

The Role of Education and Technology Adaptation in Poverty Reduction in Indonesia

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Abstract

This study examines the role of education in improving technology adoption as reflected in technology inclusion, poverty alleviation and efforts to increase community income which is reflected in economic growth. This study uses secondary data from world banks and processed regression using the moving average autoregression method. We found that education investment and technology inclusion were positively related to economic growth. And, negatively related to probability. This indicates that education plays a role in encouraging technological inclusion which reflects technological adaptation and encourages economic growth which is an indicator of the prosperity of the people in Indonesia which is strengthened by a negative relationship with poverty which indicates that education plays an important role in poverty alleviation.

Keywords: Technology Inclusion, Indonesia, Poverty Alleviation

JEL Classification : C0, J24,J64

Background

Education is the basis for investing in human capital. Education plays a role in increasing knowledge which has an impact on the mastery of skills and technology which in turn can improve the performance of human resources. Education should be affordable and reach all levels of society so that people as the country's human resource can be more productive so that people's income can increase (Sripada,2020).

Education enhances technological adaptation. When technological adaptation increases the economy will grow and prosperity will be created and more equitable. Equitable welfare will reduce unemployment and in the end, can alleviate poverty (Daradoumis et al,2012).

Poverty is a condition where a person has not been able to meet their needs at a proper level. People living in poverty are generally low-income earners and find it very difficult to increase their income. So that it requires assistance in the form of increasing human capital (Agrawal,2020).

The role of education in poverty alleviation is the increase in human capital in the form of capital investment by the state (Otsuka et al,2008). In Indonesia, there has been a lot of educational investment in human capital investment targeting underprivileged families, such as scholarship programs for economically disadvantaged students for tertiary education, school operational assistance funds so that schools can be affordable and may even be free for all Indonesians These educational

programs can increase the knowledge and human capital of the Indonesian people as well as equal opportunities for decent work and education for all Indonesians (Denboba et al,2015).

Literature review

Education is an effort to transfer knowledge and develop knowledge both formally, namely public schools and informally. Education plays a role in the development of knowledge and technology and increases the intelligence of students (Smith & Lynch,2011).

Education can increase human capital and develop human capabilities in mastering, adapting and using technology so that they can work more productively. The ability to master and use these technologies can have an impact on improving work that is faster and better results. Technology and education can complement each other in improving the performance of human resources, resulting in an increase in income. And, people who are in the poverty line with education and mastery of technology can improve their performance as well as increase their independence and income continuously and gradually so that they have the potential to get out of poverty on their independent efforts (Aoun,2018).

Government investment in education aimed at underprivileged people has the potential to break the chain of poverty by providing learning and employment opportunities with a decent income. After having sufficient human capital, they can work in jobs with income that tend to be decent and sufficient to fulfil a decent life (Dwyer et al,2020). The role of education and technology adaptation is the equal distribution of opportunities for learning and work so that it can reach all levels of society including people who are below the poverty line. This gives those who are below the poverty line the opportunity to escape poverty and continue to invest in human capital so that they have a level of income that can meet the needs of a decent life.

Research methods

This study examines the role of education in improving technology adoption as reflected in technology inclusion, poverty alleviation and efforts to increase community income which is reflected in economic growth. This study uses secondary data from world banks and processed regression using the moving average autoregression method with the following equation:

$$GDP_t = C_t + \beta_1 TI_{t1} + \beta_2 IE_{t2} + \beta_3 POV_{t3} + e_t$$

Where,

GDP = Gross Domestic Product

C = Constant

IT = Technology Inclusion

IE = Education Investment

POV = Poverty

e = Error Term

All financial data is calculated in USD, technology inclusion data is calculated in the number of gadgets that access the internet in Indonesia. Poverty is calculated based on the number of poor people in Indonesia with an income of less than 3.2 USD per day.

Result and Discussion

The estimation results are as follows:

$$\text{GDP} = 1.98060155622\text{e}+12 + 3.818027648*\text{EI} - 17605.6550032*\text{POV} + 0.419925230989*\text{TI}$$

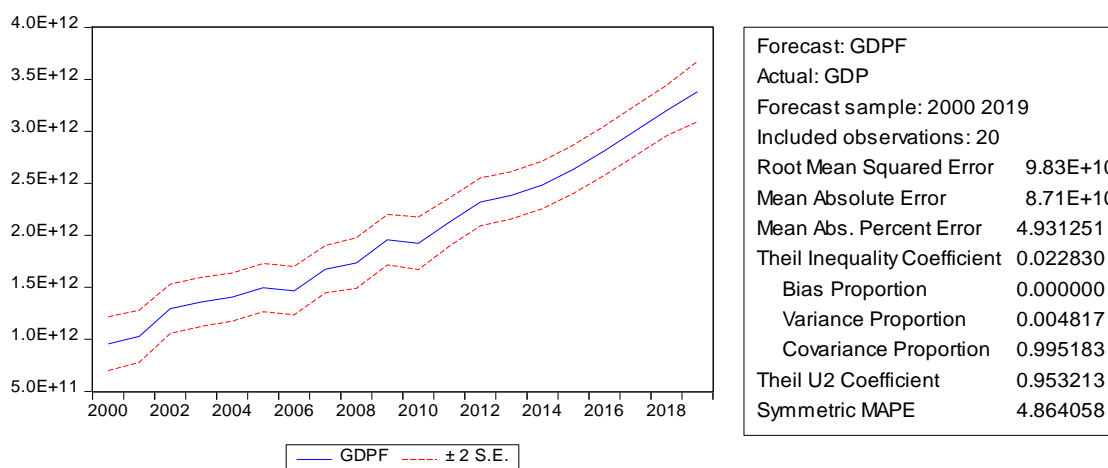
From the estimation results, education investment (EI) and technology inclusion (IT) are positively related to economic growth. And, negatively related to probability. This indicates that education plays a role in encouraging technological inclusion which reflects technological adaptation and encourages economic growth which is an indicator of the prosperity of the people in Indonesia which is strengthened by a negative relationship with poverty which indicates that education plays an important role in poverty alleviation. Table 1 illustrates the estimation results as follows:

Table 1. Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.98E+12	4.48E+11	4.419668	0.0004
EI	3.82	1.598979	2.38779	0.0296
POV	-17605.66	5539.297	-3.178319	0.0058
TI	0.419925	1.053107	0.398749	6.95E-01
R-squared	0.98	Mean dependent var		2.03E+12
Adjusted R-squared	0.98	S.D. dependent var		7.30E+11
S.E. of regression	1.10E+11	Akaike info criterion		53.85982
Sum squared resid	1.93E+23	Schwarz criterion		54.05897
Log likelihood	-534.5982	Hannan-Quinn criter.		53.8987
F-statistic	274.1258	Durbin-Watson stat		0.801253

Based on the estimation results described in Table 1., it can be seen that the R-square is quite high, namely 0.98, so the quantitative calculation results show the truth level of 98%. Figure 1. Shows the forecasting of economic growth in Indonesia

Figure 1. Forecasting Economic Growth in Indonesia



Source: Author Computing

From the forecasting results, it can be seen that economic growth in Indonesia has experienced very rapid growth by making the role of education, poverty and technology inclusion as a regression factor for forecasting economic growth. This shows that education in Indonesia plays an important role in technology adaptation, poverty alleviation and encouraging economic growth to increase the prosperity of the Indonesian people.

Conclusion

Education is an important factor in breaking the chain of poverty by increasing human capital so that it enables people to work independently, supported by technological adaptations so as to increase income, which is the key to getting out of poverty.

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