Determinants of Literacy Levels in Indonesia

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Abstract

The Indonesian government has made efforts to increase literacy rates in Indonesia by providing literacy education program services and developing the community's reading culture. This research aims to find out the influence of the number of schools, electrification level, GRDP and education on literacy in each province in Indonesia. The data in this research comes from the Central Statistics Agency for the period 2020-2022. This research uses panel data from 34 provinces in Indonesia. This research uses panel data combined with time series data from 2020-2022 and cross section data in 36 provinces in Indonesia. The dependent variable in this study is literacy, while the main independent variable here is the level of electrification. The results of this research show that the level of electrification and education has a positive and significant effect on literacy, while GRDP has a negative and significant effect on literacy.

Keywords: Literacy; Electrification; Education

INTRODUCTION

Indonesia is one of the countries in ASEAN, one of several countries that still has problems, including the literacy level of children aged 15 years and over. At that age, there are still many individuals who still cannot read, which shows that the level of education in Indonesia is still very low. People who are literate actually have better access than people who are illiterate. Literacy rates can also be an indicator of society's educational development. The higher the level of literacy, the higher the quality of a person's work (Jolianis, 2014). However, the opposite fact is that the literacy rate in Indonesia has continued to increase in the last decade. This shows an increase in the quality of education in Indonesia.

The electricity sector plays an important role in the literacy rate. This is because good electricity levels can help increase literacy levels. Its work is not only about creating something to support the development of other economic sectors (such as the construction

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industry, agriculture, mining, education and health), but also something that can meet people's daily needs (Adam, 2016). In Indonesia, in large cities and several villages, almost all of them have electricity, while in remote villages, sometimes there are some that cannot yet have electricity because access is quite difficult. Because many cities in Indonesia are electrified, this means that several sectors can continue to develop, one of which is schools. Schools really need electricity for good learning. For every 1% increase in household access to electricity, the Human Development Index (HDI) increases by 0.2% (Farhan, 2023). This shows that the electrification level ratio has an effect on the human development index. The more electricity available, the more the human development index will increase. According to Dharma Susila et al., (2016) the electrification ratio affects the number of literates compared to life expectancy.

Education is very important in Indonesia. The young generation who comes to Indonesia can reflect the quality of education in the country. If a country has a high level of education, it can be said that the country has good quality. young generation in the future, so education is very important. The classroom is an important part of face-to-face learning. In the 2021/2022 academic year, there will be around 1.2 million classes at the elementary school level, almost three times the number of junior high schools. Class availability is not only seen in terms of coverage, but the context/situation must be taken into account. Compared to the 2020/2021 school year, the number of damaged classrooms has decreased. However, the number of reputable classes has decreased. This situation occurs at all levels of education. The data is taken from Education Statistics (2022).

The importance of school facilities or classrooms for education is so that students are comfortable and so that the knowledge they learn can be understood well, because according to this data there has been a decline in good classroom conditions, although there has also been a decline in heavily damaged classrooms, meaning the number of classrooms is damaged. In Indonesia, the condition is between seriously damaged and good, because this situation may also be a factor that causes education in Indonesia to be unequal or not everyone getting an education even though many have. The classroom is a public space used for teaching and learning activities. Therefore, schools must have a comfort level for students and other school communities (Sianipar, 2023; Kurniawan et al, 2023). This fact reveals that the importance of the classroom or the importance of the quality of the classroom influences the teaching process. The government plans to establish new schools in line with the goal of equal distribution of education in the third stage, namely equalizing the number of schools. This is in order to achieve a high literacy rate.

The first thing to do was eliminate subject-based high-stakes testing. Instead, formative assessments were made on a national scale and focused on numeracy and literacy (Fadhillah, 2024). Maybe in the past education in Indonesia only focused on exams to determine how high a student's intellectual level was, but now we will or may have changed the learning process, which initially used a learning method that focused on exams and assessments, has now changed to the Merdeka learning method. Education is very important because there is a lot of research that examines education and all of this

research is carried out to make progress in terms of education or educational methods. Therefore, researchers are interested in researching the factors that influence literacy in Indonesia.

DATA & METHODS

This research data uses secondary data. This research uses panel data with a sample of 102 which includes provinces in Indonesia in the 2020-2022 period. The data used in this research is panel data, a combination of time series data from 2020-2022 and cross section data in 36 provinces in Indonesia. The data used comes from the Central Statistics Agency (BPS). The variables used in this research are literacy rate as the dependent variable and education, GRDP, life expectancy as independent variables. The data analysis method uses panel data with the following structural equation:

$$MH_{it} = \alpha + \beta_1 LIST_{it} + \beta_2 JMSK_{it} + \beta_3 PDRB_{it} + \beta_4 PEN_{it} + e \quad (1)$$

where,

MH_{it}	: Literacy (%)
α	: Constant
$\beta_1, \dots, \beta_4$	: Regression Coefficients
$LIST_{it}$	: Electrification level (%)
MSK_{it}	: Number of School
$PDRB_{it}$	: Gross Regional Domestic Product
PEN_{it}	: Years of schooling
e	: Error Term

RESULTS AND DISCUSSION

Table 1 shows a summary of statistics in the form of observations, mean, standard deviation, minimum and maximum values for each variable used in this research. In this study the dependent variable which was measured by the literacy rate in the Indonesian provinces had an average value of 98.15% with a standard deviation of 3.64. Of the 102 observations in this study, the lowest literacy rate was 88% in East Nusa Tenggara province in 2020 and the highest was 99.94% in DKI Jakarta province in 2021. This means that the mean value is greater than the standard deviation, indicating that the data deviation is low so the value distribution is even. The electrification level in Indonesia has an average of 98.70% with a standard deviation of 2.34%. Of the 34 provinces in 2020-2022, the minimum value for the electrification level is 88% and the highest value is 100%. This means that the mean value is greater than the standard deviation, indicating that the data deviation is low so the value distribution is even. The number of schools in Indonesia has an average of 660,048 with a standard deviation of 2629,825. Of the 34 provinces in 2020-2022, the minimum number of schools in the Indonesian provinces is 1,439 schools and the largest number of schools is 14,820 schools. This indicates that the number of schools is quite heterogeneous between provinces.

Table 1. Descriptive Statistics

Variables	Obs	Mean	Std. dev	Min	Max
Literacy	102	98.15	3.64	77.97	99.94
Electrification	102	98.70	2.34	88	100
Number of schools	102	660.05	2629.83	1.44	14820
Gross Regional Domestic Product	102	508447.7	716661.5	41729.89	3186470
Years of schooling	102	9.16	0.82	6.96	11.3

Source: Worldbank (own processed)

Economic growth (GRDP) in Indonesia has an average value of 508447.7 billion with a standard deviation of 716661.5 billion. Of the 34 provinces in 2020-2022, the lowest average economic growth was 41729.89 billion and the largest average was 3186470. This means that the mean value is smaller than the standard deviation, indicating that the data used in the economic growth variable has a large spread, so the data deviation in growth the economy can be said to be not good. Education in Indonesia has an average of 9.16 with a standard deviation of 0.82. Of the 34 provinces in 2020-2022, the lowest education average was 6.96 and the highest was 11.3. This means that the mean value is greater than the standard deviation, indicating that the distribution of the data variables is small or that there is no large enough gap between the ratio of the lowest and highest education. This explains that if the data deviation is low, the value distribution is even.

Table 2 shows the estimation results of Ordinary Least Squares (OLS), Fixed Effect Model (FEM), and Random Effect Model (REM). The results obtained from these three methods between the Fixed Effect Model and the Random Effect Model are very similar, but slightly different in OLS. However, we focus on the estimates produced by the Random Effect Model considering that this is the most effective method based on the Hausman test. The Hausman test shows that the F probability value is more than 0.05, which means that H0 is not rejected so it can be concluded that the best model chosen for estimation is the Random Effect Model.

Table 2. Estimated Coefficients for OLS, FEM, and REM

Variables	OLS	Fixed Effect	Random Effect
Electrification	0.326**	0.200***	0.173***
	(0.126)	(0.058)	(0.054)
Log (Number of schools)	0.319**	-0.008	-0.0118
	(0.156)	(0.024)	(0.025)
Log (GRDP)	-0.379	-1.822***	-0.798**
	(0.274)	(0.562)	(0.348)

Years of Schooling	.675***	3.201***	2.488***
	(0.360)	(0.734)	(0.462)
Constant	45.33***	71.77***	68.20***
	(11.78)	(4.850)	(4.721
Observations	102	102	102
R-square	0.430	0.455	
Hausman test (chi2)			0.3013
Prob > chi2			0.0000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The estimation results for the electrification level variable show a positive relationship between the electrification level and literacy at a significance level of 1%, meaning that every additional 1% of the electrification level has a higher probability of 0.173% to increase the literacy rate. The variable number of schools has no relationship between the number of schools and literacy. In the GRDP variable, there is a negative relationship between GRDP and literacy rate at a significance level of 5%, meaning that every additional 1 GRDP variable will have a lower probability of 0.79% for the literacy rate. Furthermore, in the education variable there is a positive relationship between education and literacy at a significance level of 1%, meaning that every additional 1 year of education has a greater probability of 2.49% for the literacy level.

CONCLUSION

Based on the description of this research, it can be concluded that in this research the level of electrification, GRDP, and education influence literacy in the province of Indonesia. The level of electrification has a positive effect on literacy, meaning that an even level of electrification can encourage increased literacy in Indonesia. The level of education also has a positive effect on literacy in Indonesia, meaning that education can also encourage an increase in literacy rates in Indonesia.

The results of this research show that literacy has a significant influence on the level of electrification, GRDP and unemployment. An even level of electrification in each province can encourage increased literacy rates. It can be concluded that the government must distribute electrification in every province in Indonesia so that the literacy rate in Indonesia can also increase. Not only electrification but also education is a factor that can increase the literacy rate in Indonesia. In this case, it is in line with government regulations regarding 12 years of compulsory education, meaning that the longer the level of education, the higher the literacy rate in Indonesia.

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