

The Role of Education Policy as Human Capital Investment in Driving Social Welfare: A Hybrid Systematic Literature Review and Bibliometric Analysis

Cut Misni Mulasiwi^{1,2}, Aniek Hindrayani ✉¹, Mintasih Indriayu¹

DOI:10.15294/eeaj.v15i3.48373

¹Doctoral Program in Economics Education, Faculty of Teacher Training and Education, Universitas Sebelas Maret, Surakarta, Indonesia

²Economics Education Study Program, Faculty of Economics and Business, Universitas Jenderal Soedirman, Purwokerto, Indonesia

Abstract

Education policy is viewed as a strategic investment in human resource development and is often normatively assumed to be a universal instrument for promoting well-being. This study aims to unravel this conceptual complexity by mapping trends in the evolution of global research, analyzing the distribution of academic contributions, and synthesizing the mechanisms through which educational investment may contribute to social well-being. The method used is a hybrid approach that integrates bibliometric analysis and a Systematic Literature Review (SLR) following the PRISMA protocol. Macro-level bibliometric analysis was used to map knowledge clusters, which were subsequently transformed into a framework to guide a micro-level qualitative synthesis of 36 core Scopus-indexed articles (2015–2025). The findings reveal four major themes in global research: education funding, the labor market, welfare reform, and policy evaluation. The analysis indicates that the impact of educational investment on well-being does not occur automatically. It depends on a country's specific circumstances and must be supported by a robust budget and sound institutional management to ensure that a bachelor's degree is not wasted. This study offers a new perspective that bridges two theories: the theory that views education merely as a means of finding work (Human Capital) and the theory that views education as a means of humanizing people (Capability Approach). This study provides strategic implications for policymakers regarding the importance of reorienting educational investment toward strengthening inclusive digital literacy.

Keywords: Education Policy, Human Capital Investment, Societal Welfare, PRISMA Approach, Systematic Literature Review, Bibliometric Analysis

Article Info

Article History: Received: April 28, 2026 | Accepted: July 10, 2026 | Published: October 15, 2026

How To Cite

Mulasiwi, C. M., Hindrayani, A., & Indriayu, M. (2026). The Role of Education Policy as Human Capital Investment in Driving Social Welfare: A Hybrid Systematic Literature Review and Bibliometric Analysis. *Economic Education Analysis Journal*, 15(3) 2026, 327-342.

© 2026 Universitas Negeri Semarang

✉ Correspondence address:
E-mail: aniek_h@staff.uns.ac.id

p-ISSN 2252-6544
e-ISSN 2502-356X

INTRODUCTION

Education has long been regarded as one of the most strategic forms of human capital investment because it plays a role in enhancing skills, labor productivity, innovation, and social mobility, all of which contribute to economic growth and social welfare (Becker, 1993; Hanushek & Woessmann, 2020). In an increasingly knowledge-based modern economy, education policy serves not only as an instrument for equitable access but also as a key driver of global competitiveness and sustainable social development (Psacharopoulos & Patrinos, 2018; OECD, 2019). Nevertheless, the traditional view that positions education policy as a universal mechanism that automatically boosts well-being is facing sharp criticism in contemporary discussions. Empirical evidence indicates that the returns on this investment are context-sensitive and moderated by local institutional characteristics and a country's fiscal capacity. If not aligned with labor market needs, expanding access to education risks triggering credential inflation. This occurs when increasingly higher academic degrees fail to translate into tangible increases in labor productivity (Esping-Andersen, 2015; Fusarelli, 2015; UNESCO, 2022). Therefore, an analytical reorientation is needed to unpack these complex relationships more critically and comprehensively.

Although the impact of education on human capital has been widely discussed, the global literature indicates that studies simultaneously linking education policy, human capital investment, and social welfare remain highly fragmented. This limitation gives rise to a fundamental research gap that can be identified across three main dimensions. First, there is an empirical gap where previous research has focused more on partial dimensions, such as budget effectiveness or macroeconomic growth in isolation, without mapping the variations in their impacts across regions with contrasting economic and political characteristics (Bingab et al., 2016; Kimaryo, 2025; Liang, 2024). Second, there is a theoretical gap resulting from sharp differences in perspective between two main approaches. On one hand, Human Capital Theory focuses more on economic productivity and labor market needs.

On the other hand, the Capability Approach emphasizes the expansion of basic freedoms and the quality of human life (Musabayeva et al., 2024; Zhao et al., 2025). Third, there is a methodological imbalance in the secondary literature; most reviews are divided between purely qualitative studies, which are prone to subjective bias and purely quantitative bibliometric analyses, which tend to be descriptive without substantive depth of synthesis (Chotisarn & Phuthong, 2025; Marzi et al., 2025). To bridge this gap, this study proposes a robust methodological framework through the use of a hybrid approach that integrates a Systematic Literature Review (SLR) and bibliometrics. The combination of these two methods offers a stronger analytical advantage than conventional literature reviews, as it is capable of simultaneously uniting broad (macro) perspectives and in-depth (micro) analysis. Here, bibliometric analysis is used to map the direction of experts' thinking, identify global publication trends, and objectively discover common ground among research theme groups (Ni & Abdullah, 2025). The resulting quantitative network structure is not merely presented as a collection of isolated data points. Instead, the data is transformed into a primary analytical framework that guides the document selection process and thematic clustering within the SLR (Hadi et al., 2020).

Through the SLR, a systematic, transparent, and replicable qualitative synthesis is conducted to dissect the relationships between variables and thoroughly unpack the conceptual debates within core articles. The novelty of this study lies in the development of a dynamic interpretive pathway framework that bridges the contributions of human capital investment with inclusive and context-sensitive indicators of social well-being, in order to temper the normative claims that have long dominated the literature. In line with this direction, this study aims to map the developments and evolving trends in global research on education policy, analyze the distribution of academic contributions based on networks of actors and cross-national institutional affiliations, and synthesize the trajectory of empirical contributions along with the conceptual tensions that moderate the effectiveness of educational interventions on well-being. Through this prioritized set of objectives, this study is expected to provide an original intellectual contribution while presenting a solid scientific basis for the formulation of adaptive, long-term education policies.

METHOD

This research method employs a hybrid approach that operationally integrates a macro-level quantitative method, namely, bibliometric analysis with a micro-level qualitative method namely, a Systematic Literature Review (SLR) (Donthu et al., 2021; Snyder, 2019). The integration of these two approaches is designed sequentially to ensure the coherence of a rigorous final analytical framework.

In the initial stage, bibliometric analysis was applied to evaluate the macro landscape of the data by mapping global publication trends, the geographic distribution of research, and visualizing keyword networks to identify dominant knowledge clusters emerging in the global literature (Donthu et al., 2021). Subsequently, the structure of these quantitative keyword clusters was transformed into a substantive qualitative framework to guide an in-depth review of the content of scientific documents (Snyder, 2019). Through this combined approach, the visualization results are not merely presented descriptively but serve as an operational foundation for conducting qualitative content analysis to formulate an empirical mechanism for how education policy contributes to public welfare.

The search for scientific literature in this study was limited exclusively to the Scopus database. The selection of Scopus was based on the methodological consideration that this database employs a rigorous peer-review process, thereby ensuring the academic quality of manuscripts and comprehensively indexing the literature on the economics of education. The selection of Scopus was also based on its reputation as the largest citation and abstract database covering high-quality scientific literature (Q1–Q4) with broad global coverage, thereby ensuring the validity of the analyzed data (Mongeon & Paul-Hus, 2016). Additionally, it provides a bibliographic metadata structure that is fully compatible with the data-mining algorithms in the VOSviewer software (Van Eck & Waltman, 2010). The data search was conducted by querying the TITLE, ABS, and KEYWORD fields (TITLE-ABS-KEY).

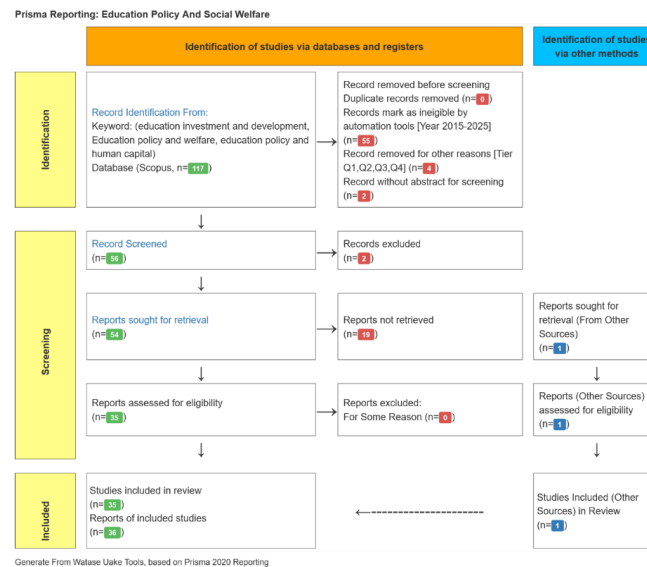
The Boolean query (search string) implemented in the search system is TITLE-ABS-KEY ((“education investment” AND “development”) OR (“education policy” AND ‘welfare’) OR (“education policy” AND “human capital”)). The publication timeframe was limited to the last decade, specifically from 2015 to 2025, to capture the novelty of post-pandemic policy orientations and the fulfillment of sustainable development goals. Through this search query, the system generated an initial raw dataset of 117 documents ready to enter the next screening stage. The manuscript selection procedure was conducted transparently using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) protocol to minimize selection bias and strengthen the research’s replicability (Page et al., 2021). The raw dataset of 117 documents was screened in stages using strict inclusion and exclusion criteria to ensure the relevance and originality of the empirical data for analysis. Details regarding the eligibility criteria for these documents are presented in full in Table 1.

Table 1. Inclusion & Exclusion Criteria for Literature Selection According to the PRISMA 2020

Selection Parameter	Inclusion Criteria (Eligible)	Exclusion Criteria (Excluded)
Document Type	Peer-reviewed scientific journal articles based on empirical research.	Non-article documents such as conference papers, book chapters, books, short surveys, or conference reviews.
Indexing Quality	Reputable international journal articles officially indexed within Scopus quartiles (Q1 to Q4).	Articles from non-Scopus journals or those lacking a validated official quartile ranking.
Language Restrictions	Manuscripts officially published in English to ensure textual data standardization.	Scientific documents written in languages other than English.
Text Accessibility	Articles providing a complete abstract along with full-text availability or open-access options.	Documents with truncated abstracts or paywalled manuscripts with inaccessible full texts.
Thematic Relevance	Research focusing on the impact of human capital investment, education policy, and welfare indicators.	Manuscripts discussing education regulations outside the context of applied economics and social welfare development.

Based on the screening stages outlined in Table 1, the document elimination process excluded 55 non-article documents, 4 articles for failing to meet the quartile standards, and 2 documents due to difficulties accessing the full text. The final step involved a manual screening of the titles and abstracts of the remaining 56 manuscripts (Fusarelli, 2015). Through this series of systematic screening steps, 35 articles that met Scopus’s eligibility criteria were identified. These were then combined with 1 article identified through an external literature search, resulting in a final total of 36 core articles for

analysis in the systematic review. The following is a visualization of the PRISMA steps that were carried out:



Source: Output of Watase Uake Analysis, 2025

Figure 1. Systematic Literature Review Using the PRISMA Framework

Next, a quantitative network analysis of the bibliographic metadata was conducted using VOSviewer (version 1.6.20; Van Eck & Waltman, 2010). To ensure methodological transparency and avoid procedural ambiguity, all technical configurations and thresholds were specifically defined. The software's operationalization was mapped to the structured technical parameters listed in Table 2:

Table 2. Technical Parameter Specifications and Configuration for VOSviewer Bibliometric Analysis

Analysis Component	Specific Configuration Setting	Evidence-Based Methodological Justification
Primary Unit of Analysis	Co-occurrence	Comprehensively maps the conceptual interconnections and linkages among research themes.
Keyword Association Type	All Keywords	Captures a broad spectrum of scientific terms from both author-provided keywords and database indexing.
Counting Method	Fractional Counting	Normalizes node weights to prevent documents with an excessive number of keywords from dominating the network visualization.
Minimum Threshold	Minimum keyword occurrence of 3 times	Filters out irrelevant peripheral or noise terms, retaining only the core conceptual keywords.
Normalization Method	Association Strength	Accurately measures the relative proximity and strength of relationships between conceptual nodes.
Clustering Parameters	Resolution: 1.0; Minimum size: 2	Optimally partitions the network structure into primary thematic clusters without overlapping.

The application of the parameters in Table 2 ensures that the resulting network visualization is robust and capable of precisely exploring the scientific structure. The keyword network formed through this process serves as a macro-level framework that guides the qualitative content analysis in the next phase. The findings from the articles were then analyzed bibliometrically and systematically to answer the research questions, which consist of: (1) RQ1: What are the developments and trends in research related to education policy and human capital investment in improving social welfare?; (2)

RQ2: What is the global distribution and focus of research on the relationship between education policy, human capital investment, and social welfare?; (3) RQ3: What are the theoretical and practical implications of these research findings for the development of future education policies and strategies to improve social welfare?; (4) RQ4: What are the empirical mechanisms underlying the contribution of education policy—as a form of human capital investment—to the realization of social welfare?

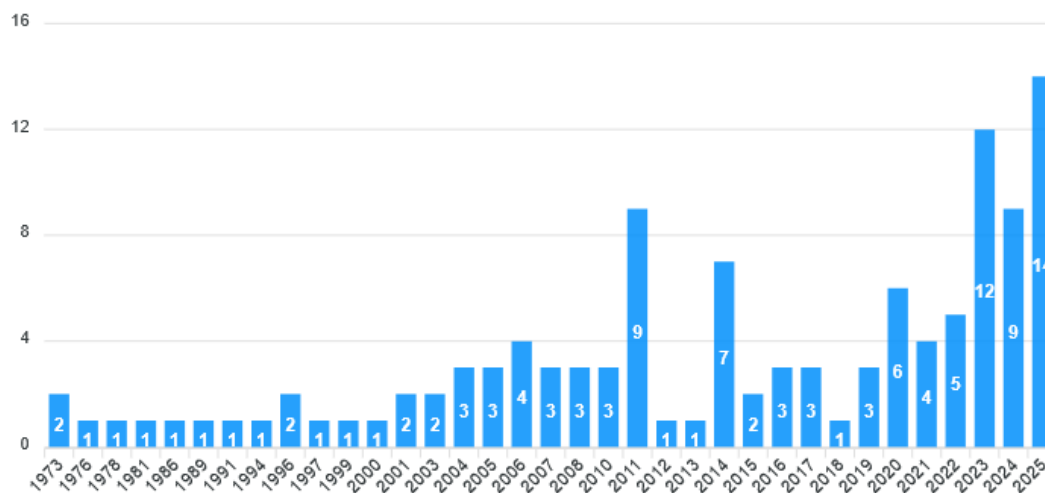
RESULTS AND DISCUSSION

The findings of this study are derived from articles indexed in the Scopus database concerning education policy, human capital investment, and their impact on societal welfare. These studies were analyzed using a systematic literature review approach, employing a scoping review framework based on PRISMA, in conjunction with bibliometric analysis.

Research Development and Trends in Education Policy and Human Capital Investment for Enhancing Societal Welfare (RQ1)

Based on data retrieved from the Scopus database, it is evident that over the past decade, research on education policy, human capital investment, and societal welfare has exhibited a consistent upward trajectory. However, the number of studies that explicitly examine the interrelationship among these three dimensions remains relatively limited, as illustrated in Figure 2 below. This finding underscores that the study of education investment as an instrument for improving societal welfare continues to represent an area requiring further scholarly attention and more comprehensive investigation.

Result from Keyword Search



Source: Output of Watase Uake Analysis, 2025

Figure 2. Trend Graph Over Time of Research on Education Policy, Human Capital Investment, and Societal Welfare

Based on the publication trend graph in Figure 2, we can see the dynamics of research development regarding education policy, human capital investment, and social welfare within a long historical context spanning from 1973 to 2025. Although the visualization of the system's outputs includes historical baseline data including a significant surge in 2011 reflecting the Education for All (EFA) agenda, the Millennium Development Goals (MDGs), the post-2008 economic crisis recovery strategy, and the early era of digital access to hybrid research journals, this in-depth synthesis strictly focuses on the contemporary decade of 2015–2025. This analytical phase was intentionally limited to capture post-pandemic policy orientations and the fulfillment of current sustainable development goals.

This phase of analysis begins in 2015, when the world underwent a global transition from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs). This shift in the macro agenda required adjustments to research directions and the reallocation of funding, resulting in a temporary slowdown in scientific publications on topics related to education policy and social welfare, with only two major studies published during this period: Weber et al. (2015) and Fusarelli (2015). Through his international comparative study, Fusarelli (2015) emphasized that child well-being, educational quality, and learning outcomes are significantly influenced by a country's social policies, where racial and social class inequalities can limit the effectiveness of educational investments in promoting equitable well-being. This demonstrates that investment in human capital in the face of technological change and labor market dynamics, must be directed toward developing flexible, adaptive, and generic skills to genuinely boost the competitiveness of the workforce.

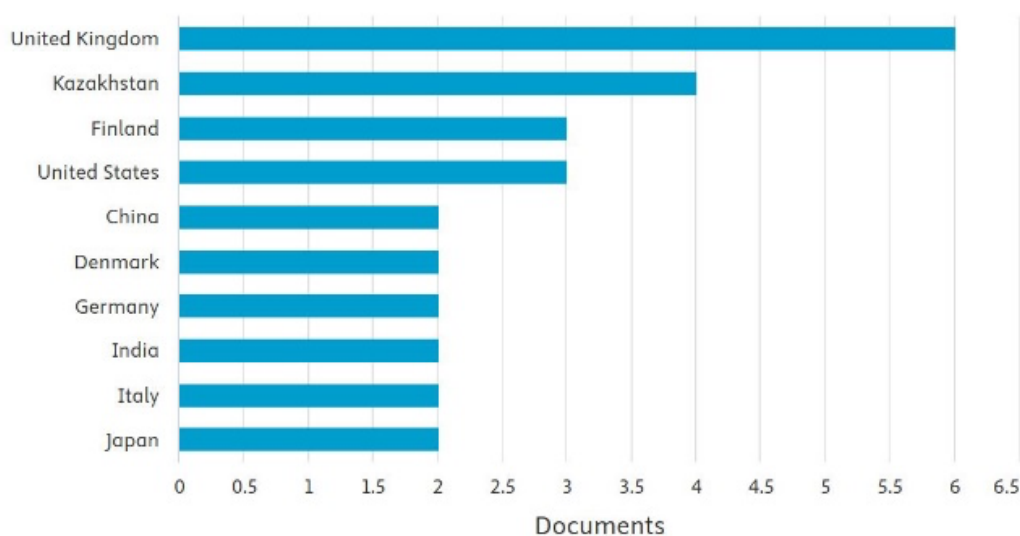
After navigating this transitional phase, research trends have consistently risen again starting in 2017, peaking during the 2024–2025 period. This increase was driven by a growing global commitment to SDG 4 (Quality Education), the rising urgency of studies on the externalities of educational investment on labor productivity, and the disruption caused by the COVID-19 pandemic, which spurred new explorations regarding access to education, the digital divide, and their implications for quality of life. Furthermore, the expansion of the open-access publication ecosystem has also accelerated the growth in the volume of these scientific outputs. Overall, this trend indicates that research on education policy and human capital investment is increasingly viewed as strategic within the context of applied microeconomics and sustainable development.

The evolution of research in this modern phase has attracted widespread interest from academics, focusing on the impact of educational investment on workforce quality, social mobility, economic growth, and social welfare. Contemporary human capital theory treats adult education policy as a strategic instrument for enhancing workforce competencies and national productivity. For example, Liang (2024) demonstrates that government policy investments in university development in underdeveloped regions play a significant role in strengthening human capital capacity while supporting long-term economic development. At the household level, increases in educational investment are also shown to be influenced by macro-level population regulations, such as the impact of the two-child policy on financial burdens and family educational priorities in urban areas. Meanwhile, a case study in Kosovo by Cocaj (2023) shows that the modernization of the IT education system and the improvement of digital literacy are crucial foundations for the economic competitiveness of post-conflict societies. Furthermore, a strong and innovative education system has been shown to play a major role in enhancing social awareness, adaptability, and the community's capacity to participate in sustainable development. Collectively, these recent studies confirm that education policy plays a key role in strengthening community resilience in the face of dynamic economic competition by improving skills, productivity, and employment opportunities.

Global Distribution and Research Focus on the Relationship between Education Policy, Human Capital Investment, and Social Welfare (RQ2)

The analysis of research distribution on education policy, human capital investment, and societal welfare across the 36 selected articles was conducted by categorizing the studies based on classifications such as country, region, institutional affiliation, source (journal), and authorship, with the limitation of including only the top 10 entries within each category. Understanding the distribution of research in this domain provides valuable insights for both academics and practitioners in shaping future research agendas, particularly in advancing the sustainable development of paradigms related to education policy, human capital investment, and societal welfare. The distribution analysis of publications on education policy as a form of human capital investment indicates that research on this theme is dispersed across various countries with differing levels of intensity, as illustrated in Figure 3 below.

Compare the document counts for up to 15 countries/territories.

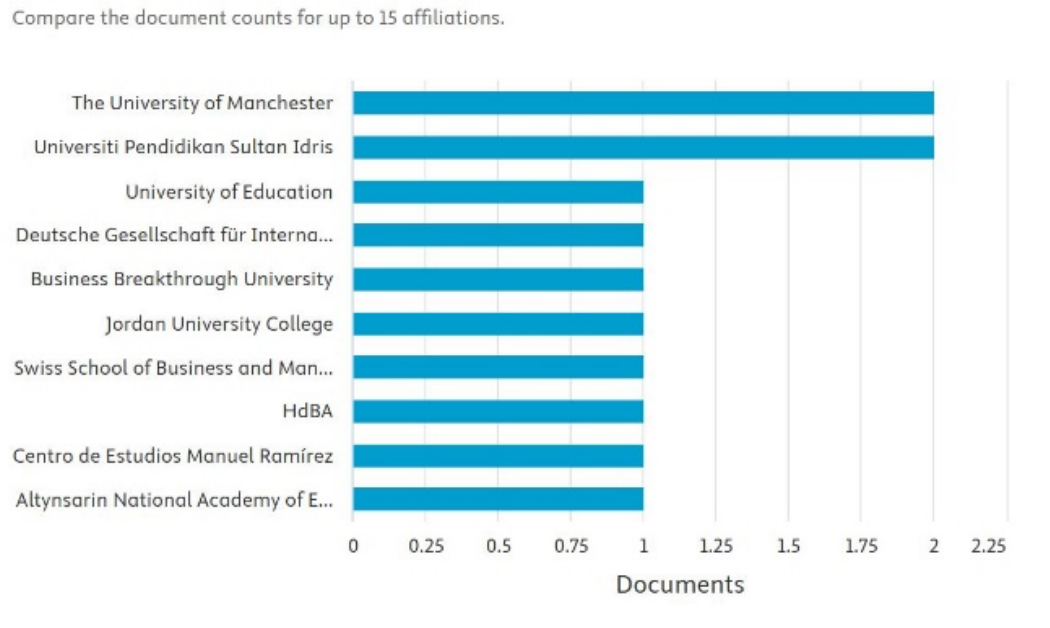


Source: Scopus Database

Figure 3. Distribution of the Number of Documents by Country or Territory

A visualization of the distribution of publications by country of origin indicates the depth of academic discourse. This discourse is influenced by variations in the political-economic landscape and welfare regimes. The United Kingdom leads with the highest number of contributions, 6, followed by the United States and Finland, each with 3. This reflects the high level of scholarly attention in Western and Nordic countries to examining the efficiency of human capital allocation. Through the lens of Human Capital Theory, established research productivity in the United Kingdom and the United States tends to be driven by discourse on labor market liberalization and individual economic returns to education (private returns to education). In Finland, the focus of discussion is more directed toward the governance of education as a public good to minimize social class inequality and improve societal well-being equitably (Fusarelli, 2015). On the other hand, Kazakhstan's prominent position with 4 documents signals a geographical shift in research toward transition economies, where the restructuring of the education system serves as a national strategic instrument to shift dependence from the natural resource sector toward a knowledge-based economy (Musabayeva et al., 2024).

Meanwhile, the involvement of a cluster of countries with contrasting socioeconomic backgrounds—such as China, Denmark, Germany, India, Italy, and Japan, each of which produced two documents—indicates a strong trend. Academic discussions regarding the vitality of education policy have transcended regional boundaries and levels of global prosperity. In developing countries with massive populations, such as China and India, scholarly attention is focused on optimizing the demographic dividend by expanding university capacity (Liang, 2024) and mitigating the household-level burden of educational investment (Zhang & Chen, 2024). Conversely, in developed countries such as Denmark and Germany, the primary focus lies on evaluating vocational education systems and strengthening workforce resilience to reduce structural inequalities amid the disruptions of globalization (Weber et al., 2015). Collectively, these spatial findings do not deterministically prove the direct occurrence of social transformation on the ground. Rather, they provide a conceptual foundation indicating that the transnational scientific community views educational policy interventions as a crucial variable in charting a path toward sustainable social well-being. Furthermore, the bibliometric analysis of publication distribution by institutional affiliation, presented in Figure 4 below, shows that research on education policy as an investment in human capital is conducted by various educational and research institutions worldwide. Overall, the institutional distribution reinforces the global scope of this research are.



Source: Scopus Database

Figure 4. Distribution of Research by Institutional Affiliation

The visualization of document distribution by affiliation reveals the global institutional landscape that underpins the direction of academic discourse on human capital investment. The emergence of the University of Manchester and Sultan Idris Education University as major contributors, each with two documents, highlights a convergence of research between Western comprehensive universities and Southeast Asian teacher-training institutions. Theoretically, the intensive involvement of institutions such as the University of Manchester reflects a tradition of evaluating the efficiency of public spending and its impact on social security and long-term productivity (Fusarelli, 2015). Conversely, Sultan Idris University of Education's productivity underscores the significance of teacher-training institutions in formulating inclusive policies to promote social mobility in developing countries (Liang, 2024). Meanwhile, the distribution of contributions from other institutional clusters—each of which contributed one document—such as the University of Education, GIZ, Business Breakthrough University, Jordan University College, the Swiss School of Business and Management, HdBA, the Centro de Estudios Manuel Ramírez, and the Altynsarin National Academy of Education—reflects the heterogeneity of cross-sectoral perspectives. The presence of cooperation agencies such as GIZ signals a shift in research toward evidence-based policy implementation within the framework of global development (UNESCO, 2022). On the other hand, the involvement of business schools and vocational academies such as HdBA confirms the conceptual debate regarding the alignment of vocational education with industry dynamics to mitigate the depreciation of skills resulting from the disruptions of globalization (Weber et al., 2015).

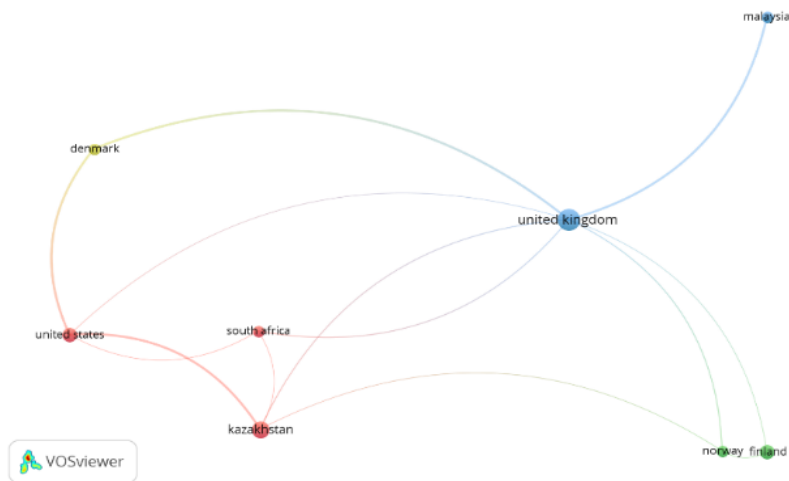
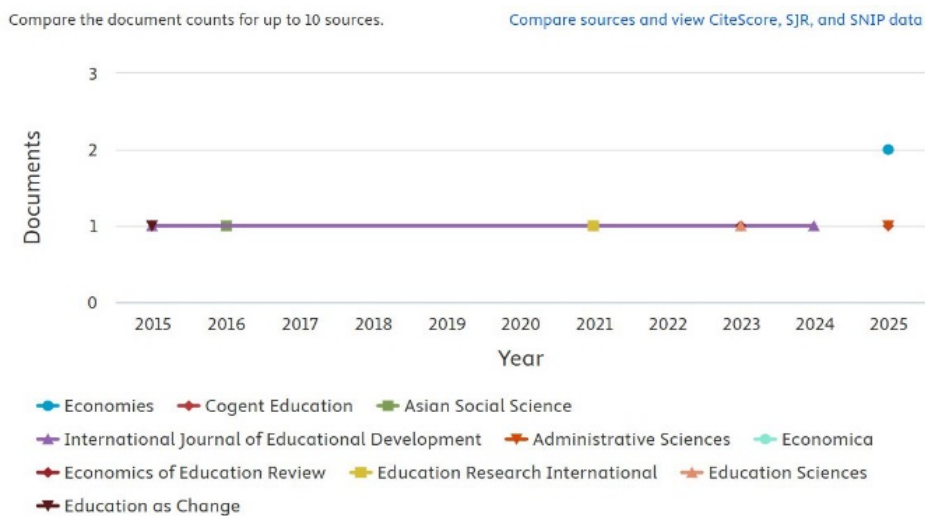


Figure 5. Visualization of the Intercountry Network

The data analysis illustrating trends among countries that have extensively and consistently conducted research on education policy, human capital investment, and societal welfare is presented in Figure 5 above. Based on the bibliometric analysis, the United Kingdom emerges as the leading country, both in terms of volume and early engagement in this research area, as indicated by the blue color (representing the earliest period) and the largest node size. Subsequently, research activity expanded to other countries over time, as reflected by nodes in red, yellow, and green, indicating more recent contributions. In contrast, Indonesia has relatively limited research output in this domain.



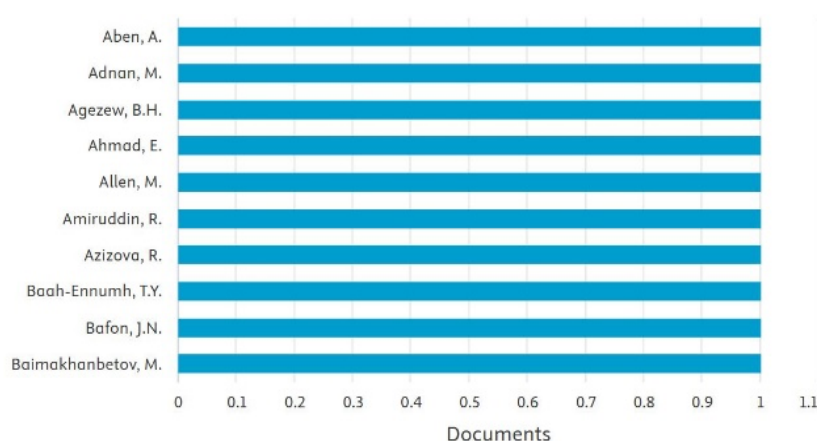
Source: Scopus Database

Figure 6. Analysis of the Top 10 Journals Contributing to the Research Field

The analysis of publication distribution by source (journals) indicates that research on education policy as a form of human capital investment is disseminated across a wide range of international journals with varying levels of contribution. Based on the mapping results, the journal Economies emerges as the leading source, with a total of two publications, particularly in 2025. This prominence suggests that the theme of education investment and human capital development holds strong relevance within the domains of economic policy and societal welfare. In addition, several other journals each contributed one publication, including Cogent Education, Asian Social Science, International Journal

of Educational Development, Administrative Sciences, Economica, Economics of Education Review, Education Research International, Education Sciences, and Education as Change. The diversity of these journals highlights the inherently multidisciplinary nature of research on education policy and human capital investment, encompassing fields such as education, economics, public administration, and social development. The temporal distribution indicates that publications on this topic have appeared consistently from 2015 to 2025, with notable surges in specific years, particularly 2021, 2023, and 2025. This pattern suggests a steadily increasing academic interest in the relationship between education policy, human capital investment, and societal welfare over time. Overall, these findings indicate that education as a long-term investment in human development has attracted substantial attention from diverse international scholarly communities, as reflected in publications across reputable academic journals.

Compare the document counts for up to 15 authors.



Source: Scopus Database

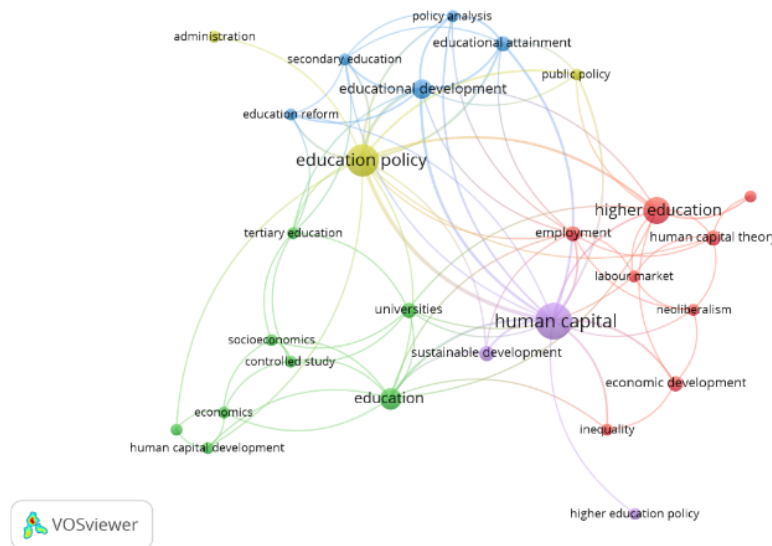
Figure 7. Analysis of the Top 10 Authors Contributing to the Research Field

The distribution of publications by authors indicates that there is no significant dominance by any single scholar in the field of education policy as a form of human capital investment. Based on the bibliometric results, all authors included in the top 10 contributors each produced one publication. These authors include Aben, A.; Adnan, M.; Agezew, B.H.; Ahmad, E.; Allen, M.; Amiruddin, R.; Azizova, R.; Baah-Ennumh, T.Y.; Bafon, J.N.; and Baimakhanbetov, M. This distribution pattern suggests that research on education policy and human capital investment is conducted relatively evenly by scholars from diverse countries and institutional backgrounds, without a strong concentration on any single individual. It further indicates that the topic is inherently multidisciplinary and relevant across various domains, including education, economics, and social development, thereby attracting researchers with diverse academic perspectives. Moreover, these findings imply that the literature on the relationship between education policy, human capital quality, and societal welfare remains in a developmental stage and is open to further scholarly contributions. The absence of dominant authors highlights substantial research opportunities and a strong potential for broader academic collaboration within this field.

Theoretical and Practical Implications for Education Policy Development and Future Strategies to Enhance Societal Welfare (RQ3)

The VOSviewer-based keyword network co-occurrence analysis in Figure 8 explores the intellectual structure linking conceptual variations in academic discussions of human capital investment. The keyword “education policy” holds the dominant position, with a total link strength of 45, followed by “human capital” with 38. This paired dominance theoretically demonstrates that Human Capital Theory is the primary conceptual foundation for assessing the efficiency of public interventions, particularly in budget allocation and macroeconomic returns (Fusarelli, 2015). This

close interconnection is reinforced by the keywords “education” (28), “controlled study” (24), “socioeconomics” (24), and “educational development” (23), confirming that the secondary literature heavily relies on empirical approaches to test the non-monetary externalities of education on the structure of social welfare (Salnikova & Khanin, 2022). The academic focus on higher education is also evident through the keywords “tertiary education” (17), “universities” (17), and “higher education” (16). The higher education sector is regarded as a driving force in developing high-level competencies that align graduates’ skills with industry needs in the era of globalization (Liang, 2024; Weber et al., 2015).



Source: Output of VOSviewer

Figure 8. Co-occurrence Framework

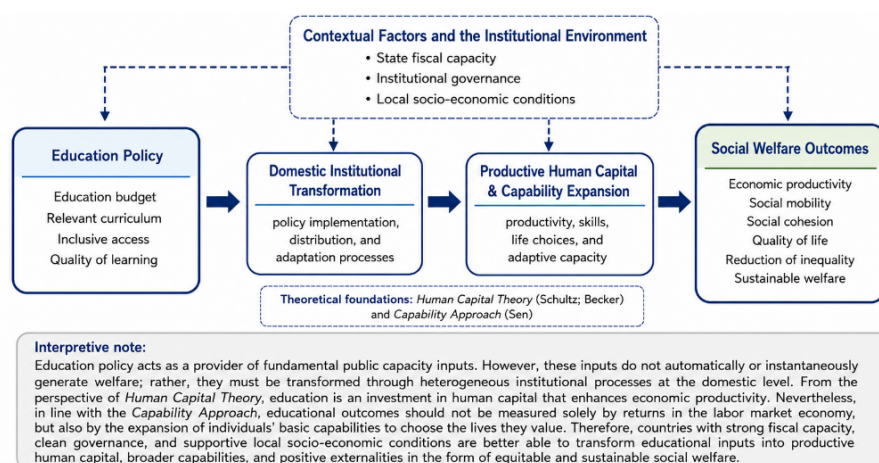
The integration of the hybrid methodology was refined by using this quantitative visualization as a direct guide for conducting a Systematic Literature Review (SLR) of 36 core articles, structured into four thematic convergence clusters. The blue cluster (educational development and policy analysis) serves as the basis for examining articles focused on evaluating the effectiveness of educational governance and outcomes (Wang & Yi, 2025). The yellow cluster positions education policy as the center of regulation, guiding the interpretation of articles regarding the financial burden on households resulting from the transformation of the school system (Zhang & Chen, 2024). The green cluster (socioeconomics and human capital) guides the synthesis of articles based on empirical evidence regarding education’s contribution to reducing domestic income inequality (Psacharopoulos & Patrinos, 2018). Meanwhile, the red cluster brings together discussions of the crucial role of higher education in accelerating the transition from a natural resource-based economy to a knowledge economy (Musabayeva et al., 2024). Through this hybrid synergy, the VOSviewer network visualization no longer serves as a fragmented bibliographic description but becomes a substantive analytical framework for the critical and purposeful grouping, unpacking, and integration of conceptual debates within the social welfare literature.

Empirical Mechanisms Underpinning the Contribution of Education Policy as a Human Capital Investment in Achieving Societal Welfare (RQ4)

Of the 36 articles identified in the Scopus database using Prisma Watase UAE with the Boolean strategy employed in this study, 19 were deemed relevant and specifically addressed the role of education policy as an investment in human resources to achieve societal well-being. Based on a synthesis of these 19 articles, it was found that education’s contribution to well-being does not operate linearly but rather through a complex space of adaptation that depends on the domestic institutional environment (Chotisarn & Phuthong, 2025; Marzi et al., 2025). The first pathway of contribution

involves transformations in productivity and sectoral capacity. From a theoretical perspective, investment in human capital strongly tends to enhance both the cognitive and non-cognitive skills of the workforce (Heckman & Kautz, 2012). Empirical findings by Bi and Li (2025) in Africa indicate that the expansion of primary education boosts short-term productivity, while secondary education fosters long-term resilience. These regional economic returns can be optimized if the resulting technical capacity is absorbed by the industrial structure (Hanushek & Woessmann, 2020; Psacharopoulos & Patrinos, 2018; Wang & Yi, 2025). Nevertheless, the effectiveness of this contribution pathway is highly sensitive to the heterogeneity of labor market contexts, in which structural disorientation can trigger skills mismatches (Bingab et al., 2016; Kimaryo, 2025).

The second pathway involves adapting to the dynamics of globalization and structural reforms, with education policy serving as a strategic navigation mechanism. Chaika (2025) emphasizes that responsive reforms enable societies to maintain competitiveness at the international level. However, integrating human development strategies into national law does not automatically guarantee improved living standards without adequate fiscal capacity to sustainably fund educational infrastructure (Leyva-Hernández & Terán-Bustamante, 2024; Zhao et al., 2025). This institutional diversity also influences the third pathway of contribution: the strengthening of socioeconomic indicators and urban well-being. Regional strategic planning based on analyses of average wages and population dynamics is highly dependent on the quality of local human capital (Salnikova & Khanin, 2022). High-quality human capital, particularly in underdeveloped regions, has been shown to support the success of decentralization and the effectiveness of urban public service management (Liang, 2024; Musabayeva et al., 2024). Finally, the interplay between social mobility and community resilience positions education as a potential “social elevator” to mitigate structural inequality (OECD, 2018; Weber et al., 2015). In the digital age, this mechanism is reinforced by the development of digital literacy, which serves as a social buffer, helping communities remain resilient in the face of structural changes in industry (Zhang & Chen, 2024). However, the scientific community cautions against equating this correlation with absolute causality, as in weak institutional environments, expanding access to higher education risks triggering credential inflation without corresponding improvements in actual well-being (Fusarelli, 2015). Therefore, to provide a more comprehensive and critical explanation of how this entire empirical chain of contributions interacts with institutional conditional factors, an interpretive dynamic pathway framework is presented in Figure 9 below.



Source: Authors' elaboration, 2026.

Figure 9. A Staged Framework of the Contribution of Education Policy as a Human Capital Investment in Achieving Societal Welfare

Figure 9 illustrates a dynamic pathway framework that maps how education policy interventions can potentially be transformed into social welfare through the expansion of human capital. This process

begins with the provision of public capacity inputs, including budgets, relevant curricula, and inclusive access. Through the lens of Human Capital Theory, these inputs are essential for boosting economic productivity and workforce skills. However, the literature indicates that this relationship is not automatic but is strictly moderated by contextual factors such as a country's fiscal capacity and the domestic institutional environment. In line with the Capability Approach, this heterogeneous process of institutional transformation aims to expand individuals' basic capabilities and freedom of choice in life, rather than merely meeting the needs of the labor market (Fusarelli, 2015). Ultimately, the accumulation of inclusive capabilities and societal adaptability is expected to yield positive externalities, including social mobility, reduced inequality, and equitable, sustainable social welfare.

CONSLUSION

Based on a bibliometric analysis and an integrative literature synthesis of the 36 core articles evaluated, this study mapped the conceptual landscape of the relationship among education policy interventions, human capital investment, and societal well-being. This review indicates that, within the global scientific discourse, education policies cannot be assumed to directly and linearly boost productivity and well-being. Conversely, findings from 19 articles based on empirical mechanisms confirm that the positive externalities of education are context-sensitive, with their effectiveness being significantly moderated by local institutional characteristics, social class inequalities, and the readiness of domestic digital infrastructure. The main theoretical contribution of this study lies in the development of an integrative framework that bridges the gap between Human Capital Theory—oriented toward economic productivity—and the Capability Approach, which emphasizes the expansion of freedom and the quality of life through agency. Methodologically, this hybrid study offers important implications regarding how macro-level bibliometric mapping can be effectively transformed into a structured guide for qualitative systematic literature review (SLR) screening to unpack the depth of specific thematic content. The policy implications derived from this literature synthesis emphasize that governments and educational authorities should not focus solely on meeting macro-level quantitative indicators (such as school enrollment rates). Human capital investment policies must be directed toward modernizing curricula to incorporate generic and flexible skills, as well as strengthening inclusive digital access to prevent labor market polarization at the grassroots level. This study has inherent limitations that must be acknowledged. First, the collection of secondary datasets was limited to the Scopus database, potentially omitting relevant literature indexed on other platforms. Second, the final sample size of 36 articles that meet the strict PRISMA inclusion criteria is relatively small, thereby limiting the generalizability of the macro trends. Therefore, future research is advised to expand the scope of the databases (such as Web of Science and Google Scholar) and apply quantitative meta-analysis methods to test the empirical validity of the causal relationships within the integrative model proposed in this study.

DECLARATION OF GENERATIVE AI

The authors declare that no generative AI or AI-assisted technologies were used in the writing process of this manuscript.

CONFLICTING INTEREST STATEMENT

The authors states that there is no conflict of interest in the publication of this article.

FUNDING INFORMATION STATEMENT

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

AUTHORSHIP CONTRIBUTION STATEMENT

Cut Misni Mulasiwi, Aniek Hindrayani: Conceptualization, Methodology, Writing - Original Draft, Data curation, Validation. Mintasih Indriayu: Supervision, Writing - Review & Editing.

ACKNOWLEDGMENT

This article constitutes an academic output derived from the learning process in the Economic Problematics Analysis course within the Doctoral Program in Economics Education for the 2025/2026 academic year. The authors would like to express their sincere appreciation and gratitude to Aniek Hindrayani and Mintasih Indriayu for their guidance, insightful direction, and constructive feedback throughout the course, which greatly contributed to the successful completion of this article. The authors also extend their thanks to all parties who have contributed, either directly or indirectly, to the development of this work.

REFERENCES

- Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press. <https://doi.org/10.7208/chicago/9780226041223.001.0001>.
- Bi, M., & Li, X. (2025). How does education affect human capital and potential productivity in Africa? Empirical evidence based on Thornthwaite Memorial and CS-ARDL models. *International Journal of Educational Development*, 118, Article 103404. <https://doi.org/10.1016/j.ijedudev.2025.103404>
- Bingab, B., Forson, J. A., Baah-Ennumh, T. Y., & Amoako, K. O. (2016). Education policy and human capital development: Empirical evidence. *International Journal of Social Economics*, 43(12), 1349–1365. <https://doi.org/10.1108/IJSE-09-2015-0233>
- Borgman, C. (2010). *Scholarship in the Digital Age*. MIT Press.
- Chaika, O. (Ed.). (2025). *Educational policy and reforms: The impact of globalization (Collective monograph)*. Technology Center PC.
- Chotisarn, A., & Phuthong, N. (2025). Systematic literature review in education policy research. *Journal of Educational Research*, 45(1), 44–59. <https://doi.org/10.1080/00220671.2025.2163450>
- Cocaj, H. (2023). A scholar case study of IT education knowledge through practice for development in a post-conflict region Kosovo: Increased investment in private education. *Journal of Cases on Information Technology*, 25(1), 1–22. <https://doi.org/10.4018/JCIT.315291>
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285-296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- Esping-Andersen, G. (2015). *Welfare states and the education system*. Oxford University Press.
- Fusarelli, L. D. (2015). Child welfare, education, inequality, and social policy in comparative perspective. *Peabody Journal of Education*, 90(5), 677-690. <https://doi.org/10.1080/0161956X.2015.1087779>
- Hadi, S., Suharno, S., & Sutopo, A. (2020). Implementing PRISMA in educational research reviews. *International Journal of Learning, Teaching and Educational Research*, 19(5), 112–125.
- Hanushek, E. A., & Woessmann, L. (2020). Education, knowledge capital, and economic growth. In S. Bradley & C. Green (Eds.), *The economics of education* (pp. 171–182). Academic Press. <https://doi.org/10.1016/B978-0-12-815391-8.00014-8>.

- Heckman, J. J., & Kautz, T. (2012). Hard evidence on soft skills. *Labour Economics*, 19(4), 451–464. <https://doi.org/10.1016/j.labeco.2012.05.014>.
- Kimaryo, M. (2025). Education policy and sustainable human capital development in Tanzania. *African Journal of Education Studies*, 12(2), 88–104. <https://doi.org/10.4314/ajes.v12i2.6>
- Leyva-Hernández, S. N., & Terán-Bustamante, A. (2024). Country-level environmental performance: Investment, education, and research and development. *Social Sciences*, 13(3), Article 164. <https://doi.org/10.3390/socsci13030164>.
- Liang, P. (2024). The influence of policy investment on the sustainable development of universities in underdeveloped regions: An empirical analysis of China's higher education landscape. *Sustainability*, 16(18), Article 8068 1–25. <https://doi.org/10.3390/su16188068>
- Marzi, G., Ciampi, F., & Dalli, D. (2025). Bibliometric methods in education policy research. *Scientometrics*, 130(4), 2255–2272. <https://doi.org/10.1007/s11192-025-05214-x>
- Mongeon, P., & Paul-Hus, A. (2016). The journal coverage of Web of Science and Scopus: a comparative analysis. *Scientometrics*, 106(1), 213–228. <https://doi.org/10.1007/s11192-015-1765-5>
- Musabayeva, D., Zharkynbek, A., & Abilda, M. (2024). Educational investment and social welfare in Kazakhstan. *Education and Society*, 42(1), 77–95. <https://doi.org/10.7459/es/42.1.06>
- Ni, W., & Abdullah, M. (2025). Mapping global research trends using bibliometric analysis. *Journal of Informetrics*, 19(2), 101–121. <https://doi.org/10.1016/j.joi.2025.101615>
- Nilsson, A., & Rubenson, K. (2014). Defining the role of Swedish adult education in the 21st century: The two generations of human capital theory. *International Review of Education*, 60, 463–482. <https://doi.org/10.1007/s11159-014-9434-3>
- OECD. (2018). *A broken social elevator? How to promote social mobility*. OECD Publishing.
- OECD. (2019). *Human capital investment and inclusive growth*. OECD Publishing.
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
- Psacharopoulos, G., & Patrinos, H. A. (2018). Returns to investment in education: A decennial review of the global literature. *Education Economics*, 26(5), 445–458. <https://doi.org/10.1080/09645292.2018.1484426>
- Salnikova, S., & Khanin, O. (2022). Socio-economic indicators of the Ukrainian Lutsk city development: Dynamics, trends, and some paradoxes. *Deturope*, 14(1), 189–211. <https://doi.org/10.32725/det.2022.010>.
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- UNESCO. (2022). *Global education monitoring report 2022: Transforming education for sustainable development*. UNESCO Publishing.
- United Nations. (2015). *Transforming Our World: The 2030 Agenda for Sustainable Development*.
- Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-010-0146-3>

- Wang, C., & Yi, X. (2025). Trends in human capital and education research: A bibliometric perspective. *International Journal of Educational Development*, 66, 102–113. <https://doi.org/10.1016/j.ijedudev.2025.102611>
- Weber, S., Ferro Luzzi, G., & Ramirez, J. V. (2015). Mondialisation, progrès technique et dépréciation du capital humain. L'impact sur les politiques de formation. *Revue française de pédagogie. Recherches en éducation*, (192), 11-22. <https://doi.org/10.4000/rfp.4815>
- Zhang, X., & Chen, Y. (2024). Impact of the two-child policy on household education investment in urban China. *Sustainability*, 16(4), Article 1532. <https://doi.org/10.3390/su16041532>
- Zhao, J., Li, Q., & Hu, X. (2025). Dynamic effects of education investment on sustainable development. *Sustainability*, 17(7), 3068. <https://doi.org/10.3390/su17073068>.