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Analysis of the Effect of School Participation Rates and Education Facilities on Poverty in Rural Areas of Indonesia

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ABSTRACT

Indonesia's poverty is dominated by rural areas with low educational attainment. This research aims to examine the impact of school enrollment rates and educational facilities on rural poverty in Indonesia. The data source used is from the Central Bureau of Statistics for 2018-2021. The analytical method uses multiple linear regression models. The findings of the research indicate that school enrollment rates have a negative and significant influence on rural poverty, but educational facilities have a positive and significant effect on rural poverty. Based on these findings, government support is needed in education assistance which will help increase access to education to educational facilities for poor families and increase school enrollment rates in rural Indonesia.

Keywords: Education, School Participation Rates, Education Facilities, Rural Poverty

INTRODUCTION

In many developing nations, like Indonesia, overcoming the problem of poverty is one of the objectives of development. Sen (1999) argues that poverty is not just defined by a lack of wealth, but may also result from the lack of one or more fundamental skills required to perform at least a minimal function in social life. Individual incompetence can have a tight relationship with low income, connecting the two directions, i.e. low income can be the primary cause of bad education and hunger, and conversely, a higher level of education facilitates the attainment of a higher income.

In developing countries, poverty is dominated in rural areas. Research World Bank (2016) that 75% of the really poor population, who make up the majority, live in rural regions. In the meantime, in the African and Asian regions, over 80 percent of the poor live in rural areas on average, while in Latin America, roughly 50 percent of the poor reside in rural areas. (Todaro & Smith, 2013). Similarly, poverty in Indonesia resembles poverty in rural regions and contributes to the high total poverty rate since the majority of the rural population works in the agricultural sector, mostly as farm workers and casual laborers, resulting in very low salaries (Hasibuan et al., 2019).

According to data from the Central Bureau of Statistics, the percentage of the poor population is downward trend from 11.2% to 9.7% between 2015 and 2021. While other studies indicate that each year the poverty percentage rate in rural regions is greater than percentage of total poor population, while the percentage of urban population is lower than the percentage of total poor population. This shows that poverty is dominated in rural areas. In addition, it demonstrates that between 2015 and 2021, the poor population in rural regions decreased from 14.2 percent to 12.5 percent, while the poor population in urban areas decreased from 8.3 percent to 7.5 percent within the same time period (Figure 1).

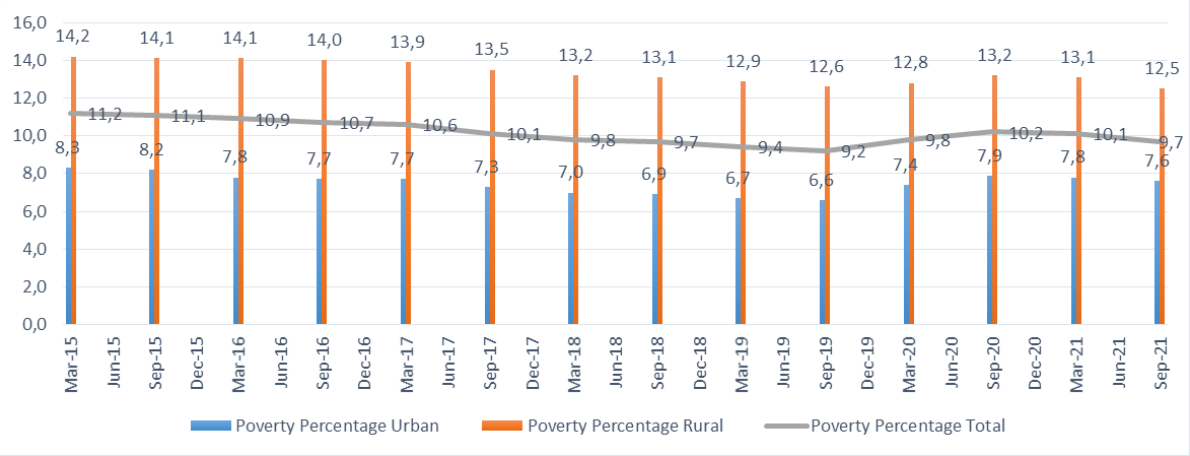

Figure 1. Percentage of Rural Poor Population 2015-2021
Source: Central Bureau of Statistics, 2022

When examining rural poverty in 33 provinces of Indonesia, the average percentage of rural poverty between 2018 and 2021 is 12.9%. Based on figure 2, rural poverty in Indonesia tends to cluster in the eastern region, namely the provinces of West Papua, Papua, Maluku, East Nusa Tenggara and Gorontalo. Meanwhile, the western part of Indonesia, including the provinces of Bali, Central Kalimantan, South Kalimantan, Jambi, and the

Bangka Belitung Islands, has a low poverty rate. West Papua Province has the highest poverty rate (36.1%), while Bali Province has the lowest (5.2%).

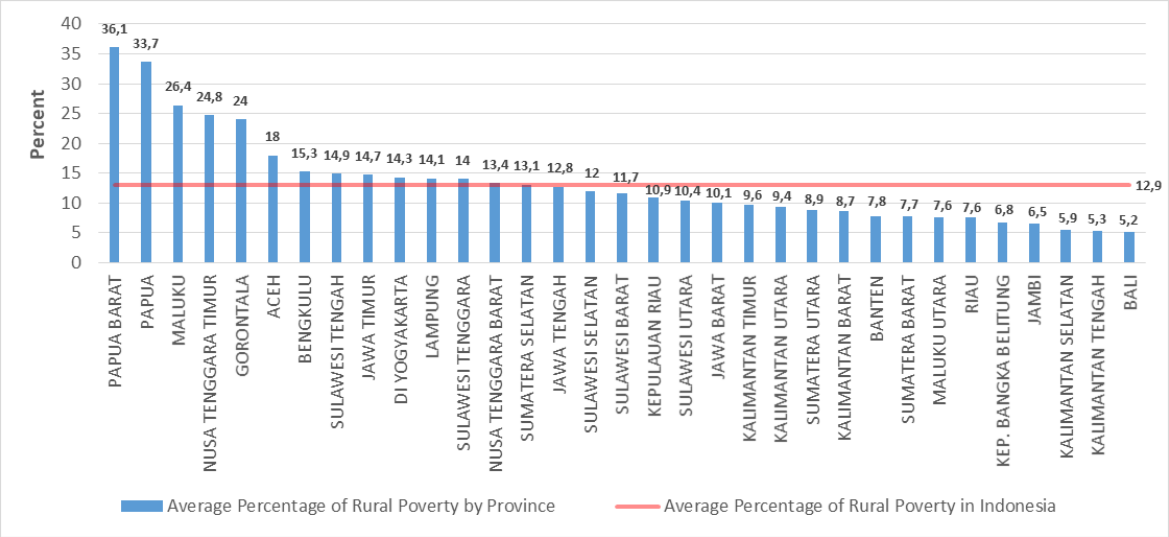

Figure 2. Average Rural Poverty Percentage by Province 2018-2021
Source: Central Bureau of Statistics, 2022

Poverty in rural parts of Sub-Saharan Africa (SSA) is directly associated with a lack of access to essential services and inadequate infrastructure development. (Shepherd et al., 2014). According to a World Bank report entitled *Reshaping Economic Geography* (2009) The fact that infrastructure development is not pro-poverty demonstrates that the policies enacted do not aid in the eradication of poverty. Poverty is the most serious problem in sustainable development, according to the 2016 Sustainable Development Goals report, due to its multidimensional effects, such as inadequacy in meeting multiple basic needs, such as education, health, and access to basic infrastructure, as well as being unproductive and less empowered. (United Nations Development Program, 2016).

Educational attainment is a key factor of the onset of poverty and must be taken into account when implementing measures to alleviate poverty (Njong, 2010). There are two axes of causation between education and economic development. Individuals spend more on education as their wages rise, and greater levels of education boost labor productivity and economic growth (Todaro & Smith, 2013). Education is also a crucial factor in a family's ability to escape poverty. (Mberu et al., 2014).

School Participation Rate (APS), which is the ratio of the number of persons entering the school level to the total population each year, may be used to gauge the quality of education. The average school participation rate in Indonesia has increased from 72.34 percent in 2018 to 73.08 percent in 2021, as shown in Figure 3. During 2018-2021, the school participation rate varies annually dependent on the region of living, namely urban and rural areas. In 2021, the urban participation rate will be the greatest at 76.06 percent, while the rural rate will be the highest at 70.08 percent.

Table 1. Average 2018-2021 School Participation Rate in Indonesia

Year	City	Village	Total
2018	75,69	68,98	72,34
2019	76,04	69,08	72,56

2020	75,74	70,08	72,91
2021	76,06	70,1	73,08

According to Figure 3, of the 33 provinces, the Special Province of Yogyakarta has the highest school participation rate, with an average school participation rate of 76.1%. While in second place were Aceh Province with an average of 75.8%, then West Papua and Maluku Provinces with an average school participation rate of 74.8%, and the percentage of school participation rate with the lowest score was in Papua Province at 56.5%.

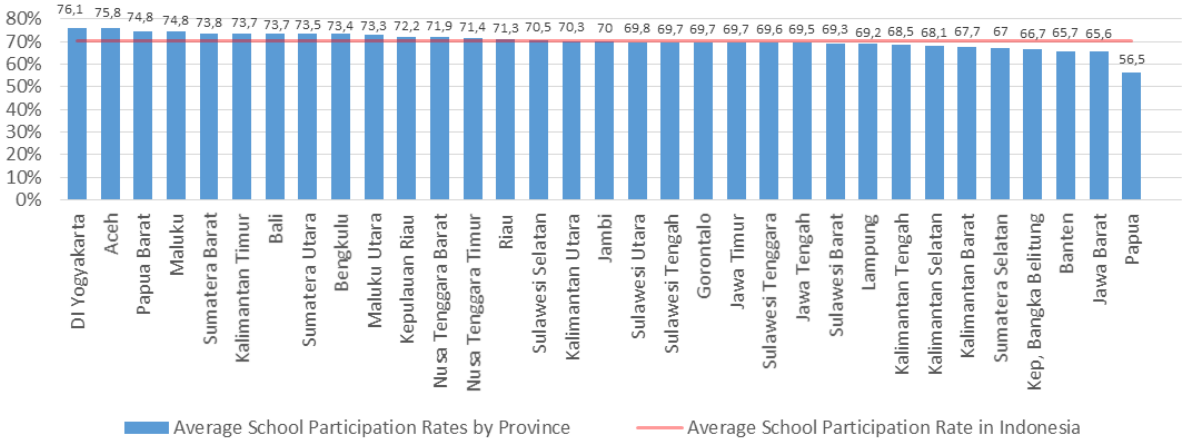

Figure 3. Average School Participation Rate by Province 2018-2021
Source: Central Bureau of Statistics, 2022

The provision of educational facilities is another aspect that contributes to the eradication of poverty. Marinho et al (2017) The author contends that infrastructural investments, particularly in education, are crucial for eradicating poverty. Nugroho (2015) examined the significance of basic infrastructure in Indonesia's fight against poverty. According to his research, an increase in the number of schools has an effect on poverty rates.

Table 2. Education Facilities in Indonesia 2019-2021

Year	Elementary school	Junior high school	Senior hihh school	PT	Total
2019	179206	60248	37916	4817	282187
2020	179537	60570	38605	4623	283335
2021	177809	60152	38599	4863	281423

Source: Central Bureau of Statistics, 2022

Based on the number of elementary school, junior high school, senior high school, and university buildings in Indonesia's rural areas between 2019 and 2021, rural education facilities did not undergo considerable growth. In 2019, there were 282,187 units of educational institutions. In 2021, this number will decline to 281,423 units.

When considered in relation to how many educational facilities each province has. In 2021, observe that Java is the location of the majority of educational facilities. Provinces with the most educational facilities can be found in the regions of North Sumatra, West Java, Central Java, East Java and South Sulawesi. In contrast, educational facilities in the provinces of Papua, West Sulawesi, Gorontalo, North Kalimantan and the Bangka Belitung Islands are minimal.

This research examines the connection between rural education and rural poverty. Multiple studies assert that rural education is a useful tool for attaining poverty reduction objectives. Previous inquiry was carried out by Didu & Fauzi (2016) those who researched poverty in Lebak District discovered that education factors had an impact on lowering poverty in the district. Providing access to fundamental infrastructure, such as through increasing the number of schools, helps alleviate poverty. (Adhitya et al., 2022; Nugroho, 2015).

Other research by Azizah et al (2018) On the basis of study into the correlation between education and district and city poverty in East Java Region, it was determined that education had an impact on conquering poverty in the province. In human capital theory (Becker, 1994) The importance of education as a means for the rural poor to escape the cycle of rural poverty is highlighted by the fact that education provides skills that permit increased output (Zhang, 2014).

Based on the aforementioned issues, the goal of this study is to examine the impact of school participation rates and educational facilities on rural poverty in Indonesia throughout the period of 2018-2021. The benefits of this study are: (1) for policymakers in the area of education to boost returns in quantity, particularly educational facilities, and in quality of school participation rates as an economic engine to raise the standard of life for a flourishing society.; (2) for the general public, to indirectly improve awareness of the significance of education's role in improving income; (3) for other parties, as a reference for undertaking more study in the same or comparable topics.

METHOD

This research utilized a quantitative methodology. Secondary data are utilized, namely data from the central bureau of statistics. The secondary data utilized is a mix of time series from 2018 to 2021 and latitudinal series from 33 Indonesian provinces. This study's variables include one dependent variable and two independent variables. This study's dependent variable is the number of poor rural population in Indonesia in a soul unit.. The dependent variable in this study is the variable school participation rate, which is derived from the average school participation rate for ages 7-12, 13-15, 16-18, and 19-24 with units of percent and facilities education, namely the number of school buildings (elementary school, junior high school, senior high school, and university) with units.

Descriptive analysis, which gives a general overview of the procedures and activities involved as well as the data collected, and econometric analysis, which takes the form of a regression analysis tool with an Ordinary Least Squares (OLS) model, are the data analysis techniques used in this study to estimate the magnitude of changes in the independent variables to the dependent variable. The normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test are used to assess the correctness of the assumptions made after estimation (Gujarati, 2013). In addition, hypothesis testing using the coefficient of determination (Adj R^2), simultaneous test (F test), and partial test is conducted (t test).

This research's model is represented by the following equation:

$$LnY = \alpha + \beta_1 LnX_1 + \beta_2 LnX_2 + \varepsilon$$

Where:

α : Constant

$\beta_1 - \beta_2$	:	Coefficient of each variable on the model
Y	:	Number of poor people in rural areas (soul)
X_1	:	Rural school participation rate (percent)
X_2	:	Number of educational facilities in rural areas (units)
ε	:	Error
Ln	:	Natural Logarithm

RESULT AND DISCUSSION

The statistical description will provide a description of the data, including the lowest value, maximum value, average value, and standard deviation of the variables in this research. Table 1 displays the following values:

Table 3. Descriptive Statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
Rural Poverty	18.44	2834.05	459.29	582.4
School Participation Rates	55.90	76.815	70.52	3.68891
Education **F**acilities	550	42895	7254.28	9123.935

In this research, the dependent variable is the number of rural poor. The statistical description table shown above indicates that the variable number of impoverished rural residents has a mean of 459.29, a standard deviation of 582.4, and a range from 18.44 to 2,834.05.

In this research, the independent variables are the number of educational facilities and school participation rate. The maximum number of educational facilities is 42,895, while the minimum is 550, with a mean of 7,254.28. The school participation rate variable is stated as a percentage based on a comparison between the number of students in a specific school-age group who attend school at various levels of education and the population of that school-age group. The greatest value of the school enrollment rate variable is 76,815 and the lowest is 55.9, with a mean of 70.52.

For a more comprehensive statistical examination of the model, a classical assumption test and multiple regression tests will be conducted:

Normality

Using the One Sample Kolmogorov Smirnov test, the normality test attempts to determine if the dependent and independent variables are regularly distributed. According to the findings of statistical testing, the significance value is 0.087. This explains why the regression equation has a normal distribution, as 0.087 is > 0.05. Consequently, the residual data in the regression model have a normal distribution.

Multicollinearity

The multicollinearity test in this study examines the value of the *Variation Inflation Factors* to determine whether there is a correlation between the independent variables (VIF). According to Ghozali (2016), multicollinearity is indicated if the VIF value is > 10.

Table 4. Multicollinearity Test with VIF Method

Variable	Centered VIF
School Participation Rates	1.005

Education Facilities	1.055

Dependen Variabel: Rural Poverty

According to Table 2, the results of the multicollinearity test indicate a VIF value of 1.005 for the school participation rate variable (X_1) and 1.055 for the education facilities variable (X_2). Given that the value of the VIF is < 10, it may be argued that there is no multicollinearity between variables.

Heteroscedasticity

The heteroscedasticity test seeks to identify non-constant residual variance in the regression, hence the accuracy of the prediction findings is questionable. In this study, the *Spearman Rho* test will be used to examine heteroscedasticity.

Table 5. Heteroskedasticity Test with Spearman Rho

Variable	Sig. (2-tailed)
Constant	1.000
School Participation Rates	0.928
Education Facilities	0.056

According to the *Spearman Rho* test findings in Table 3, the school participation rate variable (X_1) has a significant value of 0.928, while the educational facilities variable (X_2) has a significance value of 0.056; both variables > 0.05. Therefore, it may be stated that the regression model lacks heteroscedasticity.

Autocorrelation

This research utilised autocorrelation to determine whether there is a link between period t and period t-1 confounding mistakes (previously). According to Ghozali (2016), the *Cochrane-Orcutt* approach is one of the ways utilized for autocorrelation testing in which research data is transformed into lag form. Based on the *Cochrane-Orcutt* test findings, the *Durbin-Watson* value was 1.912, which falls between 1 and 3. Therefore, it may be argued that the assumption of non-autocorrelation is true, or that autocorrelation does not exist.

Analysis of the Effect of School Participation Rates and Educational Facilities on Rural Poverty

After evaluating the classic assumptions, it is determined that the regression model is a good one. Thus, the least squares approach or *Ordinary Least Squares* (OLS) will have ideal qualities and generate an estimate that is objective, linear, and has the smallest variance (*Best Linear Unbiased Estimator, Blue*). On the basis of the findings of the multiple regression analysis employed in this study, the following conclusions may be drawn:

Table 6. Partial Significance Test (t test)

Variable	Coefficient	t-stat	P-value
Constant	8.806	1.973	0.051
School Participation Rates	-2.739	-2.650	0.009
Education Facilities	0.992	16.228	0.000

Dependen Variable: Rural Poverty

The following equation is found from table 4:

LnPoverty = 8.806 - 2,739 LNSchoolParticipationRates + 0,992 LnEducationFacilities

According to the findings of the partial test (t test), the coefficient value of the school participation rate variable is -2,739. This indicates that a 1% increase in the school attendance rate will reduce rural poverty by 2.739%. With a significance value of 0.009 <0.05, the school enrollment rate variable has a significant and negative influence on rural poverty.

Another independent variable, educational facilities, which corresponds to the number of schools and has a coefficient value of 0.992, has a favorable effect on rural poverty. This indicates that a one percent increase in educational facilities will raise the rural poverty rate by 0.992%. With a significance value of 0.000 <0.05, the education facilities variable has a significant and positive influence on rural poverty,

Table 7. Simultaneous Significance Test (Uji F)

	F	Sig.
Regression	138.951	.000[b]

The next statistical test is the F test, which demonstrates if all the variables used in the model have a simultaneous influence on the dependent variable. The results of the F test can be obtained by calculating the F value is 138,951 with a probability value of 0.000. With a probability value of 0.000 <0.05. It can be concluded that simultaneously the variables of school enrollment rates and educational facilities have a significant effect on rural poverty.

Next is the examination of the coefficient of determination used to determine the percentage of rural poverty's school participation rates and educational facilities. According to the findings of the regression test, the *Adjusted R-Squared* value is 0.678, indicating that the school enrollment rate and educational facilities factors explain 67.8% of rural poverty, while the remaining 22.2% is explained by variables outside the model.

DISCUSSION

Impact of School Attendance Rates on Rural Poverty

In Indonesia, the school participation rate has a negative and significant impact on poverty. This conclusion is consistent with the hypothesis that school enrolment rates in Indonesia have a negative and significant influence on rural poverty. Also consistent with Sari's research (2016) Education between the ages of 19 and 24 as assessed by the School Participation Rate in South Sumatra has a negative and significant effect on the poverty rate in South Sumatra. By increasing human capital, namely education can be an added value for a society, the higher the education, the ability and skills of the community will also be high.

This concurs with Wilskiana's findings as well (2022) that the school participation rate of Central Java Province has a negative and significant impact. According to study findings, this is because the school participation rate has always increased while the poverty rate has always decreased because education is a fundamental aspect of development goals and one of the ways to reduce poverty. When the higher the level of education a person has, it has a negative effect on poverty status, which is more effective in alleviating poverty. (Njong, 2010). By raising the quality of human resources, it is feasible for someone to obtain a job with a higher salary, hence reducing the poverty rate.

Also, Giovanni (2018) In the provinces of West Java, Central Java, East Java, and DIY, school participation rates had no significant impact on poverty levels. Due to the still

low participation rate in the province in various educational levels, from elementary school, junior high school, senior high school and university, this will slow the growth rate of education in the province. Another reason for the lack of effect of education on poverty is that children from poor households usually attend public schools or other schools that do not charge fees. In countries where poor households spend more on education, it is usually because public schools have costs as in Indonesia (Banerjee & Duflo, 2006).

The Effect of Educational Facilities on Rural Poverty

Indonesia's rural poverty is significantly and positively impacted by educational facilities. This contradicts the second hypothesis, which states that educational facilities have a negative and significant impact on poverty in Indonesia. Pramono (2018) explained that the number of elementary school buildings has a positive and significant effect on the percentage of poor people because the heads of underprivileged families in Indonesia are dominated by those who have graduated from elementary school or have not completed elementary school.

According to Otabela and Ndjobo (2020) residents living below the poverty line are more concerned with meeting basic requirements than with pursuing an education, hence educational facilities in Cameroon are underutilized. Another research was conducted by Sibanda (2004) discovered that African children who lived in rural regions had a 1.2-fold higher risk of dropping out of school than those who lived in urban settings. The availability of educational facilities and a lack of knowledge about the value of education are major barriers to ending poverty. (Ahmed & Amjad Sheikh, 2014). In addition, transportation plays a crucial role in the utilization of educational institutions. With private transportation readily available, families are more likely to utilize educational institutions. The data indicate that education levels in low-income neighborhoods improve by 39% in homes with private transportation services (Nawaz & Iqbal, 2016)

This conclusion contradicts the studies of Ambia and Irwan (2018) and Adhitya et al (2022) education infrastructure expenditure on education has an effect on poverty reduction. Infrastructure spending has two implications. Benefits from spending on job programs, greater income, and welfare are the immediate effects. Government investments in rural infrastructure, agricultural research, health, and education of rural communities boost agricultural and non-agricultural growth, resulting in more jobs and income-earning possibilities for the poor as well as cheaper food (Purnomo et al., 2021)

IMPLICATIONS

Based on the results of this study, there are several implications, as follows:

1. Increases in high school participation rates at ages 7-12, 13-15, 16-18, and 19-24 can alleviate rural Indonesian poverty. This is due to the fact that the greater a person's degree of education, the simpler it will be for them to obtain a job. If they are able to find a job easily, they will have a higher salary and will be able to reduce poverty in rural Indonesia. Government programs carried out in an effort to increase education participation rates by implementing 12 years of compulsory education and educational assistance from poor and underprivileged families, such as the Smart Indonesia Program (PIP) through the Smart Indonesia Card (KIP). The high school enrollment rate cannot be separated from

the Smart Indonesia Program (PIP), which seeks to prevent students from dropping out of school due to financial problems.

2. In Indonesia, educational institutions have a significant and positive effect on rural poverty. It is expected that the government would improve educational facilities more uniformly, especially for the less wealthy. In addition, the supply of educational infrastructure must be bolstered by focusing on the accessibility and quality of schools.

CONCLUSION

Based on the findings of a 2018-2021 study examining the impact of school participation rates and educational facilities on rural poverty in Indonesia, the following may be concluded:

The variable of school participation rate has a negative and significant on rural poverty in Indonesia. This is because the school participation rate has always increased, while the poverty rate has always decreased because education is a fundamental aspect of development goals and one of the ways to overcome the problem of poverty. The higher the percentage of school participation rate, the higher the quality of human resources and educational advancements. Improving the quality of human resources will reduce the poverty rate because with a high school graduation rate and an increase in the quality of human resources, a person will be able to obtain a job with a sufficient income, hence reducing the poverty rate.

In Indonesia, the educational facility variable has a positive and considerable impact on rural poverty. This is due to the fact that between 2018 and 2021, elementary school, junior high school, senior high school, and univesity facilities did not suffer a large rise. Thus, the provision of adequate infrastructure must be in line with educational policies and programs for the poor, if this can be done consistently it will be one of the ways to overcome poverty and improve people's welfare.

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