіздеу. Әдіснамалық негізі ретінде әдебиеттерге шолу мен ҚР Ұлттық статистика бюросы және ЭЫДҰ-ның 2019–2025 жылдардағы ашық деректерін талдау пайдаланылды. Адами капитал теориясы, стейкхолдерлік тәсіл және аймақтық экономика синтезі негізінде көрсеткіштердің төрт тобынан тұратын жүйе ұсынылды: академиялық әлеует, қаржы-экономикалық тұрақтылық, аймақтық комплементарлық және инфрақұрылымдық кемелдік. Инвесторлардың төрт түріне (мемлекет, жеке инвестор, халықаралық қорлар, бизнес-қауымдастық) арналған басымдықтар матрицасы әзірленді. Зерттеу астаналық және облыстық жоғары оқу орындарын салыстыруда аймақтық ерекшелікті ескермеу жүйелі басқарушылық қателіктерге әкелетінін көрсетеді Бұл студенттер контингентінің ірі агломерацияларда кеңістіктік шоғырлануының күшеюі жағдайында ерекше өзекті: 2019–2025 жылдар аралығында Алматы, Астана және Шымкент қалаларындағы студенттердің үлесі 53,2 %-дан 60,8 %-ға дейін өскен. Ұсынылған тәсіл аймақтық білім беру басқармалары, әлеуетті инвесторлар және жоғары оқу орындарының өздері үшін практикалық маңызға ие. Аймақтық жоғары білім беруге инвестицияны жандандыру бойынша мемлекеттік саясаттың бағыттары ұсынылды.

Кілт сөздер: жоғары білім беру, инвестициялық тартымдылық, аймақтық экономика, Қазақстан, адами капитал, мемлекеттік-жекеменшік әріптестік.

Assessment of investment attractiveness of universities in Kazakhstan

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Abstract

In the knowledge economy, higher education has become a strategic area for investment; however, existing approaches to assessing the investment attractiveness of universities are either limited to financial indicators or rely on global rankings, paying insufficient attention to regional context. This study aims to substantiate a comprehensive approach to assessing the investment attractiveness of Kazakhstani universities through regional differentiation. The methodological framework combines a literature review with an analysis of open data from the Bureau of National Statistics of Kazakhstan and the OECD for the period 2019–2025. Based on a synthesis of human capital theory, the stakeholder approach, and regional economics, a system of four indicator groups is proposed: academic potential, financial and economic sustainability, regional complementarity, and infrastructural maturity. A priority matrix has been developed for four categories of investors: the state, private investors, international funds, and the business community. The study demonstrates that disregarding regional specificities when comparing metropolitan and regional universities leads to systematic managerial errors, which is particularly relevant given the increasing spatial concentration of student enrolment in major urban agglomerations. The share of students in Almaty, Astana, and Shymkent increased from 53.2 % to 60.8 % between 2019 and 2025. The proposed approach has practical significance for regional education authorities, potential investors, and universities themselves. Policy recommendations for stimulating investment in regional higher education are also proposed.

Keywords: higher education, investment attractiveness, regional economics, Kazakhstan, human capital, public-private partnership.

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Конфликт интересов

Авторы заявляют об отсутствии конфликта интересов