



THE EFFECT OF MALE EXPECTED YEARS OF SCHOOLING ON THE NUMBER OF POOR PEOPLE IN INDONESIA

Sopiah Handayani*, Achmad Efendi, Vera Anitra

Faculty of Economics, Business, and Politics, Muhammadiyah University of East Kalimantan

Correspondence *: hsopiah62@gmail.com

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Abstract

Poverty remains a persistent development challenge closely linked to the quality of human resources, particularly education. This study examines the relationship between male Expected Years of Schooling (EYS) and poverty in Indonesia using national time-series data from 2014 to 2024 obtained from Statistics Indonesia (BPS). A quantitative approach is applied using a log-log regression model with natural logarithmic transformation. The results reveal a negative and statistically significant association between male EYS and poverty ($\beta = -2.063$; $p = 0.006$). In elasticity terms, a 1% increase in male EYS is associated with an approximate 2.063% reduction in the number of poor people. The model demonstrates moderate explanatory power, with an Adjusted R Square of 0.546. However, given the limited observations and the use of a single explanatory variable, the findings should be interpreted as associative rather than causal. Further research incorporating additional variables is recommended.

Keywords: expected years of schooling, education, poverty, human resources

A. INTRODUCTION

Poverty remains a persistent development challenge that is closely linked to the quality of human resources, particularly education. Individuals with low levels of education and limited skills tend to exhibit lower productivity, which in turn restricts their opportunities to obtain decent employment and adequate income. As a result, they are more vulnerable to falling into poverty and experiencing prolonged economic hardship. This condition often creates a cycle of poverty that is difficult to break, especially when human resource development is not optimally implemented. From a human resource management perspective, poverty reflects the suboptimal process of developing and utilizing a productive and competitive workforce (Juliansyah et al., 2024). The World Bank (2023) defines poverty as the inability to meet basic needs, while UNDP (2024) emphasizes the deprivation of capabilities and limited opportunities to improve well-being.

Education is widely regarded as a key instrument for enhancing human capital and improving economic outcomes. It functions as an investment that equips individuals with knowledge, skills, and competencies necessary to participate effectively in the labor market. Higher levels of education are generally associated with increased productivity, better employment prospects, and higher income levels. Consequently, education plays a crucial role in reducing poverty and improving overall welfare. Human Capital Theory, as proposed by Schultz (1961) and Becker (1964), provides a theoretical foundation for understanding this relationship. The theory posits that investments in education enhance individuals' capabilities, thereby increasing their economic value and earning potential. In this context, improving access to education becomes a strategic effort to strengthen human resource quality and support sustainable economic development.

One important indicator used to assess educational opportunities is Expected Years of Schooling (EYS). This indicator reflects the expected number of years a child can spend in formal education, assuming that current educational conditions remain constant. According to

UNDP (2024), EYS captures the long-term prospects of educational attainment, while Statistics Indonesia identifies it as a key component in the Human Development Index, representing access to and opportunities for education within a region. An increase in EYS indicates greater opportunities for individuals to obtain longer and more comprehensive education, which in turn contributes to the development of a more skilled and productive workforce (Sabrina et al., 2022). Therefore, improvements in EYS are expected to have a significant impact on poverty reduction through enhanced human capital formation.

Despite the recognized importance of education in reducing poverty, many previous studies have relied on aggregate or general indicators of education without distinguishing between gender groups. This approach may overlook important socio-economic dynamics, particularly in countries where gender roles in the labor market are still pronounced. In the context of Indonesia, men often play a dominant role as primary breadwinners within households. As a result, their level of education may have a more direct influence on household income and economic stability compared to other demographic groups. Higher levels of male education can lead to increased productivity, better employment opportunities, and higher wages, which ultimately contribute to reducing poverty (Vo et al., 2023).

Furthermore, the Indonesian labor market is characterized by a relatively high participation rate of men compared to women, reinforcing the importance of male human capital in shaping economic outcomes. In such a context, focusing on male educational indicators provides a more specific lens through which the relationship between education and poverty can be examined. However, empirical research that explicitly investigates the role of male Expected Years of Schooling in influencing poverty remains limited. Most studies tend to generalize educational effects without accounting for gender-specific contributions, thereby leaving a gap in the literature.

Based on these considerations, this study aims to analyze the effect of male Expected Years of Schooling on the number of poor people in Indonesia using national time-series data from 2014 to 2024. By focusing specifically on male EYS, this study seeks to provide more nuanced empirical evidence on how gender-based educational opportunities influence poverty dynamics. In addition, this research contributes to the broader discourse on human resource development by highlighting the importance of aligning educational policies with socio-economic structures, particularly in developing countries.

Through this approach, the study is expected to offer insights not only for academic discussions but also for policymakers in designing more targeted education and poverty alleviation strategies. Strengthening access to education, particularly for groups that play a central role in household economic stability, may enhance the effectiveness of poverty reduction programs. Therefore, understanding the relationship between male Expected Years of Schooling and poverty is essential for developing evidence-based policies aimed at improving human welfare and promoting inclusive economic growth.

B. LITERATURE REVIEW

1. Human Capital Theory

Human Capital Theory serves as a fundamental framework for explaining the relationship between education and poverty. Schultz (1961) argues that education constitutes a form of investment that enhances individual capabilities, skills, and productivity, which in turn leads to improved economic outcomes. Similarly, Becker (1964) emphasizes that individuals with higher levels of education tend to have greater access to employment opportunities and higher income levels compared to those with lower educational attainment. This theoretical perspective highlights the role of education as a key driver of economic mobility and poverty reduction.

Within the context of human resource development, education plays a crucial role in improving the quality of the workforce. It not only equips individuals with technical knowledge but also fosters critical thinking, adaptability, and innovation. These competencies are increasingly important in modern labor markets characterized by rapid technological change and global competition. As a result, individuals with higher educational attainment are more likely to secure stable employment and adapt to changing economic conditions.

Moreover, Human Capital Theory suggests that investment in education yields both private and social returns. At the individual level, education increases earning potential and employment stability. At the societal level, it contributes to economic growth, productivity enhancement, and reduced income inequality. Therefore, improving access to education is widely regarded as a strategic policy instrument for poverty alleviation and sustainable development. In this regard, the relationship between education and poverty is not only direct but also multidimensional, involving interactions between labor markets, economic structures, and social policies.

2. Expected Years of Schooling

Expected Years of Schooling (EYS) is an important indicator used to measure educational opportunities and potential human capital accumulation. According to UNDP (2024), EYS reflects the expected number of years of formal education that a child can attain starting from the age of seven, assuming that current educational conditions remain unchanged. As such, it provides a forward-looking perspective on education, distinguishing it from retrospective indicators such as mean years of schooling.

In the context of development analysis, EYS is widely used as a component of the Human Development Index (HDI), representing access to and participation in education within a given population. A higher EYS indicates that individuals have greater opportunities to pursue longer educational pathways, which can lead to improved knowledge, skills, and competencies. Consequently, an increase in EYS is generally associated with higher levels of human capital and better economic outcomes.

From a human resource management perspective, improvements in EYS reflect the potential formation of a more educated and productive workforce. Individuals who spend more years in education are likely to acquire not only formal knowledge but also soft skills such as communication, problem-solving, and teamwork. These attributes enhance their employability and productivity, thereby increasing their chances of obtaining higher-paying jobs. In turn, this contributes to income growth and poverty reduction.

Empirical studies have consistently shown that education indicators, including EYS, are negatively associated with poverty levels. However, the strength and significance of this relationship may vary depending on contextual factors such as labor market conditions, economic structure, and government policies. Therefore, while EYS serves as a useful proxy for educational opportunity, its impact on poverty should be analyzed within a broader socio-economic framework.

3. Male Education and Poverty

The relationship between education and poverty can also be examined through a gender perspective, particularly in societies where economic roles are differentiated by gender. In Indonesia, men often assume the role of primary income earners within households, which implies that their level of education may have a more direct impact on household welfare and poverty status. As such, focusing on male education provides an important dimension for understanding poverty dynamics.

Higher levels of male education are associated with increased labor productivity, better employment opportunities, and higher wages. Educated men are more likely to participate in formal employment sectors, which typically offer greater income stability and social protection compared to informal sectors. This increased earning capacity can significantly improve household economic conditions and reduce the likelihood of falling into poverty (Vo et al., 2023).

In addition, male education may generate spillover effects within households. Higher income earned by educated men can improve access to health services, education for children, and overall living standards. These indirect effects further reinforce the role of education in breaking the intergenerational cycle of poverty. Therefore, the impact of male education extends beyond individual outcomes to broader household and societal welfare.

However, it is important to note that the relationship between male education and poverty is not always uniform across different contexts. Factors such as labor market absorption, wage structures, and regional economic disparities can influence the extent to which education translates into economic benefits. In some cases, mismatches between education and labor market demands may limit the effectiveness of education in reducing poverty.

Despite its importance, empirical research that specifically examines male Expected Years of Schooling as a determinant of poverty remains limited. Most existing studies rely on aggregate education indicators, which may obscure gender-specific effects. This gap highlights the need for more focused analysis to better understand how male educational opportunities contribute to poverty reduction.

3. METHODS

This study employs a quantitative research approach to examine the effect of male Expected Years of Schooling (EYS) on the number of poor people in Indonesia. A quantitative design is considered appropriate as it enables the empirical testing of relationships between variables through statistical analysis, thereby providing objective and measurable results.

The data used in this study consist of secondary time-series data covering the period from 2014 to 2024. These data are obtained from official publications of Statistics Indonesia (Badan Pusat Statistik/BPS), ensuring reliability, consistency, and comparability across time. The dataset includes annual national-level observations of male Expected Years of Schooling and the number of poor people. Given the nature of the data, the population and sample in this study are identical, comprising the full set of available observations during the study period ($n = 11$).

The dependent variable in this study is the number of poor people (*poverty*), defined as individuals living below the national poverty line based on BPS criteria. The independent variable is male Expected Years of Schooling (*EYS_male*), which reflects the expected number of years of formal education that males can attain starting from the age of seven. To improve data stability, reduce heterogeneity, and facilitate interpretation of regression coefficients, both variables are transformed into their natural logarithmic (\ln) forms. This transformation also allows the estimated coefficients to be interpreted as elasticities. The empirical model used in this study is specified as follows:

$$\ln(\text{Poverty})_t = \alpha + \beta \cdot \ln(\text{EYS_male})_t + \varepsilon_t$$

where $\ln(\text{Poverty})_t$ represents the natural logarithm of the number of poor people in year t , $\ln(\text{EYS_male})_t$ represents the natural logarithm of male Expected Years of Schooling in year t , α denotes the intercept, β is the regression coefficient (elasticity), and ε_t is the error term.

The data analysis is conducted using a simple linear regression model estimated through the Ordinary Least Squares (OLS) method. This method is chosen due to its suitability for examining the linear relationship between a single independent variable and a dependent variable. Prior to conducting the regression analysis, descriptive statistical analysis is

performed to provide an overview of the characteristics of the variables, including their mean, minimum, maximum, and standard deviation values.

To ensure the validity and reliability of the regression results, a series of classical assumption tests are conducted. These include the normality test, autocorrelation test, and heteroskedasticity test. The normality test is applied to examine whether the residuals are normally distributed, which is a key assumption of the OLS method. The autocorrelation test, conducted using the Durbin–Watson statistic, is particularly important given the time-series nature of the data, as it assesses whether residuals are correlated across time. Meanwhile, the heteroskedasticity test is performed to evaluate whether the variance of the residuals remains constant across observations.

Hypothesis testing is carried out using the t-test to determine the statistical significance of the independent variable in explaining variations in the dependent variable. A significance level of 5% ($\alpha = 0.05$) is used as the decision criterion. In addition, the coefficient of determination (Adjusted R^2) is employed to assess the explanatory power of the model, indicating the proportion of variation in poverty that can be explained by male Expected Years of Schooling.

All data processing and statistical analyses in this study are conducted using SPSS software. Despite the robustness of the applied methods, it is important to note that the relatively small number of observations and the use of a single explanatory variable may limit the generalizability of the findings. Therefore, the results of this study should be interpreted with caution and understood as indicating associative relationships rather than definitive causal effects.

4. RESULTS AND DISCUSSION

1. Result

This section presents the empirical findings of the study, beginning with descriptive statistics and followed by diagnostic testing and regression analysis. The results are intended to provide a comprehensive understanding of the relationship between male Expected Years of Schooling (EYS) and poverty in Indonesia over the period 2014–2024.

The descriptive statistics reported in Table 1 provide an initial overview of the distribution and variability of the variables under study. Both male EYS and poverty, expressed in natural logarithmic form, exhibit relatively narrow ranges between their minimum and maximum values. In particular, the standard deviations are considerably smaller than the corresponding mean values, indicating a high degree of data consistency over time. This suggests that, at the national level, both educational attainment (as proxied by EYS) and poverty levels follow relatively stable trends during the observation period, without substantial fluctuations that could distort the regression estimates.

Table 1. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
EYS_male (ln)	11	2.52	2.56	2.5490	0.01739
Poverty (ln)	11	10.13	10.26	10.1958	0.04667

Source: SPSS output

Before proceeding to regression estimation, a series of classical assumption tests are conducted to ensure the robustness of the model. The normality of residuals is assessed using the Kolmogorov–Smirnov test, the results of which are presented in Table 2. The significance value of 0.997 is substantially higher than the conventional threshold of 0.05, indicating that the residuals are normally distributed. This finding confirms that one of the key assumptions

of the Ordinary Least Squares (OLS) method is satisfied, thereby supporting the validity of subsequent inference.

Table 2. Normality Test Results

Statistic	Value
Kolmogorov-Smirnov Z	0.406
Asymp. Sig. (2-tailed)	0.997

Source: SPSS output

Given the time-series nature of the data, it is also necessary to examine the presence of autocorrelation. As shown in Table 3, the Durbin–Watson statistic is 1.531, which lies within an acceptable range and is relatively close to the benchmark value of 2. This suggests that there is no strong evidence of serial correlation among the residuals. Nevertheless, considering the limited number of observations, this result should be interpreted as indicative rather than conclusive.

Table 3. Autocorrelation Test

Durbin–Watson
1.531

Source: SPSS output

The assumption of homoscedasticity is further evaluated through visual inspection of the scatterplot between standardized residuals and predicted values. The absence of a discernible pattern in the distribution of points indicates that the variance of the residuals remains constant across observations. This finding implies that the model does not suffer from heteroskedasticity, thereby fulfilling another important assumption of the regression model.

Having confirmed the adequacy of the diagnostic tests, the analysis proceeds to the estimation of the regression model. The results, as presented in Table 4, reveal that male Expected Years of Schooling has a negative coefficient of -2.063. This indicates an inverse relationship between male EYS and poverty, suggesting that increases in educational attainment are associated with reductions in the number of poor people.

Table 4. Regression Results

Variable	B	Std. Error
Constant	15.455	1.458
EYS_male	-2.063	0.572

Source: SPSS output

The estimated regression equation can be expressed as:

$$\ln(\text{Poverty}) = 15.455 - 2.063 \cdot \ln(\text{EYS_male})$$

Given the log–log specification of the model, the estimated coefficient can be interpreted as an elasticity measure. Specifically, a 1% increase in male EYS is associated with an approximate 2.063% decrease in poverty, holding other factors constant. This relatively large elasticity suggests that educational improvements may have a substantial impact on poverty reduction.

The statistical significance of this relationship is further confirmed by the t-test results presented in Table 5. The p-value of 0.006 indicates that the effect of male EYS on poverty is statistically significant at the 5% level, thereby providing strong empirical support for the proposed relationship.

Table 5. t-Test Results

	Model	t	Sig.
1	(Constant)	10.599	.000
	EYS_male	-3.607	.006

Source: SPSS output

Finally, the explanatory power of the model is assessed using the coefficient of determination. As shown in Table 6, the Adjusted R² value of 0.546 indicates that 54.6% of the variation in poverty can be explained by variations in male EYS. While this suggests a moderate level of explanatory strength, it also implies that a substantial proportion of poverty variation is influenced by other factors not included in the model.

Table 6. Coefficient of Determination

Adjusted R Square
0.546

Source: SPSS output

2. Discussion

The empirical findings indicate that male Expected Years of Schooling (EYS) has a negative and statistically significant relationship with poverty in Indonesia. This result suggests that improvements in educational opportunities for men are associated with substantial reductions in the number of poor people. The relatively large elasticity coefficient further implies that the impact of education on poverty is not only statistically significant but also economically meaningful, indicating that even modest increases in educational attainment may generate considerable poverty-reducing effects.

This finding is consistent with Human Capital Theory, which posits that education enhances individual productivity, skills, and earning capacity. As argued by Schultz (1961) and Becker (1964), individuals with higher levels of education are better equipped to participate in the labor market, secure stable employment, and earn higher incomes. In this context, increased male EYS reflects greater accumulation of human capital, which translates into improved economic outcomes and reduced poverty.

The results are also supported by recent empirical studies emphasizing the role of education in poverty alleviation. Higher levels of education have been shown to improve labor market outcomes, increase income opportunities, and reduce vulnerability to economic shocks (Juliansyah et al., 2024; Panduwina et al., 2024). Similarly, Mirnayanti et al. (2024) find that education indicators significantly influence poverty levels, reinforcing the importance of human capital development as a key strategy for socio-economic improvement.

In the Indonesian context, the strong relationship between male education and poverty can be attributed to prevailing socio-economic structures. Men often act as primary income earners within households, implying that their educational attainment has a direct and immediate impact on household income and welfare. Higher levels of male education facilitate access to better employment opportunities, particularly in the formal sector, which typically offers higher wages and greater job security. Consequently, improvements in male education contribute directly to poverty reduction at the household level (Vo et al., 2023).

Beyond its direct economic effects, education also generates broader socio-economic benefits. Higher educational attainment can enhance financial literacy, improve access to information, and strengthen individuals' capacity to adapt to changing labor market conditions. These indirect effects contribute to long-term improvements in living standards and help break the intergenerational cycle of poverty. Therefore, the role of education in poverty reduction is both immediate and sustained over time.

From a policy perspective, these findings highlight the importance of strengthening access to education, particularly for male populations in economically vulnerable groups. Expanding educational opportunities can significantly enhance human capital formation and reduce poverty levels. However, increasing access alone may not be sufficient. Policymakers must also ensure that the quality of education is aligned with labor market demands, so that educational attainment translates into meaningful employment outcomes.

Furthermore, the government should integrate education policies with broader economic strategies, such as job creation, skills development programs, and labor market reforms. Strengthening vocational and technical education, for instance, can help bridge the gap between education and employment, thereby maximizing the poverty-reducing impact of education. In addition, targeted interventions—such as scholarships, conditional cash transfers, and social protection programs—can improve educational access for disadvantaged groups and enhance the overall effectiveness of poverty reduction strategies.

Nevertheless, the findings should be interpreted with caution. The moderate explanatory power of the model suggests that poverty is influenced by multiple factors beyond education, including unemployment, wage levels, and economic growth (Bancin & Usman, 2020; Candrawati et al., 2021). Therefore, while male EYS is a significant determinant, it should be considered as part of a broader, multidimensional approach to poverty alleviation.

E. CONCLUSION AND RECOMMENDATIONS

This study examines the relationship between male Expected Years of Schooling (EYS) and the number of poor people in Indonesia over the period 2014–2024. Based on the empirical analysis, the findings indicate that male EYS has a negative and statistically significant association with poverty. This suggests that improvements in male educational attainment are consistently accompanied by reductions in the number of poor people. Within the log–log framework employed in this study, the results imply that increases in educational opportunities are associated with proportionally larger declines in poverty levels, holding other factors constant.

Furthermore, the model demonstrates a moderate level of explanatory power, indicating that a substantial portion of the variation in poverty can be accounted for by male EYS, while the remaining variation is influenced by other factors not included in the model. These findings confirm that education—particularly male educational attainment—plays an important role in poverty reduction, although it is not the sole determinant. Given the relatively limited number of observations and the use of a single explanatory variable, the results of this study should be interpreted as indicating an associative relationship rather than a definitive causal effect.

From a substantive perspective, the findings highlight the importance of education as a key component of human resource development and poverty alleviation strategies. In the Indonesian context, where men often serve as primary income earners, improvements in male education can have a direct impact on household welfare. Higher levels of education enhance productivity, expand employment opportunities, and increase income potential, thereby contributing to poverty reduction. These results reinforce the relevance of human capital development as a central pillar in achieving sustainable economic and social progress.

Based on these findings, several policy recommendations can be proposed. First, the government should continue to expand access to education, particularly for male populations in economically disadvantaged groups. Ensuring equitable access to education is essential for strengthening human capital and reducing poverty disparities. Second, efforts to improve the quality of education should be prioritized, as the effectiveness of education in reducing poverty depends not only on the length of schooling but also on the relevance and quality of learning

outcomes. Aligning educational curricula with labor market demands is crucial to ensure that educational attainment translates into meaningful employment opportunities.

Third, education policies should be integrated with broader economic and labor market strategies. Enhancing job creation, improving labor market efficiency, and expanding access to vocational and technical training can increase the effectiveness of education in reducing poverty. In addition, targeted social policies—such as scholarships, conditional cash transfers, and social protection programs—can support vulnerable groups in accessing and completing education.

Despite its contributions, this study has several limitations. The relatively short time-series period limits the robustness of statistical inference, particularly for time-series analysis. In addition, the use of a single explanatory variable may lead to omitted variable bias, as poverty is influenced by multiple socio-economic factors. Furthermore, the use of aggregate national data does not capture regional disparities within Indonesia.

Therefore, future research is recommended to incorporate additional variables such as unemployment rates, minimum wages, economic growth, and inflation in order to provide a more comprehensive analysis. Expanding the dataset using panel data at the provincial or district level would also allow for a more detailed examination of regional variations. Moreover, the application of more advanced econometric techniques, such as time-series modeling or panel regression approaches, is suggested to enhance the robustness and validity of the findings.

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