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The Role Of Education For Economic Growth In Indonesia

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Abstract *Economic development constitutes an enduring concern for a nation's economy. The objective of this research is to furnish policymakers and the government with recommendations regarding the most effective budget allocation between education and infrastructure investment in order to stimulate economic expansion. The present study employs a quantitative methodology. Secondary data in the form of time series are utilized. By increasing the caliber and output of the labor force, education has a substantial positive impact on economic expansion, according to the findings of this study. Meanwhile, while not statistically significant, school infrastructure also contributes positively to economic growth. Conversely, government spending on education has a substantial and favorable impact on the expansion of the Indonesian economy. Policymakers should take into account the significance of allocating funds towards the education sector as an investment that has a direct influence on economic growth.*

Keywords: *Economic Growth, Education, School Infrastructure, Government Education Expenditures*

INTRODUCTION

Economic growth is the continuous process of improving a country's economic conditions over a period of time. It can also be understood as the enhancement of a nation's production capacity, reflected in the increase of its national income. Economic growth serves as an indicator of economic development success. Additionally, it serves as a benchmark for analyzing the extent of a country's economic development progress (Novita, 2022).

The issue of education is inherently linked to economic matters. Both directly and indirectly, the contribution of education to the economy and development must be acknowledged. Therefore, education should not always be seen as consumption or expenditure. It is time for education to be viewed as an investment, with its long-term contributions being felt. The concept of education as an investment has rapidly developed and is increasingly recognized by every nation that educational sector development is a key prerequisite for the growth of other development sectors (Widiansyah, 2017).

Buulolo (2023) elucidates that Japan possesses one of the world's finest education systems, attributed to its abundant supportive facilities and competent human resources. Japan serves as a model for developing countries, guiding them in enhancing education quality. Currently, Indonesia is a nation with diverse perspectives and theories held by its people. Discrepancies in interpreting education quality exist, as per the Programme for International Student Assessment (PISA), where Indonesia ranks 72 out of 77 countries due to low teacher competency and an inadequate education system. Indonesia's education system must learn significantly from Japan. Japan has historically excelled in technology and education, owing to its advanced quality.

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Educational growth impacts economic growth, and vice versa, wherein the improvement of education quality and accessibility can propel a nation's economic progress. In developed countries, government attention to educational sector development is significant, with significant political commitment and government expenditure correlating with macroeconomic development progress. However, in Indonesia, challenges such as low education levels, educational disparities, and suboptimal educational health pose challenges affecting economic growth. Therefore, strategic efforts in actualizing educational investment in Indonesia are expected to drive economic progress and create social welfare (Saripudin, 2017).

Education is deemed to play a crucial role in determining human quality. The higher the education level, the better the quality of human life. Concerning national economy, the higher the quality of life of a nation, the higher the growth and prosperity of that nation. The higher the level of education of the workforce, the higher its productivity, thereby driving a nation's economic growth (SBM, 2016).

In the current generation, numerous education-related issues arise. One of these issues concerns the educational infrastructure crisis in the archipelago. Japan, in contrast, Equalizes School Quality. One factor contributing to quality education in Japan is the equitable distribution of educational infrastructure in the country. Similar to Finland, renowned for its quality education, the Japanese government ensures uniform funding and support for all schools in each region. Concerning educational infrastructure in Indonesia, specifically regarding limited facilities and accessibility, the crisis of limited educational facilities requires serious attention as it can negatively impact education quality and accessibility for students. Critical limited access to educational facilities can restrict students' access to quality education. This impacts the difficulty for students to access education with the same standards. The limited facilities in educational infrastructure can also deepen educational inequalities (YahyaAlchilma, 2023).

Government spending on the Education sector in schools is necessary for the provision of quality education. The required costs encompass all education-related expenditures, such as money, goods, and labor, measurable in monetary value (Andi Maujung Tjodi, 2018).

In fact, higher education in Indonesia significantly lags behind in terms of budget. Indonesian government spending on higher education amounted to 0.3% of the national budget in 2019. Whereas, according to UNESCO recommendations, the minimum higher education budget is 2% of the national budget. Various issues indicate a lack of agreement among higher education stakeholders. Thus, achieving world-class higher education necessitates budgetary

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improvements. Higher education institutions are national assets. Nearly all developed countries worldwide position higher education as the final pillar for national interests. If necessary, changes in regulations, institutional frameworks, and government policies are required. There are various ways to address these issues. From the academic side, preparing prospective national educators from high school ensures effective and efficient funding. The next generation is already being instilled with the educator paradigm. The government can provide financial support to ensure optimal learning (Permana, 2023).

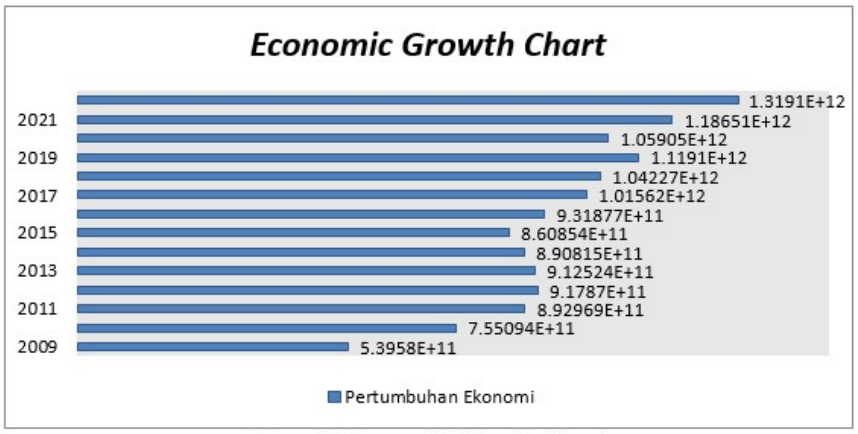

Figure 1. Economic Growth Chart,

Source: World bank, 2022

In the World Bank data on Indonesia's economic growth in 2022, it reached 1.31%. This figure is higher compared to the economic growth in the previous year, which was only 1.181%.

Not only surpassing the figure in 2021, but Indonesia's economic growth in 2022 also represents the highest achievement since 2017, reaching 5.56%. This comes after a drastic decline from 9.318%. According to the Gross Domestic Product (GDP) at current prices, the Indonesian economy will be worth Rp 13191.72 trillion in 2022.

Indonesia's GDP growth has been fluctuating since 2009. In 2009, growth reached 5.39%. There was an increase in 2010, reaching 7.55%, 8.92% in 2011, and a decline in 2017, with economic growth only at 1.01%. Despite any conditions, Indonesia's economic growth continues to experience improvement, reaching 1.31% in 2021.

The research aims to provide policy recommendations to the government or policymakers in the form of suggestions on the optimal budget allocation between infrastructure investment and education to accelerate economic growth. It also aims to gain a better understanding of the role of infrastructure and education investment in supporting economic growth to aid in government strategic planning.

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Unlike the research by Widiansyah (2017), which does not directly link education to economic growth, other studies may have different focuses, such as investigating the influence of education on health, social progress, or its impact on national income. However, an increasing number of countries acknowledge the influence of education on economic growth, leading to the rapid development and widespread belief in education as an investment depicted as an economic force intervention (education as investment). Every country has come to believe that the development of the education sector is a key prerequisite for economic growth.

THEORETICAL BACKGROUND

Economic Growth

According to human capital theory, education's contribution significantly impacts economic development. This contribution can be achieved through the enhancement of skills and work productivity. Rapid economic growth in Asian countries and progressive shifts in production towards high-tech industries and services have led to increased demand from businesses for skilled and educated (quality) human resources. Such quality human resources can only be produced by a quality education system. Human capital theory assumes that formal education is the most important instrument for creating an economic structure with high productivity (Widiansyah, 2017).

Education

The access to education influences the process of economic growth is the result of research conducted by (Donou-Adonsou, 2018) In Sub-Saharan Africa. It is also crucial to underline that better education can support the needs of educational infrastructure, which indirectly correlates with economic growth. The research concludes that access to education is highly necessary to enhance the economic value of a country.

As well as (Mifrahi, 2022) Undertaking an examination of the relationship between education and economic development through a case study in Romania. The findings of the conducted research indicate that education and GDP exhibit a cointegration relationship. Long-term correlations between high levels of education and economic growth are suggested by the study's findings.

School Infrastructure

The management of infrastructure or educational facilities management should be a primary concern of every educational administration. The availability of adequate educational infrastructure can affect economic growth. Drivers towards achieving educational goals that affect the condition of insufficient funding for maintaining educational infrastructure. One

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reason for the weak public service provided by education personnel is the lack of adequate facilities and infrastructure, which affects job efficiency, wasted time, and delayed problem-solving. (Wijayanto, 2012).

According to the (Hanifah, 2023), infrastructure investment in education is crucial for a country. If a country wants to increase its workforce, education budget can be utilized for human development in the field of education. This has the potential to increase the workforce participation rate, which directly impacts the quality of the workforce, measurable by the abilities and skills possessed by employees. Higher education will affect the quality of the workforce.

Government Expenditure

Government expenditure in the education sector experiences annual increases, which should be accompanied by an annual growth rate in the economy. Additionally, there are issues with government expenditure in the education sector characterized by phenomena from various sources regarding the uneven absorption of budget allocations in the country and the allocation of education and health budget absorption that does not comply with applicable laws. Certainly, these issues can slow down economic development in a region to serve the welfare of the local community (Aldillah, 2021).

In the study (Tjod, 2018), It is elaborated that in accordance with Law No. 20 of 2003 Concerning the National Education System, education is defined as a deliberate and purposeful endeavor to establish an environment and process that are conducive to learning, so that pupils may actively cultivate their inherent capabilities, including but not limited to noble character, intellectual prowess, spiritual fortitude, self-discipline, and the competencies required for the betterment of society, the nation, and the state. Educational resources are everything used in the implementation of education, including educational personnel, the community, funds, facilities, and infrastructure.

METHODOLOGY

The present study utilizes a quantitative methodology. Secondary data in the form of time series obtained from publications.data.kemdikbud.go.id and the World Bank through documentation for the years 2009-2022 are utilized. The analytical framework employed in this study is multiple linear regression. As economic growth indicators, the values of Education, School Infrastructure, and Government Expenditure in Indonesia comprise the data utilized in this study. Regression analysis consists of several stages: assessing normality, verifying classical assumptions such as autocorrelation, heteroscedasticity, and

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multicollinearity, and concluding with the multiple analysis test. (Ghozali, 2016). Meanwhile, the significance test includes the T-test, F-test. Additionally, the determination test is used to determine the contribution of the three independent variables in influencing Indonesia's GDP.

Among the various differences in research findings, it is evident that there is still a need for further research regarding the extent of the role of education, school infrastructure, and government expenditure in enhancing economic growth. Therefore, the purpose of this research is to determine the impact of foreign investment, external debt, and government expenditure on economic growth. The conceptual framework and research hypotheses are as follows:

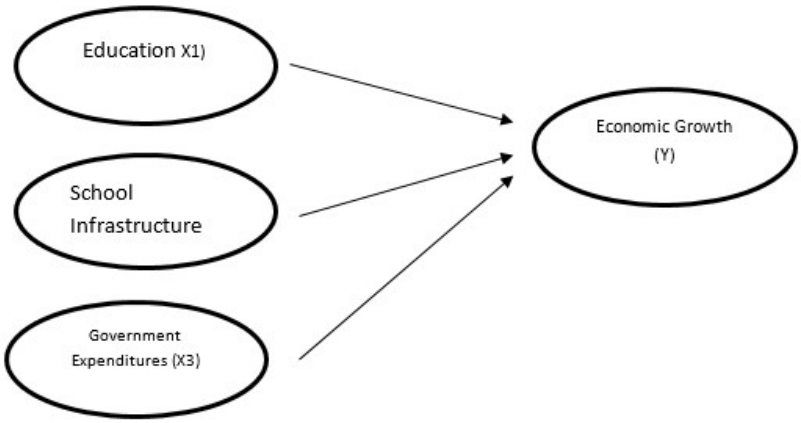

Figure 2. Research Analysis Framework

The following table explains the operational meaning of research variables:

Tabel 1. Operational Definition of Variables

Variable	Variable Definition	Unit
Economic Growth(Y)	Economic growth is the change in the pace of a country's economy calculated over a period, usually one year, and measured by the increase in Gross Domestic Product (GDP).	U$
Education (X1)	Education in Indonesia is considered crucial for the social, economic, and cultural development of the country. With active participation from the government, educational institutions, communities, and families, it is hoped that the education system in Indonesia can continue to evolve and provide fair opportunities for all citizens to receive quality education.	Percent (%)
School Infrastructure (X2)	Education infrastructure consists of facilities and structures that enable the education process to run	Number

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	smoothly. It includes facilities and resources necessary for the education process, such as school buildings, educational tools, communication networks, and others. Education infrastructure has a positive and significant impact on economic growth, as it facilitates the education process and enhances its quality. Education infrastructure can also help reduce poverty and contribute to the economic well-being of Indonesia.	
Government Expenditures (X3)	Government expenditure on education refers to spending allocated to the education sector, covering routine expenses, capital expenditures, and project and technical assistance. Government expenditure contributes to economic growth in Indonesia.	Percent (%)

Results

After conducting data collection from samples taken from the World Bank and IMF, the next step is to select a model for data testing. This process entails assessing the normality of the data, verifying classical assumptions such as autocorrelation, multicollinearity, and heteroscedasticity, and determining the significance level of each independent variable's impact on the dependent variable through the Eviews12 software feasibility test of a multiple linear regression analysis model.

Tabel 2. Uji Asumsi Klasik

Test	Variable	Prob value	Explanation
Normalitas	Education (X1), School Infrastructure (X2), and Government Expenditures (X3).	0.653332	Distributed Data with normal
Heterokedastisitas	Education (X1), School Infrastructure (X2), and Government Expenditures (X3).	0.6403	Not occur heteroscedasticity
Autokorelasi	Education (X1), School Infrastructure (X2), and Government Expenditures (X3).	1.773902	Not occur autokorelasi
Multikolinearitas	Education (X1), School Infrastructure (X2), and Government Expenditures (X3).	1.233071 1.120592 1.107827	It didn't happen multicollinearity

Source: Eviews 12 Data Processing

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The probability value of 0.653 is greater than the 5% significance level, as determined by the normality test, therefore, H is accepted and H1 is rejected. It is possible to deduce that the data utilized in this study exhibits a normal distribution or is complete.

The aforementioned multicollinearity test indicates that the Variance Inflation Factor (VIF) is less than 10, thus accepting Ho and rejecting H1. It can be deduced that this investigation does not exhibit multicollinearity.

Ho is denied in favor of H1 due to the result of the autocorrelation test, which indicates that the chi-squared probability value of 1.773 is greater than the 5% significance level. It can be inferred that the data utilized in this study constitutes an autocorrelation-free regression model between residuals.

The results of the heteroskedasticity test indicate that the chi-square probability value of 0.640 is greater than the 5% significance level. Therefore, H1 is rejected and Ho is accepted. Based on the findings, it can be inferred that the residual variables in the regression model employed in this study do not exhibit heteroskedasticity.

Tabel 3. Multiple Linear Regression Analysis

Dependent Variable: Y_PERTUMBUHAN_EKONOMI
Method: Least Squares
Date: 04/23/24 Time: 11:43
Sample: 2009 2022
Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.750861	0.346046	28.17791	0.0000
X1_PENDIDIKAN	0.716266	0.182001	3.935507	0.0028
X2_INFRASTRUKTUR_SEKOLAH	0.000285	0.000252	1.132033	0.2840
X3_PENGELUARAN_PEMERINTAH	0.725617	0.234065	3.100061	0.0112

R-squared	0.815088	Mean dependent var	11.97365
Adjusted R-squared	0.759614	S.D. dependent var	0.093394
S.E. of regression	0.045790	Akaike info criterion	-3.094531
Sum squared resid	0.020968	Schwarz criterion	-2.911943
Log likelihood	25.66172	Hannan-Quinn criter.	-3.111433
F-statistic	14.69322	Durbin-Watson stat	1.773902
Prob(F-statistic)	0.000538		

Source: Eviews 12 Data Processing

According to the regression outcomes presented in Table 1, the following are the significance levels of the three variables: Based on the regression results from Table 1, it can be concluded that the significance of variable values is as follows: The Education variable has a significant positive effect on Economic Growth, indicating the acceptance of H1. Meanwhile, the School Infrastructure variable has a positive but not significant effect on Economic Growth, thus accepting H2. The Expenditure Level variable has a significant positive effect on Economic Growth, demonstrating the acceptance of H3.

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The F-statistical Prob value of 0.000538 is greater than 0.05, suggesting that they both have a substantial impact on economic growth simultaneously. The value of R-Squared is 0.815088. This indicates that X1, X2, and X3 collectively account for 8.15% of the variance in Y, the remaining 1.85% is attributable to other variables not considered in this study.

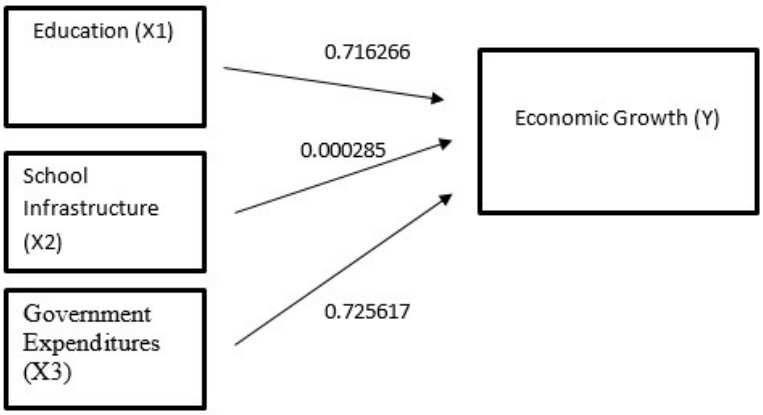

Figure 3 Model Diagram

Determining the effect of Education (X1) on Economic Growth (Y) is the objective of the analysis. The research findings suggest that economic growth is influenced by education by a factor of 0.716266. There is a 0.71% increase in economic growth for every 1% increase in education (X1). Furthermore, according to the findings of the study, the impact of school infrastructure on economic growth is 0.000285. This implies that a 1% reduction in School Infrastructure (X2) leads to an equivalent 0% decline in economic growth. In summary, the influence of Government Expenditure (X3) on economic growth is 0.725617. This indicates that economic growth increases by 0.72% for each 1% increase in government expenditures.

Discussion

Education shows statistical significance towards economic growth. Education influences economic growth because it enhances workforce quality, fosters innovation, and aids in economic progress. Education affects economic growth in various ways, such as 1. Building a competent workforce: Education helps build a competent and ready-to-work workforce. Competent workforce can assist companies in growth and enhance productivity. 2. Helping to reduce poverty: Education helps reduce poverty by increasing income and aiding in poverty reduction. The findings obtained in this research are in line with the findings of Riyon Saputra's research (2023) that the Education variable has a positive and significant impact on economic growth. (Saputra R. , 2023)

School infrastructure shows a positive impact but is not statistically significant on economic growth. A positive impact means that when school infrastructure increases,

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Economic Growth also increases. When school infrastructure improves, the accessibility of education to schools increases. This helps improve the quality of education and build a competent workforce. However, the insignificant impact in this case indicates that the presence of educational infrastructure still requires supervision and responsibility from the government and stakeholders towards schools, as most public educational institutions have their educational expenses covered by the government, and the government still deals with cases of insufficient funds for less privileged students. Therefore, the absence of infrastructure influence on economic growth in Indonesia. This is consistent with the research conducted by (Sugiarto, 2019), which concluded that education does not significantly affect economic growth, possibly because the realization of education spending is often concentrated at the end of the year, so its impact is not immediately visible in the current year.

Administration Expenditures According to these results, government spending in the education sector influences economic development in a positive and statistically significant way. Undoubtedly, government spending in the education sector contributes to the expansion of the Indonesian economy. Government spending in the education sector will influence sector development by augmenting the enrollment of students who are capable of attaining advanced degrees. An increase in the mean level of knowledge and abilities among the populace facilitates the comprehension, implementation, and utilization of technological progress by all individuals of working age, thereby ultimately elevating the nation's economic and living standards. Enhancing investment in the education sector is imperative for a nation to attain progress and foster economic expansion. This research aligns with the study conducted by (Kahang, 2016), that government expenditure variable has a significant and positive effect on economic growth in Indonesia.

It is anticipated that the government will view the acquisition of knowledge and skills via education not solely as a form of expenditure, but also as a form of investment, in light of the research findings. Additionally, it is crucial to acknowledge that the advancement of the education sector with a human-centric approach has contributed directly to a nation's economic growth by enhancing the workforce's production capabilities and skill sets. As a result of these revelations and new insights, a multitude of specialists have been compelled to examine the economic worth of education. The principal catalyst for this transition is the increasing recognition and aspiration concerning the economic worth of education. Diverse stakeholders, including governments, planners, international institutions, researchers, contemporary philosophers, and practitioners engaged in human resource development and education sector advancement, have had their perspectives and thought processes impacted by developments.

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Education is considered not only a consumptive aspect but also an investment in human capital and a "leading sector" or one of the primary sectors in developed nations. (Widiansyah, 2017).

Therefore, the success of economic interventions (budget support) in education is correlated with the advancement of its macro development, including economic development, as a result of the government's genuine concern for the sector's progress, as evidenced by its commitment to not allocating substandard government expenditure budgets to education compared to other sectors. This highlights how education becomes a leading sector in the development of the economy and modernization of a nation. Therefore, a definitive and systematic approach is needed to achieve educational goals, to enrich the nation's life and to make the country respected by others.

CONCLUSION

This paper examines the significance of education in fostering economic development in Indonesia, utilizing research findings to assess the interplay between education, school infrastructure, and government expenditure. The development of an economy is quantified by the increase in its gross domestic product (GDP) between two time periods. Education is regarded as a critical determinant of human quality, which in turn influences economic expansion. As it improves the caliber and output of the labor force, education has a substantial positive impact on economic expansion, according to the findings of this study. Meanwhile, while not statistically significant, school infrastructure also contributes positively to economic growth. Conversely, investment by the Indonesian government in the education sector also exerts a noteworthy and favorable impact on the country's economic expansion.

This research employed a quantitative methodology, specifically utilizing multiple linear regression analysis. The results of the analysis indicate that all three independent variables—education, school infrastructure, and government expenditure—have a significant impact on economic growth simultaneously.

This research offers suggestions to policymakers and the government regarding the significance of allocating resources towards the education sector, as it constitutes an investment that has a direct influence on economic expansion. There is an expectation that the findings of this study will incite additional discourse regarding the economic worth of education and heighten focus on the advancement of the Indonesian education sector.

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