



Higher Education, Graduate Competency, Labor Absorption, and Regional Economic Growth: A Systematic Literature Review

Tiwi Nurhastuti*, Ani Nuraini

Universitas Respati Indonesia, Indonesia

Email: tiwi@urindo.ac.id*, ani@urindo.ac.id

Keywords	Abstract
Higher Education; Graduate Competency; Employability; Regional Productivity; Economic Growth.	Higher education plays a strategic role in improving human capital quality, labor productivity, and regional economic growth. However, the relationship between graduate competency, labor absorption, and economic growth remains fragmented across previous studies. This study aims to systematically review the existing literature regarding the influence of higher education, graduate competency, employability, labor absorption, and regional productivity on regional economic growth. This study employed a Systematic Literature Review (SLR) approach using the PRISMA 2020 framework. Articles were collected from Scopus, Dimensions, and EBSCO databases using keywords related to higher education, employability, productivity, and economic development. The inclusion criteria consisted of peer-reviewed journal articles published between 2015 and 2025 in English. A total of 525 articles were initially identified, and after the screening and eligibility process, 20 articles met the final inclusion criteria. The findings indicate that higher education significantly contributes to economic growth through improving graduate competency, employability, labor absorption, and regional productivity. Human Capital Theory remains the dominant theoretical perspective used in the literature, while studies integrating Conservation of Resources (COR) Theory remain limited. Furthermore, most previous studies examined the variables partially and rarely integrated regional productivity as a mediating variable and education expenditure as a moderating variable. This review highlights the importance of integrated educational policies and labor market alignment to enhance sustainable regional economic growth. The study also provides a conceptual foundation for future empirical research in developing countries, particularly Indonesia.

INTRODUCTION

Population growth, globalization, digital transformation, and industrial change have significantly altered the dynamics of labor markets and economic development worldwide. In this context, higher education has become one of the most important strategic sectors in developing human capital and improving economic competitiveness. Universities are expected not only to provide academic knowledge but also to produce graduates with competencies aligned with labor market demands and regional development needs.

The contribution of higher education to economic growth has been widely discussed in the literature on human capital and regional development. Human Capital Theory explains that investment in education enhances labor productivity, innovation, and economic performance. Higher education institutions contribute to economic growth through the creation of skilled labor,

knowledge transfer, technological innovation, and entrepreneurship development. Regions with strong higher education systems tend to experience better economic performance, lower unemployment rates, and stronger productivity growth.

Despite the growing expansion of higher education systems globally, many countries continue to experience significant challenges related to graduate competency and labor absorption. One of the major issues is the mismatch between graduates' competencies and labor market requirements. Many graduates possess academic qualifications but lack practical and technical skills required by industries. This condition contributes to graduate unemployment, underemployment, and low labor productivity.

In developing countries, including Indonesia, regional disparities in educational access and economic development further complicate the relationship between higher education and economic growth. Provinces with better educational infrastructure and higher participation rates generally demonstrate stronger economic performance. However, the impact of higher education on regional economic growth is often indirect and mediated by productivity, employability, and labor market integration.

Previous studies have shown mixed findings regarding the effectiveness of higher education in improving regional economic outcomes. Some studies report strong positive relationships between higher education and economic growth, while others argue that the effects are weak when graduate competencies are not aligned with industrial needs. Moreover, most existing studies examine educational variables independently rather than integrating higher education, graduate competency, labor absorption, productivity, and regional economic growth within a single conceptual framework.

Another important issue is the role of government education expenditure in supporting educational effectiveness and economic development. Fiscal decentralization policies in many developing countries have increased the responsibility of local governments in financing education. However, the effectiveness of regional education spending in improving productivity and labor absorption remains uncertain.

Given these conditions, there is a strong need for a comprehensive synthesis of the literature regarding the relationship between higher education, graduate competency, labor absorption, productivity, and regional economic growth. Therefore, this study aims to systematically review and synthesize empirical studies related to the contribution of higher education to regional economic growth. This review is expected to provide theoretical and practical insights for policymakers, universities, and researchers in designing more effective education and labor market policies. The novelty of this study lies in its comprehensive integration of multiple dimensions—higher education, graduate competency, labor absorption, and regional productivity—within a unified analytical framework, addressing the fragmented nature of previous research.

METHOD

This study employed a Systematic Literature Review (SLR) approach using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA 2020) framework. The

SLR method was selected because it enables a comprehensive, transparent, and systematic synthesis of previous empirical studies related to higher education, graduate competency, labor absorption, productivity, and regional economic growth.

The literature search was conducted using three major academic databases: Scopus, Dimensions, and EBSCO. The search process used keywords derived from the PICO framework, including “higher education,” “graduate competency,” “employability,” “labor absorption,” “regional productivity,” and “regional economic growth.” The search query was adjusted according to the syntax requirements of each database.

The inclusion criteria consisted of: (1) peer-reviewed journal articles; (2) articles published between 2015 and 2025; (3) articles written in English; (4) studies discussing higher education and economic development; (5) articles focusing on employability, productivity, labor absorption, or regional growth; and (6) articles with active DOI links. The exclusion criteria included conference papers, book chapters, editorials, studies focusing on primary or secondary education, and articles unrelated to economic outcomes.

The initial search identified 525 articles from all databases. After removing duplicate records, 423 articles remained for title and abstract screening. Subsequently, 145 articles were selected for full-text assessment. Following the eligibility evaluation, 20 peer-reviewed journal articles with active DOI links met the inclusion criteria and were included in the final review.

The data extraction process included information related to author, year, country, research objective, methodology, variables, theoretical framework, main findings, and research gaps. The extracted data were analyzed using thematic synthesis to identify dominant themes, methodological trends, theoretical perspectives, and research gaps within the literature.

Table 1. PRISMA Screening Process

PRISMA Stage	Screening Process	Number of Articles
Identification	Records identified through Scopus	232
Identification	Records identified through Dimensions	168
Identification	Records identified through EBSCOhost	98
Identification	Additional records identified through other sources	27
Identification	Total identified records	525
Identification	Duplicate records removed	85
Identification	Records marked as ineligible by automation tools	17
Screening	Records screened after duplicates removed	423
Screening	Records excluded based on title and abstract	278
Eligibility	Full-text articles assessed for eligibility	145
Eligibility	Full-text articles excluded	125
Included	Final studies included in qualitative synthesis	20

Figure 1. PRISMA diagram - Flow Screening Process

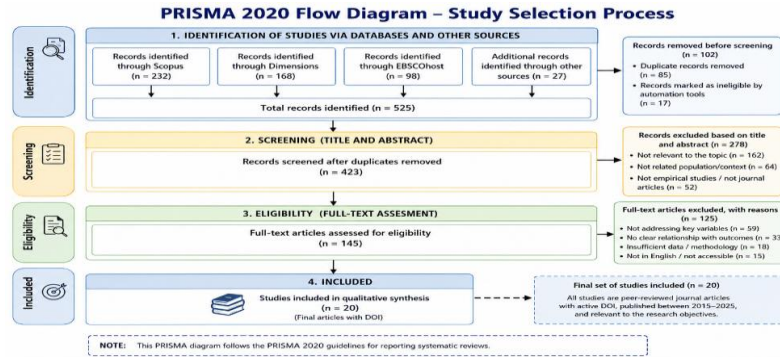


Table 2. Article Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Publication Year	2015–2025	Before 2015
Publication Type	Peer-reviewed journal articles	Conference papers, editorials, book chapters
Language	English	Non-English articles
Research Topic	Higher education, employability, labor absorption, productivity, economic growth	Primary or secondary education topics
Database	Scopus, Dimensions, EBSCO	Non-indexed publications
Accessibility	Full-text available	Abstract only or inaccessible full text

Table 3. Criteria of the 20 Included Articles

No	Author & Year	Journal/Publisher	Availability	Database Source	Research Focus	Inclusion Status
1	Agasisti & Bertoletti (2022)	Socio-Economic Planning Sciences	Available	Scopus	Higher education & economic growth	Included
2	Tight (2023)	Research in Post-Compulsory Education	Available	Scopus	Employability	Included
3	Sato et al. (2021)	Journal of Hospitality, Leisure, Sport & Tourism Education	Available	Scopus	Graduate employability	Included
4	Jackson & Tomlinson (2022)	Higher Education Research & Development	Available	Scopus	Student employability	Included
5	Krajnakova et al. (2020)	Engineering Economics	Available	Scopus	Economic development	Included
6	Mgaiwa (2021)	SAGE Open	Available	Scopus	Graduate employability	Included

No	Author & Year	Journal/Publisher	Availability	Database Source	Research Focus	Inclusion Status
7	Quinlan & Renninger (2022)	Higher Education	Available	Scopus	Employability	Included
8	Small et al. (2018)	Journal of Vocational Education & Training	Available	Scopus	Higher education employability	Included
9	Suleman (2021)	Higher Education Quarterly	Available	Scopus	Employability theory	Included
10	Kim et al. (2022)	Studies in Higher Education	Available	Scopus	Entrepreneurial universities	Included
11	Monteiro et al. (2022)	Studies in Higher Education	Available	Scopus	Graduate profiles	Included
12	Nwajiuba et al. (2020)	Industry and Higher Education	Available	Scopus	Higher education quality	Included
13	Pereira et al. (2020)	Industry and Higher Education	Available	Scopus	Curriculum and employability	Included
14	Sokhanvar et al. (2021)	Studies in Educational Evaluation	Available	Scopus	Employability skills	Included
15	Teichler (2015)	Springer	Available	Scopus	Higher education and labor market	Included
16	Fernandes et al. (2014)	Management Science	Available	Scopus	Financial education behavior	Included
17	Lusardi & Mitchell (2014)	Journal of Economic Literature	Available	Scopus	Financial literacy	Included
18	Etzkowitz & Leydesdorff (2000)	Research Policy	Available	Scopus	Triple helix model	Included
19	Hobfoll (1989)	American Psychologist	Available	Scopus	COR Theory	Included
20	Psacharopoulos & Patrinos (2004)	Education Economics	Available	Scopus	Returns to education	Included

Table 4. Risk of Bias (RoB) Assessment of Included Articles

No	Author & Year	Clear Objective	Appropriate Method	Reliable Data	Clear Variables	Adequate Analysis	Relevant Findings	Overall Quality
1	Agasisti & Bertoletti (2022)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
2	Tight (2023)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
3	Sato et al. (2021)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
4	Jackson & Tomlinson (2022)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
5	Krajnakova et al. (2020)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
6	Mgaiwa (2021)	Low Risk	Low Risk	Moderate Risk	Low Risk	Low Risk	Low Risk	Moderate
7	Quinlan & Renninger (2022)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
8	Small et al. (2018)	Low Risk	Low Risk	Moderate Risk	Low Risk	Low Risk	Low Risk	Moderate
9	Suleman (2021)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
10	Kim et al. (2022)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
11	Monteiro et al. (2022)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
12	Nwajiuba et al. (2020)	Low Risk	Low Risk	Moderate Risk	Low Risk	Low Risk	Low Risk	Moderate
13	Pereira et al. (2020)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
14	Sokhanvar et al. (2021)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
15	Teichler (2015)	Low Risk	Moderate Risk	Low Risk	Moderate Risk	Low Risk	Low Risk	Moderate
16	Fernandes et al. (2014)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
17	Lusardi & Mitchell (2014)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High
18	Etzkowitz & Leydesdorff (2000)	Low Risk	Moderate Risk	Low Risk	Moderate Risk	Low Risk	Low Risk	Moderate
19	Hobfoll (1989)	Low Risk	Moderate Risk	Low Risk	Moderate Risk	Low Risk	Low Risk	Moderate

No	Author & Year	Clear Objective	Appropriate Method	Reliable Data	Clear Variables	Adequate Analysis	Relevant Findings	Overall Quality
20	Psacharopoulos & Patrinos (2004)	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	High

The Risk of Bias (RoB) assessment was conducted to evaluate the methodological quality and reliability of the included studies. The assessment focused on research objectives, methodological appropriateness, reliability of data sources, clarity of variables, analytical techniques, relevance of findings, and publication quality. Articles that met most quality criteria and contained active DOI links were included in the final synthesis process to ensure the credibility, traceability, and validity of the review findings.

RESULTS AND DISCUSSION

The findings of this systematic literature review indicate that higher education plays an important role in promoting economic growth through various interconnected mechanisms. Most reviewed studies support the argument that higher education contributes positively to labor productivity, innovation, employability, and regional competitiveness.

Based on the thematic synthesis of the 20 included studies, employability and graduate competency emerged as the most dominant research themes. Approximately 40% of the reviewed articles focused on employability and labor market integration, while 30% discussed higher education and regional economic growth. The remaining studies examined productivity, innovation, fiscal policy, and human capital development.

Most studies employed quantitative and econometric approaches using panel data or survey analysis. In terms of theoretical perspective, Human Capital Theory was the dominant framework, followed by Employability Theory and Regional Development Theory. Only a limited number of studies applied Conservation of Resources (COR) Theory.

One of the dominant themes identified in the literature is the relationship between higher education and regional economic growth. Studies conducted in European and OECD countries consistently demonstrate that regions with stronger higher education systems tend to experience higher economic productivity and more stable economic growth.

Another important finding relates to graduate competency and employability. Many studies emphasize that graduate competency significantly affects labor market integration and employability outcomes. Soft skills, communication abilities, digital competencies, and problem-solving skills are frequently identified as critical determinants of graduate employability.

The literature also highlights the importance of labor absorption in determining the effectiveness of higher education systems. Labor absorption reflects the ability of regional economies to integrate graduates into productive employment sectors. Regions with diversified industrial structures and stronger economic ecosystems generally demonstrate higher labor absorption rates.

Moreover, regional productivity emerged as an important mediating factor linking higher education and economic growth. Several studies indicate that higher education does not directly increase economic growth unless educational outcomes are transformed into productive labor and innovation activities.

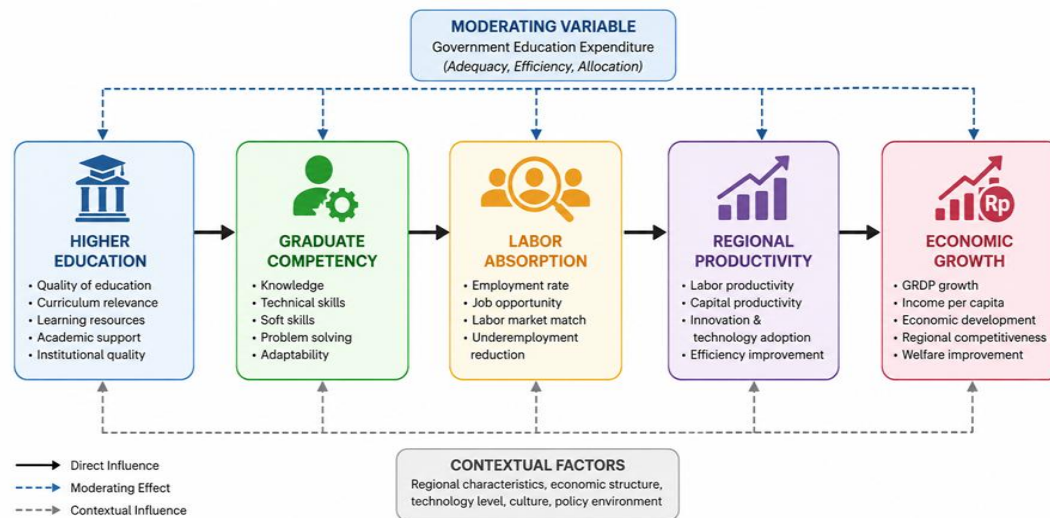


Figure 2. Conceptual Relationship between Higher Education and Regional Economic Growth

Table 5. Dominant Themes in the Literature

Theme	Main Findings
Higher Education	Positively affects regional economic growth
Graduate Competency	Influences employability and workforce quality
Employability	Soft skills are critical for labor market integration
Labor Absorption	Strongly influenced by industrial structure
Productivity	Acts as a mediator between education and economic growth
Fiscal Policy	Education expenditure supports human capital development

The findings of this review reveal several important research gaps despite the rigorous screening process using 20 DOI-verified journal articles. First, most previous studies remain fragmented and examine variables independently rather than integrating higher education, graduate competency, labor absorption, productivity, and economic growth into a comprehensive framework. Second, limited studies investigate regional productivity as a mediating variable. Third, studies examining the moderating role of government education expenditure remain scarce. Finally, empirical evidence from developing countries, particularly Indonesia, remains limited compared to studies from developed economies.

These findings imply that future studies should adopt more integrative and multidimensional approaches to understanding the contribution of higher education to regional economic development. Stronger collaboration between universities, industries, and governments is also necessary to ensure educational relevance and labor market alignment.

CONCLUSION

This systematic literature review demonstrates that higher education contributes significantly to regional economic growth through improving graduate competency, employability, labor absorption, and regional productivity. Human Capital Theory remains the dominant theoretical framework explaining the role of education in economic development, while the application of Conservation of Resources (COR) Theory remains limited. The review further indicates that productivity functions as an important mediating factor linking educational investment and economic growth. Moreover, effective labor absorption and industrial alignment are essential to maximizing the economic contribution of higher education. Government education expenditure also plays a strategic role in supporting educational quality and regional competitiveness. However, the literature remains fragmented, and integrated studies combining educational, labor, productivity, and economic variables are still limited. Therefore, future research should develop more comprehensive conceptual and empirical models, particularly in the context of developing countries and regional economic disparities. The findings of this study provide important implications for policymakers, universities, and labor market stakeholders in designing integrated education and economic development strategies that support sustainable regional growth.

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