



A Cross-Cultural Comparative Analysis of the Economic Benefits of Education: Quality of Education and Higher Education Levels

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Abstract

This study explores the economic benefits of education, focusing on the quality of education and higher education levels across different countries. The data mining approach was used to analyze these variables. The results show that the quality of education and higher education levels significantly contribute to economic growth by encouraging innovation and improving worker productivity. Common themes include reducing educational inequalities, matching educational outcomes with job market needs, and investing in lifelong learning and workforce development. Countries investing in quality education and higher education levels equip individuals with advanced knowledge and skills, driving innovation and economic productivity. The findings suggest a comprehensive approach to maximize the economic benefits of education and create fairer societies. The study supports the Human Capital Theory, highlighting the positive impact of education on productivity, earnings, and long-term competitiveness, aiding policymakers in enhancing educational systems and driving economic growth.

Keywords: economic benefits of education, quality of education, higher education levels, data mining approach

Introduction

Economics of education research highlights how education improves individuals and societies (Espín et al., 2022). Beyond monetary gains, higher education (Mehnatfar, 2012) extends to lifelong benefits, such as health and societal engagement (Guzavicius et al., 2015). Economics of education does not only emphasize the long-term economic benefits of universities but also delves into how various educational programs can impact decision-making among students (Süssmuth et al., 2021), thus, informing policy decisions for a skilled workforce and economic growth (Allais, 2016). In addition, the economics of education studies the potential psychological impact on students' behaviors (Miragaya-Casillas et al., 2023). Ultimately, the economics of education strengthens the perspective of policymakers to nurture a skilled workforce and economic growth (Rutkowski et al., 2011).

This study is anchored on the Human Capital theory, highlighting its importance in understanding the relationships between the economic benefits of education. It emphasizes the importance of education in skills in increasing productivity and economic growth, with economic investments in education yielding economic returns for individuals and society (Gillies, 2011). The Signaling Theory supports the Human Capital Theory, suggesting that education signals a person's abilities to potential employers, though it does not enhance skills directly (Arteaga, 2018).

Though education is beneficial, it still has remaining challenges. Low-income nations struggle with illiteracy and unequal access (Grant, 2017). Racial disparities add up to the difficulties (Assari, 2024). In addition, investments place more importance on theory over practical skills. Economic policymakers focus more on academic knowledge than practical skills. This deteriorates the skills needed in the workforce, needing to bridge the gap between education and the workplace. This gap makes graduates unprepared for the job market demands. (Vo & Ho, 2022).

Despite the benefits of education, there lies an existing gap between academic knowledge and practical skills required in the workplace (McGunagle & Zizka, 2020). Current methods underestimate the real value of education. This blocks economic growth leaving graduates unprepared for the right job opportunities (Othman et al., 2023). By understanding the demands of the required skillset in various industries, policymakers can create educational programs to train the workforce and maximize the economic benefit (or returns) of education. By bridging the gap, policymakers can reach the full potential of a prepared workplace making sure that educational attainment becomes an authentic investment (Drake & Reid, 2020).

Objectives

This research analyzed the educational systems across various countries contributing to the economic benefits of education in terms of quality of education and higher education levels.



Methodology

This study uses the data mining method to analyze the economic benefits of education, specifically aligned to the quality of education and higher education levels. The research aims to understand how these aspects contribute to the field of economics of education in various cultural contexts.

Presentation of Data, Interpretation, and Analysis

This part presents the variables considered for analysis, which emphasizes the economic benefits of education in quality of education and higher education levels. By examining these key aspects in the economics of education, researchers can gain insights between practices that foster the economics of education across different nations. The researcher has presented a set of tables that illustrate nations with comparable points for consideration in the context of the economic benefits of education.

Quality of Education

Quality of education refers to the effectiveness and efficiency of educational systems in delivering valuable learning experiences, encompassing curriculum relevance, educator competence, resource adequacy, and learning environment. It aligns with economic benefits, preparing individuals for workforce contributions, enhancing productivity, innovation, and economic growth (Wittek & Kvernbekk, 2011). Under quality of education, the variables across nations are educational equity, investment in quality education, and the link between educational quality and economic growth.

Educational equity

Educational equity is the principle of fairness in education, ensuring that personal or social circumstances do not hinder an individual's educational potential. It promotes inclusion and fairness, ensuring all students have access to high-quality education. This leads to a skilled, diverse workforce, promoting economic growth and development, and enhancing productivity and innovation (Wang & Ruan, 2024).

Table 1. Educational equity

Countries	Reasons
China	China's education system is undergoing reforms to ensure fairness and quality, reducing disparities in access and outcomes across socioeconomic groups, thereby fostering a more equitable society (Jiang et al., 2023).
Finland	Finland's education system prioritizes equity, providing equal opportunities for all students, reducing achievement gaps, promoting social mobility and economic growth, and establishing Finland as a global leader (Sahlberg, 2021).
New Zealand	New Zealand prioritizes educational equity and access in tertiary education, aiming to provide equal opportunities for all students, especially underserved groups like Indigenous Māori. This approach aims to address educational disparities, foster a more inclusive society, and support national growth and prosperity, thereby fostering a more prosperous nation (Brownie et al., 2024).

Interpretation and Analysis:

China, Finland, and New Zealand aim to promote educational equity, focusing on ensuring all students have access to quality education. These countries recognize that educational equity promotes national development and economic growth by creating a skilled and diverse workforce. China's reforms aim to reduce disparities in access and outcomes across socioeconomic groups, while Finland prioritizes equal opportunities for all students. New Zealand focuses on tertiary education, targeting underserved groups like Indigenous Māori. However, their approaches differ, with China implementing broad reforms (Tan, 2012), Finland maintaining a successful system (OECD, 2021), and New Zealand targeting specific demographics (Leach, 2016). Recent studies have highlighted the positive impact of educational equity on economic growth and social cohesion (Hanushek & Woessmann, 2020).

China, Finland, and New Zealand prioritize education quality, fostering economic growth through culturally specific strategies. China's efforts boost skilled workforce, innovation, and growth. (Yu et al., 2024). Finland's egalitarian education system, promoting equal opportunities, is a key factor in its global leadership position and economic growth (Kantasalmi & Kupiainen, 2021). New Zealand's education quality strategy focuses on international academic mobility, attracting international students and facilitating exchanges to create a diverse, globally minded workforce, potentially enhancing its global economic competitiveness (Ziguras, 2020).



Investment in Quality Education

Investment in quality education enhances the educational system's effectiveness, infrastructure, and teaching standards, leading to economic benefits. It equips individuals with skills for a competitive workforce, fosters innovation, and addresses skill gaps, increasing employability and driving economic growth. This also promotes social cohesion and reduces inequalities (Asiyai, 2020).

Table 2. Investment in Quality Education

Countries	Reasons
China	China's economic growth is significantly influenced by investment in education, particularly through financial development. Quality education boosts human capital, driving productivity and innovation. This investment cultivates a skilled workforce, supporting various sectors. Financial development ensures efficient resource allocation and access to education, strengthening the overall economic structure (Li & Wye, 2022).
Philippines	The study reveals that investment in quality education is crucial for the Philippines' economic growth, as it significantly impacts GDP growth and enhances human capital. This investment boosts productivity and skill levels, contributing to long-term economic stability and prosperity in the country (Tchantchane et al., 2013).
Mexico	Mexico's economic development and social progress are significantly aided by investing in quality education, which equips students with necessary skills for the modern workforce (Perez, 2019).

Interpretation and Analysis:

China, the Philippines, and Mexico are all investing in quality education to boost economic growth and national development. China integrates education with financial development, the Philippines emphasizes GDP growth and human capital enhancement, and Mexico aligns its outcomes with modern workforce requirements. All three countries recognize that investing in quality education enhances human capital, which leads to economic benefits (Asiyai, 2020). This aligns with the understanding that quality education equips individuals with skills for a competitive workforce, fosters innovation, and addresses skill gaps, ultimately driving economic growth (Li, 2022). Research indicates that educational investment positively impacts economic growth in developing countries (McCowan, 2019), aligning outcomes with labor market demands (Schleicher, 2018) and resulting in improved educational quality and higher national productivity (Hanushek & Woessmann, 2015).

China, the Philippines, and Mexico have significantly benefited from investment in quality education, demonstrating cultural value. China integrates education with financial development, the Philippines focuses on GDP growth, and Mexico aligns with modern workforce requirements. These implementations not only yield immediate economic benefits but also foster social mobility and reduce income disparities (Raihan et al., 2023).

Link Between Educational Quality and Economic Growth

Educational quality significantly impacts economic growth, as it equips individuals with cognitive skills, increases productivity, and fosters innovation. Investing in quality education supports economic development and reduces income disparities (Audretsch et al., 2022).

Table 3. Link Between Educational Quality and Economic Growth

Countries	Reasons
Mauritius	Mauritius's economic growth is significantly linked to its investment in early human capital. Education enhances labor force skills and productivity, boosting output and growth. Mauritius' transformation from a low-income, monocrop economy to a more diversified, prosperous one has been facilitated by improved education quality, fostering innovation, and maintaining global competitiveness (Tandrayen Ragoobur & Narsoo, 2022).
Seychelles	Seychelles is prioritizing education quality to boost economic growth. The government is investing in education reforms to create a skilled workforce, boost productivity, and foster innovation. This investment is crucial for a competitive and resilient economy, ensuring long-term prosperity and growth in the rapidly changing global economy (Purvis, 2017).
Canada	Canada's significant investment in quality education is crucial for national investment priorities and economic development, ensuring a skilled workforce, fostering innovation, and driving economic growth (Frenette & Chan, 2015).



Interpretation and Analysis:

Mauritius and Seychelles both invest in education quality to boost economic growth by creating a skilled workforce, boosting productivity, and fostering innovation. This shared approach provides an advantage in their education systems. Canada, on the other hand, focuses on national investment priorities and broader economic development, aligning education with overall national economic goals. Despite these differences, all three countries recognize the importance of education quality for economic growth. Its advantages lie in its achievements in education, particularly in driving national economic growth and innovation (Psacharopoulos & Patrinos, 2018).

The recognition of the link between educational quality and economic growth in Mauritius, Seychelles, and Canada has substantially impacted their economic benefits from education. Mauritius' investment in early human capital reflects a long-term approach to economic development. Seychelles' prioritization of education quality to create a skilled workforce demonstrates a forward-thinking approach crucial for adapting to the rapidly changing global economy. Canada's alignment of education with national investment priorities showcases a comprehensive strategy for economic growth. These quality-focused initiatives extend beyond immediate economic benefits, contributing to social cohesion and reducing income disparities (Neeliah & Seetanah, 2016; Appiah-Otoo et al., 2022).

Higher Education Levels

Higher education levels such as associate, bachelor, master, and doctoral programs help those seeking higher knowledge obtain a variety of information that will help them become more skilled with better chances of getting hired at their ideal job. They serve an important economic purpose, creating workforce skills, driving productivity and international competitiveness, and higher levels of individual and national prosperity (Marginson, 2016). Under higher education levels, the variables are economic growth, higher education system, and access to higher education.

Economic Growth

Higher education significantly contributes to economic growth by enhancing workforce skills, boosting employability, and fostering innovation, ultimately leading to overall economic development (Chan, 2016).

Table 4. Economic Growth

Countries	Reasons
Japan	During the period 1885-2015, volume of work per manhour in Japan increased by a factor of 45 — and education alone contributed for 35% to that growth. This requires some comment on the crucial role that human capital formation has played in Japan's growth experience, most visibly after World War II, but also with long-run benefits for economic outcomes (Fukao et al. 2021).
Egypt	Education plays a major role in increased economic growth through an increase of the workforce productivity and skills, which result in efficiency improvement and innovativeness. From the point-of-view of (Mohamed et al., 2021), Human Capital investments were considered as investments in education that results competent labor force adapting to the change in technology.
Fiji	The paper investigates how the Fiji National University facilitates tertiary education to lift educational standards across all levels and towards economic development by providing the workforce with specialized high-level skills and insights. It highlights the work of the university to address skills shortages and aid with employability, focusing on the economic spin-offs for education in Fiji (Healey, 2022).

Interpretation and Analysis:

Japan's investment in education has led to a 46-fold increase in labor productivity from 1885 to 2015, with education accounting for 35% of this growth. Egypt's investment in education improves workforce skills, efficiency, and innovation, fostering growth and addressing socio-economic challenges. Fiji's focus on higher education, particularly through Fiji National University, underscores its economic benefits for sustainable development. Japan, Egypt, and Fiji invest in higher education to boost economic growth and development (Ghosh, 2019; Ingham et al., 2020; Makun, 2021).

The implementations of these nations are successful because Japan's labor productivity increased between 1885 and 2015. Egypt's investment in education fosters skilled workforce, while Fiji's focus on higher education supports sustainable development. Higher education invests in growth and development, and many countries do the same as Japan, Egypt, Fiji (Yonezawa, 2023; Hefnawi & Ghoneim, 2020; Raj & Chand, 2017).



Higher Education System

Higher education, including universities, colleges, and vocational schools, is crucial for a nation's educational framework and economic development. It equips individuals with advanced knowledge, skills, and innovation, driving technological advancements and economic growth. Higher education institutions also contribute to research, innovation, and knowledge dissemination, boosting GDP (Gross Domestic Product) growth and reducing income inequality (Pee & Vululleh, 2020).

Table 5. Higher Education System

Countries	Reasons
Singapore	Singapore's traditional higher education systems may struggle to meet lifelong learning demands due to economic and technological changes. Adapting universities to continuous learning enhances workforce competitiveness and innovation (Sung & Freebody, 2017).
Brazil	Brazil's higher education system expansion, including private institutions and vocational programs, is attracting students from lower socioeconomic backgrounds, potentially boosting economic benefits through a diverse, skilled workforce (Neves, 2020).
Chile	Chile's privatized higher education system, influenced by historical reforms, significantly impacts access and economic benefits distribution, necessitating urgent attention to maximize economic impact (Espinoza & González, 2013).
Fiji	The study explores Fiji's higher education system's impact on economic growth, emphasizing its role in developing a skilled workforce. The expansion of institutions like Fiji National University aims to address skills gaps, increase employability, and drive innovation. This focus on higher education is crucial for sustainable development and improved economic prospects (Goundar, 2019).

Interpretation and Analysis:

Singapore, Brazil, Chile and Fiji are equipping individuals with advanced knowledge and skills, innovation and economic productivity. This action recognizes the role of higher education in a nation's education framework and development. Education has a positive impact on economic growth in developing countries, so we need to align educational outcomes with labour market needs (Valero & Van Reenen, 2019).

Singapore, Brazil, Chile, and Fiji have implemented higher education systems, resulting in significant economic benefits. Singapore's lifelong learning culture fosters a competitive workforce. Brazil's inclusive approach, Chile's fairness, and Fiji's proactive expansion of institutions address skills gaps, resulting in a diverse and robust skilled workforce. These approaches succeed by aligning with each country's distinct cultural context and economic needs (King et al.,2024).

Access to Higher Education

Access to higher education, regardless of socio-economic background, is crucial for economic growth and fostering a diverse workforce. It enhances human capital, contributes to innovation, and reduces social inequalities, ultimately benefiting the economy and promoting a more inclusive and prosperous society (Bing, 2023).

Table 6. Access to Higher Education

Countries	Reasons
Egypt	Higher education in Egypt significantly contributes to the nation's economic development by enhancing individual earning potential, fostering growth, and equipping individuals with advanced skills. This leads to higher wages, better employment opportunities, and improved global competitiveness. Investments in education also address socio-economic challenges, enhancing innovation and output growth (Abdelgany et al.,2024).
Chile	Chile's higher education system, initially expected to promote socio-economic equality, has become segmented, affecting students' future opportunities. Despite challenges, improving access to quality education is crucial for economic growth, equipping individuals with skills for labor market participation and reducing income inequality. Addressing these disparities is essential for maximizing the economic benefits of education in Chile (Colther et al.,2024).

Interpretation and Analysis:

Egypt and Chile both aim to use higher education for economic growth and national development but face different challenges. Egypt focuses on enhancing individual earning potential, while Chile faces challenges in promoting socio-

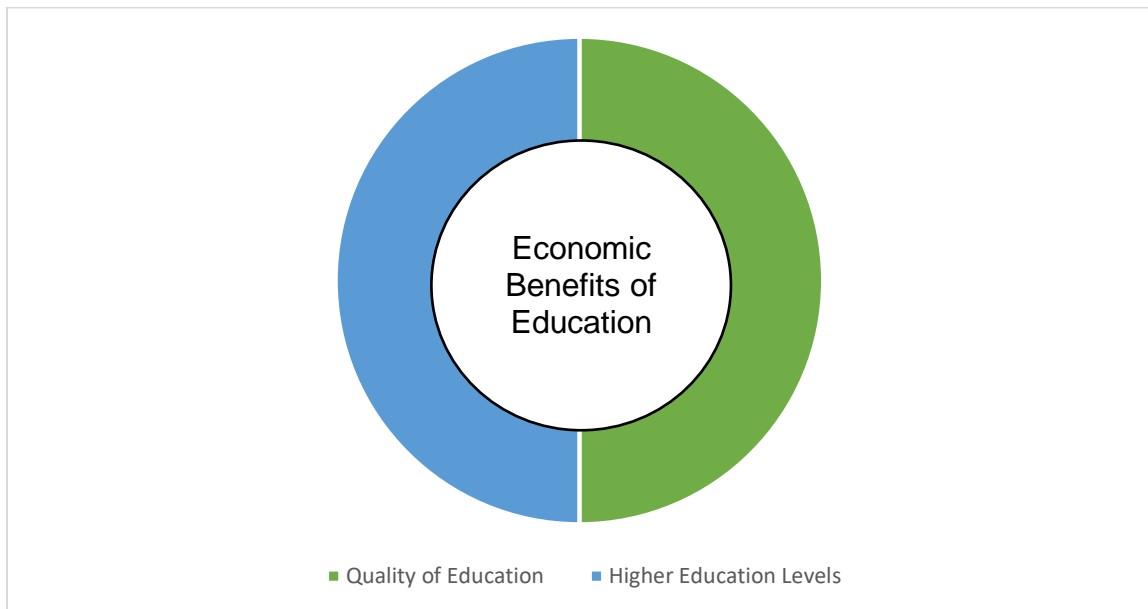


economic equality. Both countries recognize the importance of quality education for economic growth (Olopade et al., 2020; Marginson, 2021).

Egypt and Chile have improved higher education access, leading to economic benefits and societal recognition of its value. These initiatives contribute to economic growth and foster social cohesion, despite challenges. Egypt focuses on enhancing individual earning potential, while Chile reduces income inequality and enhances labor market participation (Jin & Hofer, 2024; Doerr & Novella, 2024).

Findings

Theory Development



The economic benefits of education can be realized with the following elements: quality of education and higher education levels.

The quality of education and higher education levels significantly contribute to economic growth, fostering innovation and enhancing labor productivity. Countries like Japan, Egypt, and Fiji have invested heavily in higher education, resulting in increased labor productivity and workforce skills. The structure and quality of higher education systems also impact economic outcomes. Improving access to higher education, regardless of socio-economic background, is crucial for economic growth and fostering a diverse workforce. The quality of education enhances human capital, leading to economic benefits. Countries like Mauritius, Seychelles, and Canada have recognized this connection and invested in the quality of education to boost economic growth. Common themes include targeted interventions to address educational inequalities, aligning educational outcomes with labor market demands, and investing in lifelong learning and workforce development. This holistic approach to education maximizes its economic benefits, impacting individual and national economic pathways.

While approaches vary across countries, common themes include the necessity for targeted interventions to address educational inequalities, aligning educational outcomes with labor market demands, and investing in lifelong learning and workforce development. Overall, the findings emphasize the multifaceted nature of the quality of education and higher education levels and their pivotal roles in shaping individual and national economic pathways.

The study anchors on the Human Capital Theory. The study posits education as a crucial investment for economic returns, based on the findings. It examines how the economic benefits of education align to the quality of education and higher education levels across various educational contexts.



Conclusion

Based on the findings of the study, it can be concluded that the Human Capital Theory aligns with the economic benefits of education highlighting education's role in enhancing productivity, earnings, and long-term competitiveness, reflecting core Human Capital Theory principles. The research supports the theory's broader implications by analyzing links between the quality of education and higher education levels. Overall, the comprehensive analysis of education's economic benefits closely mirrors Human Capital Theory's fundamental concepts in educational economics.

The Human Capital Theory suggests that education is an investment in human capital that yields economic benefits for individuals and society. Quality of education and higher education levels consistently increase productivity, earnings, and long-term competitiveness. Countries investing in quality education and higher education systems, like Singapore and Brazil, are equipping individuals with advanced knowledge and skills, driving innovation and economic productivity. The study's comprehensive analysis supports the theory's core principles and extends its application across diverse contexts.

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