

The Effect of Female Education and Female Labor Force Participation Rate on Poverty Alleviation in East Java

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SUBMITTED

December 2024

REVISED

December 2024

ACCEPTED

January 2025

Abstract: This study aims to determine the effect of women's education and women's labor force participation rate on poverty alleviation in East Java. This research method uses quantitative methods analyzed using panel data regression analysis. Poverty in East Java is still above the national average from 2010 to 2022. In 2023, East Java's poverty rate was the highest after Yogyakarta Province. Efforts are needed to improve the quality of human resources through education. Individuals who have good formal education tend to have better access to stable jobs and better wages, which can help them avoid falling into poverty. The findings of this Random Effect Model estimation study show that partially women's education has a significant negative effect on poverty alleviation and women's labor force participation rate (TPAK) has a significant positive effect on poverty alleviation in East Java. Simultaneously, female education and female labor force participation rate have a significant effect on poverty alleviation in East Java.

Keywords: Woman, Education, Labor Force, Poverty



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Cite this as: Elisyabella, T. V. (2025). The Effect of Female Education and Female Labor Force Participation Rate on Poverty Alleviation in East Java. *Journal of Development Economic and Social Studies*, 04(1), pp. 278-288. DOI: <http://dx.doi.org/10.21776/jdess.2025.04.1.21>

INTRODUCTION

Poverty is still a challenge that hinders sustainable development in several countries around the world. Indeed, poverty is not only a condition of a person or group of people not having enough resources financially, but also a person who is poor has difficulty accessing three fundamental aspects, namely health, education and living standards (*United National Development Program (UNDP), 2010*). A dimensional approach to poverty can provide a more complete picture of poverty conditions so that the government can design effective policies to overcome poverty. Various policies have been launched to reduce poverty as stated by the World Bank, namely poverty alleviation strategies ranging from job creation, income generation, health and education development, and protection and empowerment of the poor. Poverty reduction has also become one of the goals in Indonesia. However, the problem of poverty in Indonesia is not over and neither is poverty in East Java. East Java still has a high poverty rate in Indonesia. The decline in East Java's poverty trend in the 2010-2020 period only decreased by 5%. (BPS East Java, 2022). Nationally and in East Java, the current poverty rate can be explained through the graph below.

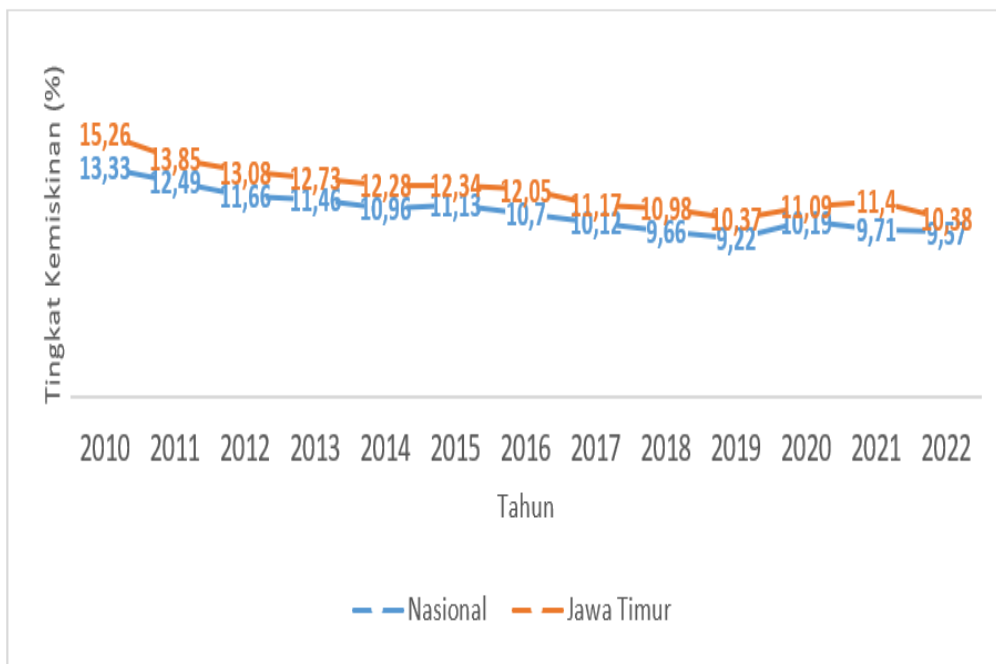


Figure 1. National and East Java Poverty Percentage 2010-2022

Source: Central Bureau of Statistics of Indonesia and East Java, 2022

Figure 1 above shows the national and East Java poverty percentages for 2010-2022. From the data it can be concluded that poverty in East Java is still above the national level from 2010 to 2022 on average. According to data from the Central Bureau of Statistics in March 2023, East Java had the highest poverty percentage rate after Yogyakarta Province, which was 10.85%, so much effort is still needed to reduce the poverty rate.

Poverty is a condition that needs to be improved. The improvement can be seen from the causes of poverty itself. According to Suharto (2005), one of the causes of poverty is social factors, where there is discrimination based on age, gender, ethnicity that causes someone to be poor. According to data from the Ministry of Women's Empowerment and Child Protection in 2023, 9.68% of Indonesian women live below the poverty line, this figure is higher than that of men at 9.40%. According to Nurkse (1971), poverty will continue to react like an endless circle. Improving the quality of human resources by improving education and health to increase productivity and participation to increase income. Therefore, there is a need for efforts to improve the quality

of human resources through education. Individuals who have a good formal education tend to have better access to stable jobs and better wages, which can help them avoid falling into poverty. Based on data in Indonesia, it shows that women's educational participation is still low where the average number of years of schooling for women is still below that of men. In addition, when viewed nationally according to Susenas 2019, the lowest average female education was occupied by East Java after West Nusa Tenggara and Central Java in Indonesia in 2019. The highest average years of schooling for women in 2019 was occupied by the provinces of Maluku, Bengkulu and North Maluku.

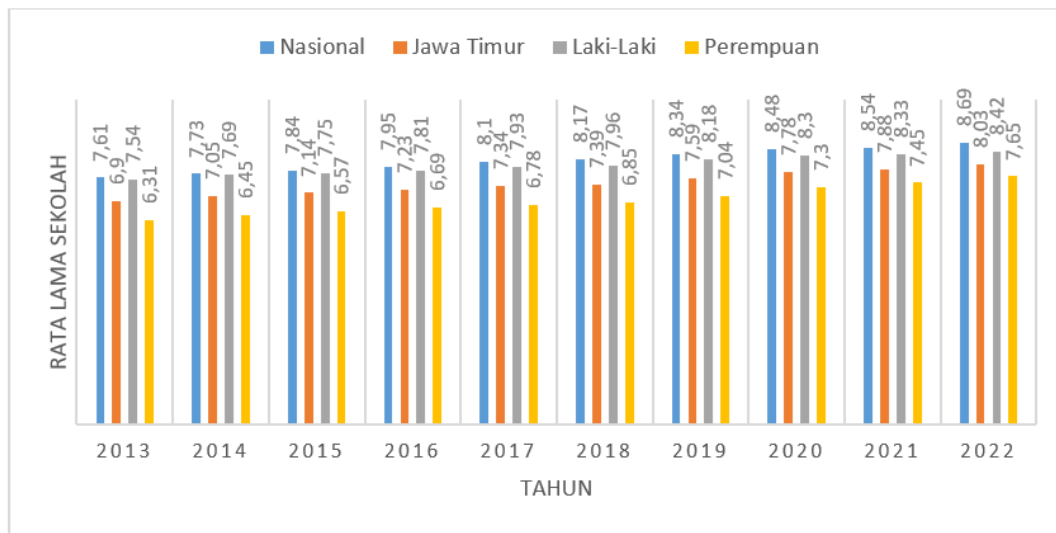


Figure 2. Average Years of Schooling in Indonesia and East Java by Gender in 2018-2022

Figure 2 above shows the average years of schooling in Indonesia and East Java by gender for 2013-2022. East Java's average years of schooling from 2013 to 2022 continue to show below the national average years of schooling. The graph shows that from 2018 to 2022 the education of women in East Java continues to be below the national level, East Java and men in East Java. This condition is a challenge in itself, in the midst of the development of the idea that women are obliged to get higher education in order to produce the next generation of quality nations. The effect of education on women according to (Margaret, 2017) explains that education is able to empower women as a whole through increased intelligence. Women who have higher education have a high awareness of health. A healthy lifestyle that can be applied in their family environment will produce a healthy generation. And the provision of education to women is also able to reduce poverty levels through the ability to access good jobs so that they can help improve the micro economy, namely through the family.

Research on women's education has also shown an effect on poverty. Women's education has a negative relationship with the poverty rate in Pakistan. This will not only reduce the poverty rate but also improve the standard of living of families, per capita income and education of their children. Women's education has a positive effect on society (Ghafoor, Awan, 2020) In the case of Indonesia, it was also found that increasing the level of education for women will have a strong impact on poverty alleviation in Indonesia. (Hanim & Apriliana, 2020). The variables of reproductive health, women's last level of education, women's work participation, and women's employment status have proven to be statistically significant in influencing individual women's poverty both partially and as a whole (Nisak & Sugiharti, 2020). From previous research, it can be stated that women's education can have an impact on reducing poverty. Seeing that poverty is still high in East Java and the low level of women's education is a highlight to be discussed and researched.

LITERATURE REVIEW

The Concept of Poverty

Poverty is a condition in which individuals or households do not have sufficient access to economic resources and opportunities to fulfill their basic needs, such as food, clothing, housing, education, and health services (Todaro, 2006). Poverty is dimensional, which means that poverty is not only living in a lack of money and low-income levels, but many other things such as low education levels, unfair treatment in the law, vulnerability to threats of criminal acts, helplessness in determining their own way of life (Suryawati, 2005).

Education Concept

Education and training are the most important investments in human life. Improving human resources through education, training and health, can increase the knowledge and skills of individuals so that they will become more productive and have a greater chance of getting a job with a better income (Becker, 1993). Education is an important investment in human capital. Education investment in development is as important as physical capital investment for the success of a country's economy. An increase in the level of education (years of study) will increase a person's income. This increase in income is an important part of improving the community's economy which can reduce the poverty rate in a country (Mankiw, 2012).

The Effect of Women's Education and TPAK on Poverty

According to Nurkse (1971), poverty will continue to react like an endless cycle of improving the quality of human resources by improving education and health to increase productivity and participation to increase income, so there is a need for efforts to improve the quality of human resources through education. Individuals who have a good formal education tend to have better access to stable jobs and better wages, which can help them avoid falling into poverty. By having an educated population, countries have intellectual resources that can drive economic growth and reduce poverty. According to Todaro (2006), expanding women's educational opportunities plays an important role in reducing poverty levels for a number of reasons:

1. The *rate of return* on female education is higher than the rate of return on male education in most developing countries
2. Improving women's education can lead to increased labor force participation, later marriage, lower fertility and improved child health and nutrition.
3. Better child health and nutrition and more educated mothers will have a *multiplier effect* on the quality of the nation's children for generations to come.
4. As women bear the brunt of poverty, significant improvements in the role and status of women through education can have an important impact on breaking the cycle of poverty and inadequate education.

The effect of education on women according to (Margaret, 2017) explains that providing education to women is also able to reduce poverty levels through the ability to access good jobs so that it can help improve the economy at a micro level, namely through the family. If women's income increases, it allows these women not to be at the poverty line. Women's income can be achieved through women participating in work participation. If this work participation increases so that it provides sufficient income, it can improve community welfare and reduce poverty. (Fields, 1981). Women's welfare is decisive in realizing the positive correlation between growth and poverty alleviation.

Research Framework

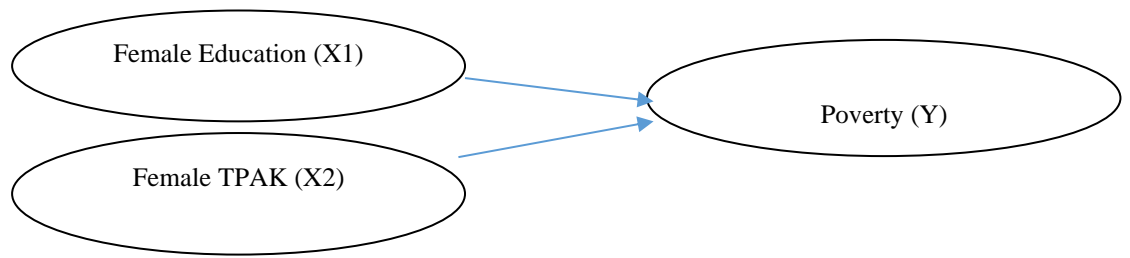


Figure 3. Research Framework

Source: Author (2024)

Hypothesis Development

Based on the explanation of the theory and previous research, the research hypothesis can be written, namely:

- a. Women's education has a significant negative effect on poverty alleviation
- b. Female labor force participation rate has a significant negative effect on poverty alleviation

METHOD

Based on the research objectives to determine the effect of women's education on poverty, this type of research uses a quantitative approach method. To fulfill the objectives of this study, Panel Data regression analysis was used. The type of data used in this study is secondary data that has been presented and collected by other parties. The data sources used in this study are data from the Central Bureau of Statistics of Indonesia and East Java. The data used is panel data consisting of cross section, namely 38 cities/districts in East Java and annual *time* poverty and female education in East Java for the period 2018-2022. The equation function of the panel data regression model can be formulated as follows:

$$Y_{it}POV = \beta_0 - \beta_1 X_{1it}EDUC - \beta_2 X_{2it}WORK + \varepsilon_{it}$$

Where;

Y = Poverty

β = Constant

X_1 = Female education (years)

X_2 = Female labor participation rate (percent)

ε = Error

i = Districts/Cities in East Java

t = 2018-2022

According to Gujarati (2010), the panel data model equation above will then be estimated with several approach methods that can be used, namely the *Comon Effect Model (CEM)*, *Fixed Effect Model (FEM)* and *Random Effect Model (REM)*.

RESULTS AND DISCUSSION

In analyzing the relationship between female education and female labor force participation rate (TPAK) on poverty alleviation in East Java, the best model used is the *Random Effect Model*.

Table 1. Best Model Selection Test Results

Model Test	Prob > <i>chi</i> ²	Selected Model
Chow Test	0.0000	<i>FEM</i>
Hausman Test	0.4463	<i>REM</i>
Lagrange Multiplier Test	0.0000	<i>REM</i>

Source: Data processed by researchers (2024)

Table 1 shows the probability value of testing the three stages to see and determine the best choice with each significance level is alpha 5% or 0.05. The Chow test was conducted to compare the *Common Effect Model* with the *Fixed Effect Model* which is seen in the results of the Cross-section Of probability of 0.0000 which shows the prob value <0.05 so that H0 is rejected with the best choice being the *Fixed Effect Model*. Furthermore, the Hausman test to compare the *Random Effect Model* with the *Fixed Effect Model* with a value of 0.4463 which shows a prob value > 0.05 so that H0 is accepted with the best decision is the *Fixed Effect Model*. Finally, the Lagrange Multiplier test to compare the *Common Effect Model* and the *Random Effect Model* which results in a probability value of 0.0000 so that H0 is rejected with the *Random Effect Model*.

Classical Assumption Testing

According to Gujarati (2012), in the Random Effect Model the method used is Generalized Least Square (GLS) estimation because it is considered more efficient than OLS estimation. This GLS method is assumed to be able to overcome the existence of time series autocorrelation and correlation between observations in this case overcoming the classical assumptions, namely heteroscedasticity and autocorrelation so that in this study the classical assumption test carried out is only a multicollinearity test.

Table 2. Multicollinearity Test

Variables	Centered VIF
X₁	1.0291
X₂	1.0291

Source: Data processed by researchers (2024)

From table 2 above, it results in a VIF value of X₁ 1.0291 AND X₂ 1.0291, which shows that <10 so it is free from multicollinearity.

Regression Analysis Results

This panel data regression estimation model on poverty alleviation in East Java uses the Random Effect Model with the following results.

Table 3. Summary of Random Effect Regression Output Model

Variables	Coefficient	Std. Error	t-statistic	Prob
C	16.71838	2.297912	7.275465	0.0000
X1	-1.789612	0.146396	-12.22448	0.0000
X2	0.130012	0.033387	3.894027	0.0000
R-squared	0.935445			
Prob(F-statistic)	0.000000			

*Significant at 5% α

Based on the results of estimation testing conducted using the Random Effect Model, the panel data regression equation can be written as follows:

$$Y_{it}POV = 16.71838 - 1.789612EDUC + 0.130012WORK + \epsilon_{it}$$

F test

The F test has the aim of knowing the effect of all the independent variables studied in the model together on the dependent variable. Based on the data in table 4.4, the calculation result of the probability value of F is $0.000000 < 0.05$. Then the variable of women's education (X_1) and the level of female labor participation (X_2) affect the dependent variable, namely poverty (Y) simultaneously and significantly. So that H_0 rejected and accept H_1 .

T test

The T test or partial test is conducted to partially determine the effect caused by each independent variable on the dependent variable where other variables are considered constant in testing the truth or error of the hypothesis (Gujarati, 2012). Based on the table, the T test results can be described as follows:

1. The probability value on the female education variable is 0.0000 which indicates the level of significance at 5% alpha. Female education variable (X_1) partially has a significant effect on poverty (Y) in East Java with a negative coefficient of -1.788205.
2. The probability value of the female labor force participation rate is 0.0000 which indicates a significance level at 5% alpha. The female labor force participation rate variable (X_2) partially has a significant influence on poverty (Y) in East Java with a positive coefficient of 0.137533.

Determination Coefficient Test

The coefficient of determination test is a test used in measuring the extent of the regression model's ability to explain the independent variables. The closer to number 1, the better the regression because it is able to explain the actual data or the dependent variable can explain the independent variable. The closer to zero the regression line is less good (Widarjono, 2005). Based on the analysis table using the Fixed Effect Model, the R-Squared value is 0.935445. This shows that the contribution to the dependent variable, namely the poverty rate in East Java, can be explained by 93.54% by the independent variables including women's education and the level of female labor force participation. While 6.46% is explained by other variables outside the model.

Analysis of the Effect of Women's Education on Poverty Alleviation

Based on the results of panel data regression analysis, the female education variable has a significant effect on the poverty variable with a negative coefficient value, which means that if there is an increase in the female education variable by 1%, then East Java poverty will decrease by 1.79%. This is consistent with the theory that education is an important investment in human resources. An increase in education (length of study) will increase a person's income and this increase is an important part of improving the community's economy which can reduce poverty levels (Mankiw, 2012). Individuals who have better formal education tend to have access to better jobs and wages, which can help them avoid falling into poverty (Nurkse, 1971). Based on the data, it can be stated that women's education seen from the average length of schooling in several regions of East Java occupies the area with the lowest average length of schooling for women, namely with an average length of schooling that only reaches 4.15 years, which means that women's education is only limited to elementary school education. The low level of women's education in certain areas of East Java, such as Madura Island, is due to the pressure of patriarchal culture and because they come from poor families (Sudarso et al., 2019).

The low level of women's education in some areas of East Java, which causes poverty, has encouraged the government to increase the level of education, especially for women through special scholarships for women, an incentive to increase gender-based education (women) by providing special scholarships for women, especially for families who have economic limitations. This is so that women can continue their education to a higher level to encourage the length of schooling. In addition, the central and local governments can design policies for school institutions to include a curriculum designed to be free from gender bias and support gender equality to build motivation and insight about women. This can be done through educational materials that reflect the values of equality and avoid gender stereotypes, which is expected to encourage awareness of

the importance of women's education. The results of this study are in line with Ghafoor and Malik's (2020) research that women's education has a negative relationship with the poverty rate in Pakistan. This not only reduces the poverty rate but also improves the living standards of families per capita income and education of their children. So, the government can be expected to remove all barriers to women's education. In addition, research conducted in Indonesia by Hanim and Apriliana (2020) states that increasing the level of education for women will have a strong impact on poverty alleviation in Indonesia. Also supported by research.

Analysis of the Effect of Women's Labor Force Participation Rate (TPAK) on Poverty Alleviation

Based on the regression results, the female labor force participation rate (TPAK) variable has a positive and significant effect on poverty in East Java. If the increase in the TPAK of East Java women is 1%, then poverty in East Java will increase by 0.13%. The reason why the female labor force participation rate has a positive effect is that in the case of East Java, high female labor force participation is illustrated by women who have low education. From 2018 to 2022, almost half of working women have an elementary education and below (BPS Sakernas, 2022). One of the regions in East Java, Sampang Regency, which has the highest poverty rate and lowest average years of schooling for women, has an average labor force participation rate from 2018-2022 of 64.96%. This is one of the highest female labor participation rates in East Java.

According to the Central Bureau of Statistics, there are factors that encourage women to have low education, such as family economic difficulties that force them to quit school or college and are forced to enter the workforce. Due to the education of women who only have elementary school education, there tends to be not much to choose from for the chosen job so that any type of work will be taken as a job opportunity. Meanwhile, a better level of education will be synonymous with requiring better skills. So that currently women in East Java participate more in work but work in the informal sector, namely agriculture, embassy, hunting and fisheries. These sectors are the occupational factors of the poor population in East Java (BPS East Java, 2023). Education levels, income generation, and women's empowerment result in a decrease in poverty (Zanbak & Soybak, 2002). (Zanbak & Soykan, 2023). From this, it is a concern that women are increasingly encouraged to pursue higher education in order to get a better quality of work so as not to cause women's vulnerability to poverty. In addition to encouraging women to be educated in order to get a better quality of work, it is necessary to optimize women's empowerment or provide opportunities for women or housewives in poor families such as by developing Micro, Small and Medium Enterprises (MSMEs).

The results of the condition of the female labor force participation rate variable contradict the theory proposed by Fields (1981) that the Lorenz curve can be used to understand the relationship between the level of labor participation and poverty. Work that can provide sufficient income can improve people's welfare and reduce poverty. The results of this study are also not in line with previous research by Nisak and Sugiharti (2020) that women's work participation is statistically significant in influencing individual women's poverty both partially and overall, in Indonesia. On the other hand, there are studies that support that increasing the level of female labor force participation can increase the poverty rate. Increased labor force participation is often correlated with informal jobs that do not provide social security or decent wages and therefore can be low-wage (ILO, 2007) Although women's participation in the labor force is increasing, inequalities in wages and the types of jobs women access limit its impact on poverty reduction (World Bank, 2000).

CONCLUSION AND SUGGESTIONS

Conclusion

This study was conducted to determine the effect of women's education on poverty alleviation in East Java. Based on the research, the following conclusions can be drawn:

- a. The dependent variable has a significant effect partially or simultaneously on the independent variable with the panel data regression analysis method. These results are in line with theory and previous research.
- b. The results showed that the female education variable had a significant negative effect on poverty alleviation in East Java. This is in accordance with the theory and previous research that has been done. The low level of female education in some areas of East Java is due to the patriarchal culture and coming from poor families.
- c. The results show that the female labor force participation rate variable has a significant positive effect on alleviation. This is not in accordance with theory or previous research that has been conducted. Currently, women in East Java work more in the informal sector, namely agriculture, forestry, hunting and fisheries. This sector is the work field of the poor factor in East Java.

Suggestion

Based on the description in the conclusion, suggestions can be obtained that can be used as recommendations or references for the East Java government in designing strategic and appropriate economic policies to improve poverty, namely:

- a. The East Java government can optimize and closely monitor the distribution of education incentives or scholarships to poor families so that they are right on target. This needs to be done so that there are no women or girls who do not get an education due to family economic limitations.
- b. Optimizing women's empowerment or providing opportunities for women or housewives in poor families by developing Micro, Small and Medium Enterprises (MSMEs). This optimization can be done through the active implementation of the Economic Heroes policy in East Java, which has been said to have succeeded in reducing poverty in Surabaya City. During the implementation, there was an evaluation of the policy so that the local government continued to support the implementation of this policy so that it was active and progressive by facilitating and accommodating empowerment needs.

IMPLICATIONS

The results of this study can be used as a planning reference for the central and regional governments of East Java Province in formulating, determining and implementing poverty reduction policies in East Java. Where it can reduce poverty through increasing women's education and work participation to women's skills.

LIMITATIONS

This study uses five years of data due to limited data availability.

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