

Human Capital and Poverty Reduction Through Economic Growth in East Kutai Regency

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Abstract

Poverty remains a major development challenge in resource-based regions, including East Kutai Regency, where economic growth has not always been followed by consistent poverty reduction. This study aims to analyze the effect of human capital, represented by education and health, on poverty reduction through economic growth in East Kutai Regency during the period 2010–2025. This study employs a quantitative approach using time series data from 2010–2025. Data analysis was conducted to examine the direct and indirect relationships between education, health, economic growth, and poverty reduction through a mediation approach. The findings are expected to provide empirical evidence regarding the role of human capital development in improving economic performance and reducing poverty. The study indicates that improving education and health quality contributes to strengthening economic growth, which subsequently supports poverty reduction. The results emphasize the importance of human capital investment as a long-term development strategy, particularly in regions with high dependence on natural resources. This research provides policy implications for local governments in designing inclusive economic development strategies through improvements in education, health services, and sustainable economic diversification.

Keywords: Economic Growth; Education; Health; Human Capital; Poverty Reduction

INTRODUCTION

Poverty remains one of the fundamental challenges in economic development, particularly in developing regions. Poverty is not only associated with low income but also reflects limitations in access to education, healthcare, employment opportunities, and social services. In modern development economics, poverty is considered a multidimensional phenomenon influenced by economic, social, and human development factors. Therefore, poverty reduction requires a comprehensive strategy that does not only focus on economic growth but also emphasizes improving the quality of human resources. Human capital development through investment in education and health plays an important role in increasing productivity, expanding employment opportunities, and improving community welfare (Prasetyo & Kistanti, 2020).

East Kutai Regency in East Kalimantan Province is one of the regions with significant economic potential due to its natural resource-based economic structure, particularly the mining sector. The dominance of extractive industries has contributed significantly to regional economic growth and increased regional economic output. However, the improvement in economic performance has not always been followed by consistent poverty reduction. This condition reflects a development paradox commonly experienced by resource-rich regions, where high economic growth does not necessarily result in equal distribution of welfare. The dependence on capital-intensive sectors may limit employment opportunities for local communities and create vulnerability among lower-income groups (Rahayu, 2021).

During the period 2010–2025, East Kutai Regency experienced dynamic changes in poverty conditions. Although poverty indicators showed a declining trend in the long term, fluctuations in several periods indicate that poverty reduction has not occurred consistently. Meanwhile, regional economic growth continued to develop, particularly through the contribution of the mining sector. This condition indicates that economic growth alone is

insufficient to ensure sustainable poverty reduction without being supported by improvements in human capital quality and inclusive economic development.

Human capital is recognized as one of the important determinants of sustainable economic development. Based on human capital theory, investment in education and health improves individual capabilities, productivity, and economic opportunities. Education enhances knowledge, skills, and innovation capacity, while health improves physical productivity and labor participation. Therefore, human capital development becomes an important mechanism in strengthening economic growth and reducing poverty. Previous studies have demonstrated that improvements in education and health quality contribute positively to economic performance and poverty reduction (Wau et al., 2022).

The improvement of human capital indicators in East Kutai Regency shows positive development during the research period. Educational conditions have improved, reflected by the increase in average years of schooling, while health conditions have also improved as indicated by increasing life expectancy. However, improvements in human capital do not automatically guarantee poverty reduction because the relationship between human capital and poverty may occur through various mechanisms. Economic growth can act as a transmission mechanism by creating employment opportunities, increasing income, and expanding economic activities.

The relationship between human capital, economic growth, and poverty reduction remains an important issue in economic development studies. Some studies argue that human capital directly influences poverty reduction through increased productivity and income capacity. However, other studies suggest that the effect of human capital on poverty occurs indirectly through economic growth. These differences indicate the existence of research gaps regarding the mechanism through which human capital contributes to poverty reduction, especially in resource-based regional economies.

Previous empirical studies have demonstrated that human capital plays an important role in improving economic performance and reducing poverty. Studies focusing on education and health generally find that improvements in human capital indicators contribute positively to economic growth by increasing productivity, labor quality, and economic capacity. However, several studies also indicate that the direct relationship between human capital and poverty reduction is not always consistent because the benefits of human capital investment often require an economic transmission mechanism before generating improvements in welfare.

Despite these findings, previous studies have several limitations. First, many empirical studies have focused on national-level analysis or cross-country comparisons, providing limited evidence regarding the mechanism of human capital development in specific regional contexts. Second, previous research has commonly examined the direct relationship between human capital and poverty reduction, while fewer studies have investigated how economic growth functions as a mediating mechanism that converts improvements in education and health into poverty reduction outcomes. Third, limited attention has been given to resource-dependent regions where economic growth may increase significantly through extractive industries but may not automatically generate inclusive welfare improvements.

Therefore, this study addresses these gaps by examining the mediating role of economic growth in the relationship between human capital and poverty reduction in East Kutai Regency, a resource-based regional economy in Indonesia. The novelty of this research lies in its specific focus on East Kutai Regency and its integrated framework that analyzes education and health as human capital components, economic growth as a mediating variable, and poverty reduction as the final outcome. By incorporating economic growth as a transmission mechanism, this study provides additional empirical evidence on how human capital development contributes to poverty reduction in regions characterized by strong dependence on natural resources.

This study aims to analyze the effect of education and health as components of human capital on economic growth and poverty reduction, as well as to examine the role of economic growth as a mediating variable in the relationship between human capital and poverty reduction in East Kutai Regency during the period 2010–2025. The results of this study are expected to

contribute to economic development literature and provide practical implications for local governments in designing inclusive development policies based on human capital improvement.

The conceptual framework of this study illustrates the relationships among education, health, economic growth, and the Poverty Depth Index. Education and health are proposed to influence economic growth and directly affect the Poverty Depth Index. Economic growth is also proposed to affect the Poverty Depth Index and to mediate the effects of education and health on the Poverty Depth Index.

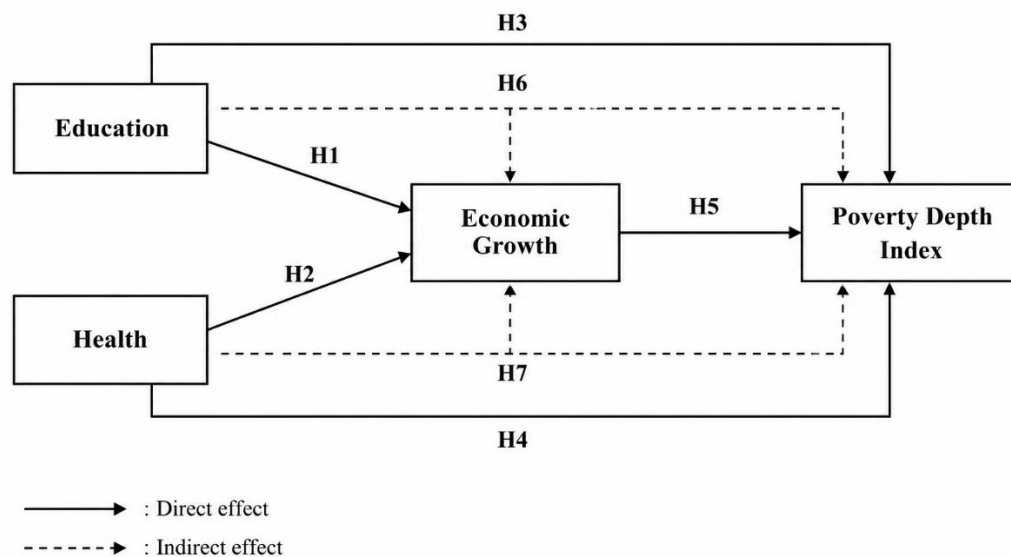


Figure 1. Conceptual Framework of the Relationships among Education, Health, Economic Growth, and the Poverty Depth Index

Source: Developed by the authors based on the theoretical framework and previous empirical studies.

Based on the theoretical framework and previous empirical studies, the hypotheses proposed in this study are:

- H1: Education has a positive effect on economic growth.
- H2: Health has a positive effect on economic growth.
- H3: Education has a negative effect on the Poverty Depth Index.
- H4: Health has a negative effect on the Poverty Depth Index.
- H5: Economic growth has a negative effect on the Poverty Depth Index.
- H6: Education affects the Poverty Depth Index through economic growth.
- H7: Health affects the Poverty Depth Index through economic growth.

METHOD

Research Design and Subject

This study uses a quantitative approach with an explanatory research design. The research aims to examine the effect of human capital components, namely education and health, on poverty reduction through economic growth as an intervening variable.

The research object is East Kutai Regency, East Kalimantan Province, Indonesia. This region was selected because it has a resource-based economic structure dominated by the mining

sector. Although East Kutai Regency has experienced economic growth, poverty reduction has not always shown a consistent trend. Therefore, this study investigates the role of human capital and economic growth in explaining poverty reduction in the region.

Data Collection Method

This study uses secondary data in the form of annual time series data from 2010 to 2025. The data were obtained from official publications of the Central Statistics Agency (Badan Pusat Statistik/BPS), including East Kalimantan Province and East Kutai Regency statistical reports.

This study utilizes annual time series data covering the period 2010–2025, resulting in 16 annual observations. The selection of this period is determined by the availability and consistency of official statistical data for East Kutai Regency. As a regional-level study, the availability of continuous and comparable annual indicators for education, health, economic growth, and poverty reduction represents an important consideration in determining the observation period.

Although the limited number of observations may reduce statistical power and increase uncertainty in regression and mediation estimates, the use of time series data remains appropriate for examining the development patterns and relationships among variables within a specific regional context. To improve the reliability of the analysis, this study applies classical assumption tests, including normality, multicollinearity, autocorrelation, and heteroscedasticity tests, before conducting regression and mediation analysis.

The variables analyzed in this study consist of independent variables, intervening variables, and dependent variables. Human capital is represented by education and health indicators. Education is measured by the average years of schooling, while health is measured by life expectancy. Economic growth is measured by Gross Regional Domestic Product (GRDP) at constant prices, while poverty reduction is measured using the poverty depth index.

In this study, poverty reduction is operationalized using the Poverty Depth Index (P1) as the dependent variable. Poverty reduction refers to the broader development objective of decreasing poverty conditions, while the Poverty Depth Index specifically measures the depth of poverty by indicating the average distance of poor people's expenditure from the poverty line. Therefore, a lower Poverty Depth Index value represents an improvement in poverty conditions, as it indicates that poor households are closer to the minimum standard of living represented by the poverty line.

Accordingly, throughout this manuscript, the dependent variable is consistently referred to as the Poverty Depth Index rather than poverty reduction to avoid conceptual ambiguity. The interpretation of the regression results is therefore based on changes in the Poverty Depth Index, where a negative relationship indicates an improvement in poverty conditions through a reduction in poverty depth.

Research Variables and Measurement

Table 1. Research Variables and Measurement Indicators

Variable	Indicator	Measurement
Education (X1)	Average Years of Schooling	Years
Health (X2)	Life Expectancy	Years
Economic Growth (Z)	GRDP Growth Rate at Constant Prices	Annual percentage growth (%)
Poverty Reduction (Y)	Poverty Depth Index	Percentage

Source: Researcher's compilation (2026)

In this study, economic growth is operationalized as the annual growth rate of Gross Regional Domestic Product (GRDP) at constant prices rather than the absolute level of GRDP. The use of GRDP growth rate is intended to capture the annual change in regional economic performance by measuring the increase or decrease in real economic output over time. This

measurement is more consistent with the concept of economic growth, which refers to the rate of expansion of economic activity rather than the total size of regional output.

Therefore, a higher value of economic growth indicates an increase in real economic activity in East Kutai Regency. This operational definition is consistently applied throughout the hypothesis formulation, regression analysis, and interpretation of results, where economic growth represents the mechanism through which improvements in human capital contribute to changes in the Poverty Depth Index

Data Analysis Technique

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) software. The analysis consisted of descriptive statistical analysis, classical assumption testing, multiple linear regression analysis, hypothesis testing, and mediation analysis.

Descriptive statistical analysis was conducted to describe the characteristics and development patterns of each research variable during the observation period. Classical assumption tests were performed to ensure that the regression model met the requirements of statistical analysis, including normality, multicollinearity, autocorrelation, and heteroscedasticity tests.

Multiple linear regression analysis was used to examine the direct effect of education and health on economic growth and poverty reduction. The regression models used in this study are formulated as follows:

Model 1: Effect of Human Capital on Economic Growth

$$Z = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon_1$$

Model 2: Effect of Human Capital and Economic Growth on Poverty Reduction

$$Y = \alpha + \beta_3 X_1 + \beta_4 X_2 + \beta_5 Z + \varepsilon_2$$

Where:

Y = Poverty Reduction

Z = Represents the annual GRDP growth rate at constant prices (%).

X₁ = Education

X₂ = Health

α = Constant

β = Regression coefficient

e = Error term

Hypothesis testing was conducted using the t-test to examine the partial effect of each independent variable and the F-test to determine the simultaneous effect of independent variables on the dependent variable. The coefficient of determination (R²) was used to evaluate the ability of the independent variables to explain variations in the dependent variable.

Mediation analysis was conducted to examine whether economic growth acts as an intervening variable in the relationship between human capital and poverty reduction. The indirect effect was analyzed by comparing the direct influence of education and health on poverty reduction with the indirect influence through economic growth.

RESULTS AND DISCUSSION

The author needs to report the results in sufficient detail so that the reader can see which statistical analysis was conducted and why, and later justify their conclusions.

The "Discussion and Analysis" part, highlights the rationale behind the result answering the question "Why the result is so?" It shows the theories and the evidence from the results. The part does not just explain the figures but also deals with this deep analysis to cope with the gap that it is trying to solve.

Result

Regression Analysis Results

This study analyzes the relationship between human capital, economic growth, and poverty reduction using path analysis. The analysis was conducted through two structural models. The first model examines the effect of education and health on economic growth, while the second model examines the effect of education, health, and economic growth on poverty reduction.

Classical Assumption Test Results

Table 2. Classical Assumption Test Results

Diagnostic Test	Model 1: Economic Growth (Z)	Model 2: Poverty Depth Index (Y)	Decision
Normality Test (Kolmogorov-Smirnov)	Asymp. Sig. = 0.200	Asymp. Sig. = 0.144	Both models are normally distributed
Multicollinearity Test (Tolerance/VIF)	Education: Tolerance = 0.351; VIF = 2.846 Health: Tolerance = 0.351; VIF = 2.846	Education: Tolerance = 0.158; VIF = 6.329 Health: Tolerance = 0.221; VIF = 4.534 Economic Growth: Tolerance = 0.199; VIF = 3.077	No multicollinearity problem
Heteroscedasticity Test (Glejser)	Education: Sig. = 0.448 Health: Sig. = 0.657	Education: Sig. = 0.127 Health: Sig. = 0.665 Economic Growth: Sig. = 0.390	No heteroscedasticity problem
Autocorrelation Test (Runs Test)	Asymp. Sig. = 0.438	Asymp. Sig. = 0.196	No autocorrelation problem

Source: Data Processed Using SPSS (2026)

Before conducting regression analysis, classical assumption tests were performed to ensure the validity and reliability of the regression models. The diagnostic tests included normality, multicollinearity, heteroscedasticity, and autocorrelation tests for both regression models. The Kolmogorov-Smirnov normality test shows that the residuals of Model 1 and Model 2 are normally distributed, with significance values of 0.200 and 0.144, respectively, which are greater than the 0.05 significance level. Therefore, both regression models satisfy the normality assumption. The multicollinearity test indicates that all independent variables have tolerance values greater than 0.10 and VIF values below 10. In Model 1, education and health variables have tolerance values of 0.351 and VIF values of 2.846. Meanwhile, in Model 2, education, health, and economic growth show VIF values of 6.329, 4.534, and 3.077, respectively. These results confirm that there is no multicollinearity problem in either regression model. The Glejser test results show that all independent variables have significance values above 0.05. Therefore, both regression models do not experience heteroscedasticity problems. Furthermore, the autocorrelation test using the Runs Test indicates that the residuals in both models are random, with significance values of 0.438 for Model 1 and 0.196 for Model 2. Since both values exceed 0.05, the regression models do not show autocorrelation problems.

Effect of Human Capital on Economic Growth

The first regression model examines the effect of human capital components, represented by education and health, on economic growth. The structural equation of the first model is formulated as follows:

$$Z = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon_1$$

where Z represents economic growth, X1 represents education, and X2 represents health.

Table 3. Regression Results of Model 1
The Effect of Education and Health on Economic Growth

Variable	Standardized Coefficient (β)	t-statistic	Sig.	Decision
Education	0.588	3.989	0.002	Significant
Health	0.409	2.777	0.016	Significant

Source: Data Processed Using SPSS (2026)

The regression results of Model 1 indicate that education has a positive and significant effect on economic growth. The standardized coefficient (β) of education is 0.588, with a t-statistic value of 3.989 and a significance value of 0.002 (<0.05). This finding indicates that improvements in education contribute positively to economic growth by enhancing human capital quality, productivity, and labor capacity. Health also shows a positive and significant effect on economic growth, with a standardized coefficient (β) of 0.409, a t-statistic value of 2.777, and a significance value of 0.016 (<0.05). This result indicates that improvements in health conditions support economic growth by increasing workforce productivity and improving the capacity of individuals to participate in economic activities. Therefore, the results of Model 1 support hypotheses H1 and H2, which state that education and health have positive effects on economic growth.

Effect of Human Capital and Economic Growth on Poverty Reduction

The second regression model analyzes the effect of education, health, and economic growth on the Poverty Depth Index. In this study, poverty conditions are measured using the Poverty Depth Index (P1), where a lower value indicates an improvement in poverty conditions. The structural equation of the second model is formulated as follows:

$$Y = \alpha + \beta_3 X_1 + \beta_4 X_2 + \beta_5 Z + \varepsilon_2$$

where Y represents the Poverty Depth Index, X1 represents education, X2 represents health, and Z represents economic growth.

Table 4. Regression Results of Model 2
The Effect of Education, Health, and Economic Growth on Poverty Depth Index

Variable	Standardized Coefficient (β)	t-statistic	Sig.	Decision
Education	1.251	2.136	0.054	Not Significant
Health	0.567	1.145	0.275	Not Significant
Economic Growth	-1.844	-2.495	0.028	Significant

Source: Data Processed Using SPSS (2026)

The results of Model 2 indicate that education has a positive but statistically insignificant effect on the Poverty Depth Index. The standardized coefficient (β) of education is 1.251, with a t-statistic value of 2.136 and a significance value of 0.054 (>0.05). This result suggests that improvements in education have not yet produced a statistically significant reduction in poverty depth during the observation period. Health also shows a positive but insignificant effect on the Poverty Depth Index. The standardized coefficient (β) of health is 0.567, with a t-statistic value of 1.145 and a significance value of 0.275 (>0.05). This indicates that improvements in health conditions alone have not directly contributed significantly to changes in poverty depth. Meanwhile, economic growth has a negative and significant effect on the Poverty Depth Index. The

standardized coefficient (β) of economic growth is -1.844, with a t-statistic value of -2.495 and a significance value of 0.028 (<0.05). The negative coefficient indicates that higher economic growth is associated with a lower Poverty Depth Index, meaning that improvements in regional economic performance contribute to better poverty conditions. Therefore, the results of Model 2 support hypothesis H5, while hypotheses H3 and H4 are not supported.

Mediation Analysis Results

The mediation analysis was conducted to examine whether economic growth mediates the relationship between human capital and the Poverty Depth Index. The Sobel test was applied to evaluate the significance of the indirect effects through economic growth. The Sobel test calculation is based on two paths: (1) path a, representing the effect of the independent variable on the mediator, and (2) path b, representing the effect of the mediator on the dependent variable.

The indirect effect is calculated by multiplying the path coefficient from the independent variable to the mediator (a) by the path coefficient from the mediator to the dependent variable (b):

$$\text{Indirect Effect} = a \times b$$

The mediation pathways and calculation results are presented in Table 4.

Table 5. Indirect Effect Calculation of Mediation Analysis

Mediation Path	Path Coefficient (a)	Path Coefficient (b)	Indirect Effect (a × b)
Education → Economic Growth → Poverty Depth Index	0.588	-1.844	-1.084
Health → Economic Growth → Poverty Depth Index	0.409	-1.844	-0.754

Source: Data Processed Using SPSS (2026)

The indirect effect was calculated by multiplying the path coefficient of the independent variable on the mediator (path a) by the path coefficient of the mediator on the dependent variable (path b). For the education pathway, the indirect effect was obtained from $0.588 \times (-1.844) = -1.084$. Meanwhile, for the health pathway, the indirect effect was obtained from $0.409 \times (-1.844) = -0.754$.

These results indicate that economic growth mediates the relationship between human capital and the Poverty Depth Index. The negative indirect effects imply that improvements in education and health contribute to reducing poverty depth through improvements in economic growth.

Table 6. Sobel Test Results for Mediation Analysis

Mediation Path	Path Coefficient (a)	Standard Error (Sa)	Path Coefficient (b)	Standard Error (Sb)	Indirect Effect (a × b)	Sobel Z-value
Education → Economic Growth → Poverty Depth Index	17,310,543,579.139	4,339,998,924.481	-5.273E-11	0.000	-1.084	-3.99
Health → Economic Growth →	7,312,319,919.744	2,633,176,511.257	-5.273E-11	0.000	-0.754	-2.77

Poverty
Depth
Index

Source: Data Processed Using SPSS (2026)

The mediation analysis was conducted using the Sobel test based on the unstandardized regression coefficients and standard errors obtained from the two regression models. The path coefficient (a) represents the effect of education and health on economic growth, while path coefficient (b) represents the effect of economic growth on the Poverty Depth Index

The indirect effect of education through economic growth was calculated as:

$$17,310,543,579.139 \times (-5.273E-11) = -1.084$$

Meanwhile, the indirect effect of health through economic growth was calculated as:

$$7,312,319,919.744 \times (-5.273E-11) = -0.754$$

These results confirm that economic growth mediates the relationship between human capital and the Poverty Depth Index.

Summary of Hypothesis Testing

Table 7. Hypothesis Testing Results

Hypothesis	Result
H1: Education affects economic growth	Accepted
H2: Health affects economic growth	Accepted
H3: Education affects poverty reduction	Rejected
H4: Health affects poverty reduction	Rejected
H5: Economic growth affects poverty reduction	Accepted
H6: Education affects poverty reduction through economic growth	Accepted
H7: Health affects poverty reduction through economic growth	Accepted

Discussion

The Effect of Education and Health on Economic Growth

The findings of this study confirm that human capital development, represented by education and health, plays an important role in encouraging economic growth in East Kutai Regency. The significant effect of education on economic growth indicates that improvements in educational quality contribute to increasing the productivity and capability of the workforce.

This finding is consistent with human capital theory developed by Becker, which explains that education is an investment that increases individual knowledge, skills, and productivity. Higher educational attainment enables individuals to obtain better employment opportunities, improve work efficiency, and contribute to economic productivity. Therefore, investment in education does not only provide individual benefits but also creates broader economic impacts through increased regional productivity.

In the context of East Kutai Regency, the role of education becomes increasingly important because the regional economy is largely supported by natural resource-based sectors. Although mining activities contribute significantly to economic output, sustainable economic development requires skilled human resources capable of supporting economic diversification and increasing value-added activities. Therefore, improving educational quality can strengthen the capacity of local communities to participate in economic development.

The significant relationship between health and economic growth also confirms that health is an essential component of human capital. A healthier population has greater productive capacity, higher labor participation, and lower productivity losses caused by health problems. This finding

supports the argument that health investment contributes to economic development by improving workforce quality.

These results are in line with previous studies showing that human capital dimensions, particularly education and health, are important determinants of regional economic growth. Investment in human capital creates productive resources that support economic transformation and long-term development.

The Effect of Education and Health on Poverty Reduction

The results indicate that education and health do not have a significant direct effect on poverty reduction in East Kutai Regency. This finding suggests that improvements in human capital indicators do not immediately translate into poverty alleviation.

The insignificant direct effect of education can be explained by the fact that education requires a transmission process before generating welfare improvements. Higher educational attainment may improve individual capability; however, its impact on poverty reduction depends on the availability of employment opportunities, labor market conditions, and the ability of the regional economy to absorb skilled workers.

In resource-based regions such as East Kutai Regency, economic structures may influence how human capital improvements are converted into income opportunities. If economic activities remain concentrated in capital-intensive sectors, improvements in education may not immediately benefit all segments of society, particularly groups with limited access to productive employment.

Similarly, the insignificant direct effect of health indicates that improved health conditions alone are insufficient to directly reduce poverty. Health improvements increase productivity potential, but poverty reduction requires complementary factors such as employment creation, income growth, and economic accessibility.

These findings support the view that poverty is a multidimensional problem. According to the capability approach proposed by Sen, poverty is not merely a lack of income but also a limitation in people's ability to achieve better living conditions. Therefore, education and health should be integrated with economic empowerment policies to generate stronger poverty reduction outcomes.

The Role of Economic Growth in Poverty Reduction

This study finds that economic growth has a significant role in reducing the Poverty Depth Index in East Kutai Regency, indicating an improvement in poverty conditions. The negative relationship between economic growth and poverty indicates that economic expansion contributes to improving community welfare.

Economic growth can reduce poverty through several mechanisms, including employment creation, increased household income, and expansion of economic activities. When economic growth generates broader economic opportunities, communities have greater access to income-generating activities, which contributes to poverty reduction.

However, economic growth does not automatically guarantee poverty reduction. The effectiveness of growth depends on whether economic benefits are distributed inclusively. Growth dominated by sectors with limited labor absorption may produce high economic output but provide limited direct benefits for vulnerable communities.

The findings of this study support the concept of pro-poor growth, which emphasizes that economic growth must be accompanied by policies ensuring that lower-income groups benefit from economic development. In the case of East Kutai Regency, economic policies should encourage not only growth acceleration but also economic diversification, employment expansion, and community participation.

Economic Growth as a Mediating Variable Between Human Capital and Poverty Reduction

The mediation analysis provides important evidence that economic growth acts as a mechanism connecting human capital development and poverty reduction. Although education and health do not have significant direct effects on poverty reduction, both variables influence poverty reduction indirectly through economic growth.

This finding indicates that human capital development requires an economic channel to generate welfare improvements. Education increases knowledge, skills, and productivity, while health improves physical capacity and workforce participation. These improvements strengthen economic performance, which subsequently contributes to poverty reduction.

The mediating role of economic growth explains why investment in education and health should be viewed as long-term development strategies rather than short-term poverty reduction instruments. Human capital improvements may require time before their economic benefits are reflected in household welfare.

For East Kutai Regency, this finding provides important policy implications. Local government strategies should integrate human capital development with economic transformation policies. Improvements in education and health services should be accompanied by efforts to create productive employment opportunities and strengthen economic sectors that can absorb local labor.

Overall, this study demonstrates that human capital and economic growth are interconnected factors in achieving sustainable poverty reduction. Human capital provides the foundation for economic productivity, while economic growth serves as the pathway through which improvements in human capacity are transformed into welfare gains.

CONCLUSION

This study examines the role of human capital, represented by education and health, in poverty reduction through economic growth in East Kutai Regency during the period 2010–2025. The findings provide empirical evidence that human capital development contributes significantly to regional economic performance. Education and health are proven to have a positive and significant effect on economic growth, indicating that improvements in human resource quality are important factors in strengthening economic capacity.

However, the results also reveal that education and health do not have a significant direct effect on poverty reduction. This finding indicates that improvements in human capital require an economic transmission mechanism before generating substantial welfare impacts. Human capital development alone is not sufficient to reduce poverty without being supported by employment opportunities, income generation, and inclusive economic activities.

Furthermore, this study confirms that economic growth plays an important role in poverty reduction. Economic growth has a negative and significant effect on poverty, indicating that increased economic activity contributes to improving community welfare. The mediation analysis also demonstrates that economic growth acts as an intervening variable between human capital and poverty reduction. Education and health contribute to poverty reduction indirectly through their ability to stimulate economic growth.

Theoretically, this study strengthens the human capital perspective by demonstrating that investment in education and health influences welfare improvement through economic development mechanisms. Empirically, this research provides evidence from a resource-based regional economy, where economic growth needs to be supported by improvements in human capital quality to achieve sustainable development.

From a policy perspective, the government of East Kutai Regency should implement integrated development strategies by strengthening education and healthcare systems while promoting inclusive economic growth. Economic development policies should focus not only on increasing regional output but also on creating employment opportunities and ensuring that economic benefits are distributed among local communities.

This study has limitations related to the use of annual time series data with a relatively limited observation period and the inclusion of only human capital and economic growth

variables. Future research may incorporate additional variables such as employment, income inequality, investment, industrial diversification, and government policies to provide a more comprehensive understanding of poverty reduction mechanisms.

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