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“Entrepreneurship on Global Economics Development in the Era of Society 5.0”

Reviewing Accessibility in Eastern Indonesia and its Effect on Poverty**Sepviana Nur Kumala^{1*}**¹Universitas Sebelas Maret, Surakarta

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***Email:** sepviananurkumala@gmail.com**ABSTRACT**

This study aims to analyze the accessibility of society in Eastern Indonesia to the level of poverty. Accessibility in this study is proxied by the variables of education, access to proper drinking water, access to electricity, and the level of employment opportunities. This research uses case studies of 12 provinces in Eastern Indonesia and the observation period of 2012-2021, using a panel data regression analysis approach. The findings from this study are that the variables of education, access to proper drinking water, and the level of employment opportunities have a negative and significant effect on the level of poverty. While the variable access to electricity has no significant effect on the poverty rate.

Keywords: Accessibility, Effect on Poverty

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INTRODUCTION

Development is closely related to improving the quality of life. The global development agenda, starting from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs), has the goal of improving people's welfare. One of the goals set out in the global development agenda is ending poverty or eliminating poverty.

Empirically, the poverty rate in Indonesia has gradually decreased. However, although the poverty rate has gradually decreased, in some areas the poverty rate is still relatively high. Based on BPS Indonesia data, there are 16 provinces with a poverty percentage above the national poverty rate and 9 of them are provinces in Eastern Indonesia. BPS noted that in general the percentage of poverty in Eastern Indonesia is still in the double digits.

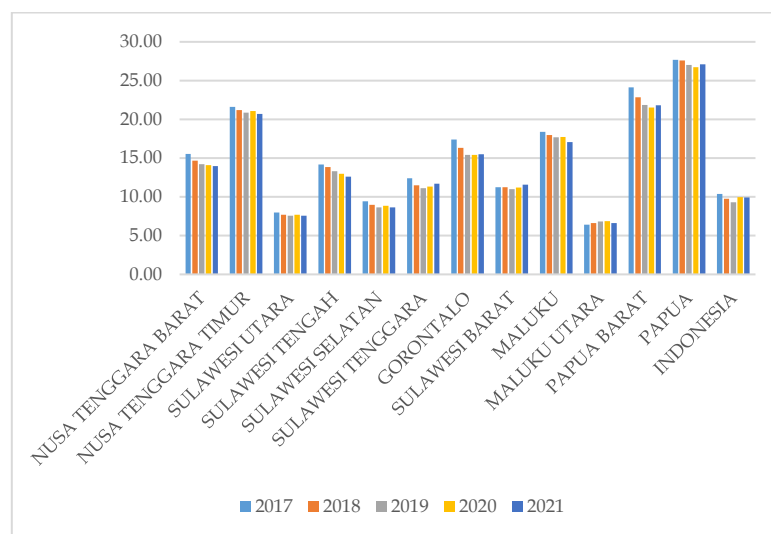


Figure 1. Percentage of Poverty in Eastern Indonesia
Source: BPS Indonesia, 2017-2021

Figure 1 shows that among the 12 provinces in Eastern Indonesia (KTI) there are only three provinces with a poverty rate below the national poverty rate. Saputera (2019) in his research stated that the characteristics in the KTI region both in terms of poverty level, number of poor people, and poverty depth index had a higher value than other regions. The findings from Miranti (2017) make it clear that the farther the distance from the center of the capital affects the poverty rate, the farther the region from the capital indicates that the poverty rate is higher.

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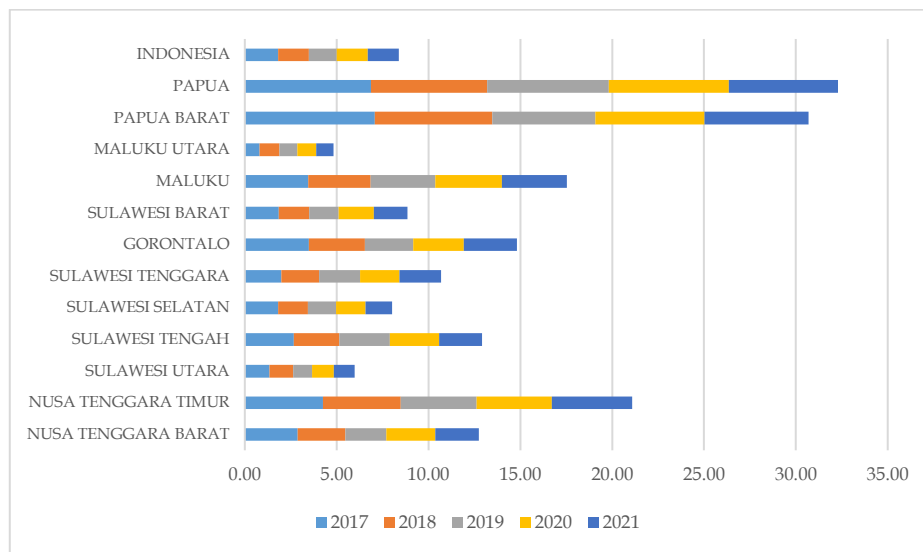


Figure 2. Poverty Depth Index in Eastern Indonesia, 2017-2021
Source: BPS Indonesia

Referring to the findings from Saputera (2019) that the poverty rate and poverty depth index in KTI show a relatively high value. In Figure 2 the depth of poverty in KTI shows a value that is much higher than the depth of national poverty, for example one of the provinces with the highest poverty rate, i.e Papua, has a poverty depth index value of 5.9 percent, West Papua 5.6 percent, and East Nusa Tenggara 4.4 percent. The very high poverty depth index indicates that the average expenditure of the poor tends to be closer to the poverty line.

Sen (1976) in welfare theory argues that poverty is not about low welfare but the inability to pursue prosperity due to lack of economic means. The inability to pursue prosperity can also be caused by the lack of accessibility for the poor in obtaining proper education, health, and infrastructure. The Indonesian government through the National Team for the Acceleration of Poverty Reduction (TNP2K) designed several basic strategies for reducing poverty in Indonesia, namely: perfecting social protection programs, increasing poor people's access to basic services, community empowerment, and inclusive development.

Findings from Sumargo & Simanjuntak (2019) referring to Amartya Sen's theory explaining that the poor in Indonesia experience the most deprivation on education and health indicators, his findings explain that in general the priority for poverty alleviation assistance needed is in the education and health sectors. Human Capital Theory states that humans can increase their productive capacity through education and skills training.

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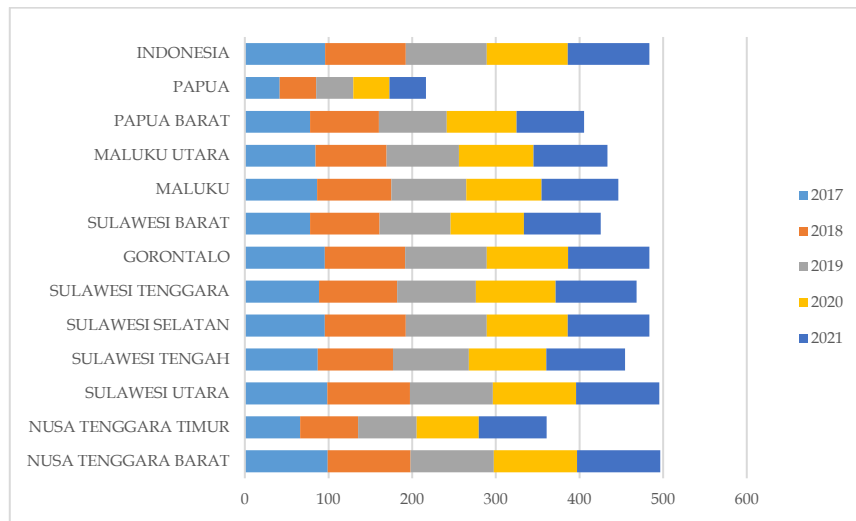


Figure 3. Percentage of Households with a Source of Electricity, 2017-2021

Source: BPS Indonesia.

In general, electricity infrastructure, as measured by the percentage of households with a source of electric lighting, has a positive development where the percentage value continues to increase. Jayanthi (2021) stated that increased electricity development could help reduce poverty. In Eastern Indonesia, there are three provinces with a lower percentage of electric lighting sources than the national average (Figure 3).

Poverty is a condition where a person or group of people lack access to basic needs. The development program launched by the government is directed at reducing disparities between regions. Accessibility is needed to support the poor or poor households in increasing their productivity. Society as a human resource has an important role in improving the quality of life and economic development.

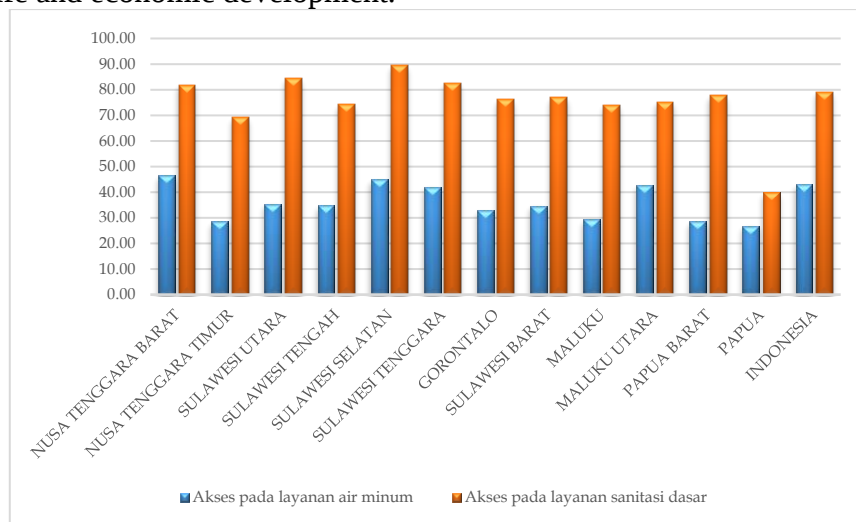


Figure 4. Percentage of Access to Basic Services in Eastern Indonesia, 2021

Source: BPS Indonesia.

If explored further, Eastern Indonesia has more limited access to basic services compared to other regions. BPS data for 2021 records that the national average access to drinking water services in Indonesia is 42.99 percent and basic sanitation services is 79.04

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percent. based on these data several provinces in eastern Indonesia have an average basic service below the national average. Provinces with the lowest access to drinking water services were Papua (26.69%), then East Nusa Tenggara (28.55%), West Papua (28.58%), and Maluku (29.28).

Based on some of the data that has been presented, development in the Eastern Region of Indonesia has quite good and it can be potential, although it is still lower than that of the Western Region of Indonesia. Each region has different characteristics, studies on the influence of the link between accessibility and poverty levels in Eastern Indonesia are needed, so that poverty alleviation programs can be implemented on target. This study has focus to see how the impact of accessibility, it is proxied by several indicators of inclusive development to poverty rate.

METHOD

The data used to support this research is secondary data obtained from the Indonesian Central Bureau of Statistics (BPS). This research focuses on 12 provinces in Eastern Indonesia (KTI) with an observation period of 2012 – 2021. The limitation of this research is to analyze the effect of community accessibility in 12 provinces in Eastern Indonesia on poverty levels in these regions.

Panel data regression analysis is used to see the effect of the independent variables used in the model on the dependent variable. In this study, the independent variable, namely accessibility, was viewed from data on the percentage of households using electricity, the percentage of households with proper drinking water, the level of education proxied by the expected number of years of schooling, and the level of employment opportunities. Furthermore, the dependent variable used in this study is poverty percentage data.

There is an empirical model in this study and there is one dependent variable, namely the percentage of poor people and the four independent variables listed in the model equation. The model equation functions as follows:

$$Poor_{it} = \beta_0 + \beta_1 EYS_{it} + \beta_2 Water_{it} + \beta_3 Listrik_{it} + \beta_4 TKK_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

Keterangan:

Poor	= Poverty Rate (Dependent Variable)
EYS	= Expected Years of Schooling
Water	= Percentage Household with Proper Water
Listrik	= Percentage Household with Electricity
TKK	= Employment Opportunity
β_0	= Constanta
$\beta_1, \beta_2 \dots \beta_4$	= Coefficient Regression
ε	= error term
i	= cross-section 12 province in Eastern Indonesia
t	= time-series (2012-2021)

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RESULT AND DISCUSSION

The use of panel data regression analysis requires several stages of testing to get the best results. The first stage is to choose the best model by testing Chow, Hausman, and Lagrange Multiplier. The results of the Chow test show that the probability value of the F-statistic is <0.05 , which means that the best model used is the Fixed Effect Model (FEM). Furthermore, the Hausman test gives the result that the probability value of chi-square <0.05 means that the best model is FEM. Based on these tests it can be concluded that the best model used in this study is FEM (Table 1).

Table 1. Selection of the Best Model

Test	Probability	Conclusion
Chow	0,000	H ₀ : CEM (p-value $> 5\%$) H ₁ : FEM (p-value $< 5\%$) Result: Rejected H ₀ , The Best Model is FEM
Hausman	0,04	H ₀ : REM (p-value $> 5\%$) H ₁ : FEM (p-value $< 5\%$) Result: Rejected H ₀ , The Best Model is FEM
LM	0,000	H ₀ : CEM (p-value $> 5\%$) H ₁ : REM (p-value $< 5\%$) Result: Rejected H ₀ , The Best Model is REM

Source: processed data, 2022

Based on the results of the estimation of the fixed effect model, the probability value of the f-statistic is $0.000 < 0.05$. This means that together the independent variables used in the model have a significant effect on the poverty rate. Furthermore, the goodness of fit model can be seen through the value of the coefficient of determination (adjusted r-squared). The adjusted r-squared value in the model is 0.98, and it can be interpreted that the variation of the independent variables used in the model is able to explain the variation of the dependent variable by 98%, while the remaining 2% is explained by other factors outside the model.

The results of the regression estimation of the fixed effect model can be seen in Table 2. Based on the statistical test, there are two independent variables that are significant at $\alpha = 1\%$, namely the variable drinking water and the expected number of years of schooling, while the employment rate variable is significant at $\alpha = 10\%$. However, in this study, the variable access to electricity has no significant effect on the level of poverty in Eastern Indonesia.

Table 2. Fixed Effect Model Estimation Results

Variables	Coefficient	t-Statistic Probability	Conclusion
Expected Years of Schooling	-0.799503	0.0000 *	Significant
Proper Drinking Water	-0.033918	0.0000 *	Significant
Electricity Access	-0.002372	0.8768	Not Significant
Employment Opportunity	-0.124925	0.0925 ***	Significant

Source: processed data, 2022

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Significance: * 1%, ** 5%, *** 10%

The equation of the results of the Fixed Effect model can be seen in the following equation:

$$Poor = 40,284 - 0,799(EYS) - 0,033 (Water) - 0,002 (Listrik) - 0,124 (TKK).....(2)$$

A constant value of 40.284 can be interpreted as if the independent variable used in the model is 0 then the poverty rate will increase by 40.28 percent.

DISCUSSION

Jeffrey Sachs in his book "The End of Poverty" says that one way to reduce poverty is to develop human resources, especially in the fields of education and health (Arsani et al., 2020). The capability theory coined by Amartya Sen explains the individual's ability to access something that is beneficial to him or human freedom in achieving something. The focus and objectives of Amartya Sen's capability approach are not on income but on other aspects including the quality of human life (Sen, 1976).

The Effect of Education on Poverty Rate in Eastern Indonesia

In this study, the expected length of school is used as a proxy for the education variable. The statistical estimation results in this study show that the education variable has a negative and significant influence on the poverty rate in the Eastern Indonesia region, and the coefficient value is 0.79. This means that if the expected length of schooling increases by 1%, then poverty will decrease by 0.79%.

Poverty levels and education have a strong link. A high level of education can help people make smarter decisions, education is also related to a child and provides opportunities for the development of mental, physical, and social awareness within them (Rizal, 2015). The findings from this study are in line with Kahar (2018); Okiya & Matanda (2019); Rohma et al. (2021) which states that the expected length of schooling has a major effect on the poverty rate.

Views from data on access to education and poverty rates in Eastern Indonesia, the results of this study are in harmony with these data. Based on data compiled by BPS, on average the provinces in the Western Region of Indonesia have an expected length of schooling in the range of 12 to 14 years. The high school expectation rate indicates that on average a 7-year-old child who enters formal education could attend school for 12 to 14 years or the equivalent of Diploma I. Meanwhile, the expected length of schooling in KTI only ranges from 8 to 11. 8 years and this can be interpreted that on average 7-year-old children in Papua province could attend school for 11 years or equivalent to high school.

The Effect of Proper Drinking Water on Poverty Rate in Eastern Indonesia

The results of this study indicate that access to proper drinking water has a negative and significant effect on the level of poverty in Eastern Indonesia. The coefficient value of access to drinking water is 0.033. This means that for every 1% increase in access to drinking water, poverty will decrease by 0.033%.

The findings from this study support the results of Lestari & Hapsari (2020); Sihombing et al. (2021); Hasyim & Veriyanto (2022) stated that an increase in the percentage of households with proper drinking water indicated a reduction in poverty. Households that do not have access to proper drinking water have a greater tendency to become poor (Hasyim & Veriyanto, 2022). Behera et al. (2020) in their findings stated that access to proper

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drinking water for the poor can help improve health, and in turn will help increase productivity.

Based on data on access to drinking water in Indonesia, this value tends to experience an increasing trend. However, there is a high disparity between the western and eastern regions of Indonesia. In line with the findings of this study, Eastern Indonesia with the highest poverty rate, namely Papua (27.12%), has the lowest percentage of access to drinking water, namely 26.69%. The average access to drinking water nationally is 42.99% in 2021, while in the eastern region of Indonesia only the provinces of West Nusa Tenggara and South Sulawesi have access to drinking water above the national average.

The Effect of Access to Electricity on Poverty Rate in Eastern Indonesia

The estimation results in this study are that access to electricity has no significant effect on the poverty level. The variable coefficient value of the percentage of households using electricity/PLN is 0.002. However, because the statistical results show that access to electricity has no significant effect on the poverty rate, an increase or decrease in access to electricity will not affect the poverty rate.

The findings of this study contrast with the results of Dartanto & Nurkholis (2013); Budiono et al. (2021; Christiani & Nainupu (2021). The findings state that the percentage of households using electricity has a negative and significant effect on the poverty rate and has a strong role in poverty alleviation, the availability of sufficient and distributed electricity throughout Indonesia makes the economy more efficient. Kassem (2020) mentions that access to electricity has the potential to be important in helping the poor get out of poverty, however, cheap, and sustainable electricity is needed. However, adequate access to electricity has a limited impact on poverty alleviation, especially in the short term.

The Effect of Employment Opportunity on Poverty Rate in Eastern Indonesia

The statistical estimation results show that the level of employment has a negative and significant effect on the level of poverty. The value of the employment opportunity coefficient is 0.124. This means that for every 1% increase in employment opportunities, the poverty rate will decrease by 0.124%.

The findings in this study support the results of Putra & Arka (2016); Ginting & Hasibuan (2019); Nguyen et al. (2020) stated that one way that can be done to reduce poverty is to provide jobs or work opportunities for the poor. Expanding access to education will not succeed in alleviating poverty if it is not followed by increased employment opportunities. Ahmaddizon & Aimon (2016) stated that creating and increasing employment opportunities will affect increased income to reduce poverty.

IMPLICATIONS

Based on the findings from this study, community accessibility has a strong influence on poverty alleviation. Therefore, researchers provide some policy implications that can be applied. The recommended policy based on the findings of this research is to optimize the inclusiveness of accessibility development which includes access to clean water, access to education, and employment opportunities in Eastern Indonesia. Poverty cannot only be reduced by social assistance but must be supported by individual abilities so that they can obtain a better standard of living. The condition of poverty in the Eastern Region is relatively higher because the accessibility of the community is more limited compared to the Western Region of Indonesia.

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CONCLUSION

Statistical analysis in this study showed that the variables of access to education, access to proper drinking water, and the level of employment opportunities had a negative and significant effect on the level of poverty. Meanwhile, the variable access to electricity has no significant effect on the level of poverty in Eastern Indonesia. The findings in this study prove that the Capability approach initiated by Amartya Sen has relevance to poverty levels in Eastern Indonesia. Human capabilities are needed to help improve people's welfare. Based on the results of this research, it is hoped that the accessibility of people in Eastern Indonesia can continue to be improved, especially in the field of access to education as human capital. Although the variable access to electricity has no effect on poverty, it is expected that subsidies and increased access to electricity must still be considered.

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