
The profile of Indonesian workers: how education influences their welfare status

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Abstract: This study aims to assess the effect of education on poverty reduction in Indonesia. Indonesia is chosen as the site of the study for two reasons, namely the relatively high poverty level and massive industrial development, as Indonesia is actively engaged in the international markets. Quantitative methods with descriptive explanations were used to prove the effect of education on poverty in Indonesia. Secondary panel data were taken from Statistics Indonesia from the period 2008 to 2018. Data were then analysed using the ordinary least square (OLS) method. The results show that education with a minimum high school level can reduce poverty. The study revealed that education increased the capability of human resources. Therefore, human resource improvement increased productivity and income, and finally, it reduced poverty.

Keywords: education; human resource; human capital; productivity; international market; welfare; poverty.

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1 Introduction

One of the fundamental problems in economic development is poverty (Dauda, 2017). Low income causes the poor to be unable to satisfy their basic needs (Capello, 2007). Then, poverty becomes a vicious cycle, producing low-educated and unskilled human resources (Santos, 2011). Human resources as the basis of economic growth are more important than machine capital and natural resources (Wilson and Briscoe, 2004). Human resources are active agents of production, while machine capital and natural resources are passive agents (Saqib, 2018).

The human capital resource curse occurs in countries with abundant natural resources like Indonesia, which has lower economic growth compared to other countries with low natural resources. Gylfason (2001) in Cale et al. (2017) states that most countries with abundant natural resources rely on those natural resources, and consequently neglect the potential of other sectors such as education to support economic development. Bloom et al. (2004) highlight that increasing the quality of education will improve human

resources' capabilities and skills for better production capacity. The education sector contributes to the development of human resources (Sukasni and Efendy, 2017), and many consider education an instrument for independence, social reconstruction, and economic development (Mohammed et al., 2016). A country with competent human resources will have better economic growth, higher per capita income, and lower poverty rates (Wilson and Briscoe, 2004).

Developing countries face significant challenges in future globalisation processes. The current study highlights challenges, including trade and industry sectors, employment, and poverty alleviation (Aslam, 2013). Sofjan (2008) investigated the relationship between trade liberalisation, poverty, and inequality in Indonesia and revealed that trade liberalisation increased per capita income, but it did not significantly affect the poverty levels. Poverty elasticity regarding the degree of openness is relatively low. It can be a starting point for the government to develop a trade sector to reduce poverty in Indonesia.

2 Literature review

2.1 Education system in Indonesia

Indonesia is one of the economic centers in Southeast Asia; its government has set ambitious goals for social and economic development, especially in developing human capital (OECD & ADB, 2015). As in other countries, education plays a key role in national development in Indonesia. The Indonesian government has budgeted 20% of the budget for education, with a variety of new programs and administration (Suryadarma and Jones, 2013). Although the level of illiteracy has dropped dramatically, and the development of school infrastructure has improved, the government is not progressive in fulfilling education rights and improving the quality of education equally, especially for Indonesians in remote areas (Manan, 2015). Indonesia adopts a K-12 education system in preparing the future workforce, where the government tries to balance the academic sector and vocational education (Faisal and Martin, 2019). Regulations regarding K-12 are administered through the Government Regulation of the Republic of Indonesia No. 17 of 2010 regarding educational management, presented in Table 1.

Table 1 Indonesian K-12 education system

<i>Age</i>	<i>School year</i>	<i>Formal education level</i>	<i>Types of education</i>
5–6	2 years	Kindergarten	General school (Taman Kanak–kanak) Islamic school (Raudatul Athfal)
7–12	6 years	Elementary school	General school (Sekolah Dasar) Islamic school (Madrasah Ibtidaiyah)
13–15	3 years	Junior high school	General school (Sekolah Menengah Pertama) Islamic school (Madrasah Tsanawiyah)
16–18	3 years	Senior high school	General school (Sekolah Menengah Atas) Vocational school (Sekolah Menengah Kejuruan) Islamic school (Madrasah Aliyah)

On the other hand, labour competitiveness is a key factor that can encourage and accelerate a competitiveness economy (Adam, 2017). Based on labour statistics for August 2018, Statistics Indonesia reports that labour in the manufacturing sector is recorded at 18.25 million people. However, only 23.06% or around 4.21 million workers are elementary school graduates, the basic level of education, with low skills (BPS, 2018). Moreover, the average wage of workers completing university education is IDR 4.42 million per month, almost three times the average wage of workers with elementary education and below, which is only IDR 1.57 million, which is very small wages and below the national average. The data shows that the level of education affects the level of prosperity.

The objective of this study is to examine the effect of level of education on poverty reduction in Indonesia. Indonesia was selected for two reasons. First, its poverty level is relatively high. Second, the country is facing rapid and massive industrial development. The industry depends more on the international markets, and issues of human capital competitiveness as components of industry are highlighted. This study limits the scope of the worker's level of education from K9 to K12, where kindergarten is not part of the study, because kindergarten is not a formal early childhood education institution.

2.2 The role of education

Education is one of the most important ways to build and improve abilities, overcome obstacles, and enlarge the range of opportunities available for sustainable welfare improvement (Venkatraja and Indira, 2011). Education should be built based on the resilience and adaptability of the community and local authorities who are already active in supporting education (Barakat et al., 2013). In social life, education and society complete each other; education not only affects students but also society as a whole (Türkkahraman, 2012). Education provides a foundation for eradicating poverty and encouraging economic development (Majumder and Biswas, 2017). There is a positive correlation between education level and income-earning abilities. Ideally, education should be positioned as a bridge that links the long-term strategy and short- to medium-term strategy (Adam, 2017).

Cabauatan and Manalo (2018) examined the relationship between education and GDP growth and found that the causality relationship between GDP growth and basic education showed bi-directional or bi-causal relationships. This means the economy affects basic education, and at the same time, basic education affects the economy, which implies that economic growth depends on the movement in education. Khusaini (2016) found that the increase in public sector expenditure tends to improve economic growth through regional development based on education and health indicators. Countries with negative returns of human capital face negative impacts of investments in human capital, particularly regarding output growth (Škare and Sinković, 2013). Ali and Ahmad (2013) revealed that the elasticity growth of education is two times higher compared to the growth of physical capital. Thus, improvement in education reduces multidimensional poverty and other related issues.

2.3 Human resource development

Human resource development programs concentrate on various categories of human resources that are processed into labour and play a significant role in economic

reconstruction (Rena, 2006). The impact of developing human resources on poverty alleviation is important, especially the policy implications of developing countries (Asaju, 2013; Adekoya, 2018). An old way used by many countries for long-term investment is developing human resources through education (Asaju, 2013), in that well-educated individuals will play a role in developing various economic sectors. Education is not the only material for developing human resources, it is the most important instrument, more important than health, clothing, nutrition, facilities, sanitation, and other issues (Mushfica, 2015).

3 Data and methodology

Based on the type and analysis of data, this research uses quantitative methods. The research objective is expected to be able to analyse the effect of several independent variables in the specified period, so the panel regression method is adopted as a research model, and SPSS is chosen as a tool for processing research data. It is known that this model is the development of linear regression using OLS method, where the data are cross-sectional and time series. Cross-sectional data is indicated by the number of education levels of more than 1, namely primary, junior, and senior high school, and poor population, while the time series is indicated by the time period used, 2008 to 2018. The OLS model does not pay attention to time or individual dimensions, so it is assumed that worker behaviour is the same in various periods of 2008–2018, meaning it is considered not to renew the level of education. Thus, the proposed model follows the pattern:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

in which: Y (dependent variable) = poor population; X = (independent variables); X_1 = workers with primary education level; X_2 = workers with junior high school education level; X_3 = workers with senior high school education level; α = constant; β = regression coefficient for each independent variable; ε = error term.

Regression model testing was performed using the F-test with a significance level of $\alpha = 0.05$, while testing how much each independent variable is explained by using the t-test. Both F-test and t-test have null hypothesis rejection criteria if $\text{Sig} < 0.05$. The research hypotheses proposed are:

F-Test: H_0 : there is a significant effect of the independent variables together on a dependent variable;

t-test: H_0 : there is a significant influence of the independent variables partially on a dependent variable.

Secondary data was collected by the documentation method from the Statistics Indonesia report (BPS). Statistics Indonesia (BPS) (2018) reports that Indonesia has a total workforce of 134 million, and the number of employed reached 127 million (94.87%) from various levels of education. Workers that have a primary education background are dominant and reach 32 million (25%). BPS uses the concept of ability to meet basic needs (basic needs approach). With this approach, poverty is seen as an inability on the economic side to meet basic food and non-food needs as measured by expenditure. Thus, the poor are residents who have an average per capita expenditure per month below the poverty line. This study limits the working population to only three levels of education,

so that it only covers 76,476,575 people or 60.19% of the total working population in Indonesia. Data on the intended population is presented in Table 2.

Table 2 Workforce by education level 2018

Education level	Workforce			
	Employed	Unemployed	Total	% Employed
Primary school	32,279,357	967,630	33,246,987	97.09
Junior high school	22,878,166	1,249,761	24,127,927	94.82
Senior high school	21,319,052	1,650,636	22,969,688	92.81
Total research population	76,476,575	3,868,027	80,344,602	95.19
Total workers population	127,067,835	6,871,264	133,939,099	94.87

4 Results and discussion

Table 3 is the SPSS output to answer the hypotheses regarding the suitability of the research model. Analysis of Variance (ANOVA) is used to facilitate the F-test. From the table, it can be seen that the data shows Sig < 0.05, which means H_0 is rejected. Thus, the variables X_1 = workers with primary education level; X_2 = workers with junior high school education level; X_3 = workers with senior high school education level are considered fit to measure the variable poor population of workers (Y).

Table 3 ANOVA

	Model	Sum of squares	Df	Mean square	F	Sig.
1	Regression	62801275,198	3	20933758,399	17,655	0,001 ^b
	Residual	8299769,760	7	1185681,394		
	Total	71101044,958	10			

If this research model is indeed fit, to answer how much influence the independent variables affect the level of poverty uses the coefficient of determination indicator or R-squared (r^2). Table 4 provides this information, wherein the resulting r^2 is 0.883, which means the level of education affects the level of poverty by 88.3%. To answer how much each variable is able to explain the variable of poor population, the t-test, where the SPSS output depicts it in the coefficients component is captured in Table 5.

Table 4 Model summary

Model	R	R Square	Adjusted R Square	Std. error of the estimate
1	0.940 ^a	0.883	0.833	1088,88998

^aPredictors: (Constant), High School, Primary School, Secondary School.

It can be seen from the three levels of education that only variable X_3 , or workers with senior high school education levels, significantly explains the level of welfare, with Sig. < 0.05, which is 0.026. Thus, the resulting model is:

$$Y = 31,930,774 - 0.01X_3$$

The results show that the higher the level of education, the greater the effect on poverty reduction. This result is in line with the findings of Asaju (2013) and Majumder and Biswas (2017), but somewhat different from the findings of Türkahraman (2012), who found that education does not directly contribute to economic development and productivity but is more likely to make someone become a better citizen.

Table 5 Coefficients

<i>Model</i>	<i>Unstandardised coefficients</i>		<i>Unstandardised coefficients</i>	<i>t</i>	<i>Sig.</i>
	<i>B</i>	<i>Std. error</i>	<i>Beta</i>		
1 (Constant)	31930,774	15901,036		2.008	0.085
Primary School	0.000	0.000	0.141	1.052	0.328
Secondary S.	0.000	0.001	0.142	0.387	0.710
High School	-0.001	0.000	-1.028	-2.820	0.026

Asaju (2013) explains that in Nigeria, poverty criteria are not based on economic, social, political, and cultural deprivations, but on capacity-building and education. While the different findings from Türkahraman (2012) are indicators used to define education itself, the education in question is incomplete because it does not involve much moral education.

Despite agreeing about the importance of the level of education, Sukasni and Efendy (2017) state that the problem in Indonesian education is more in the quality, access, and distribution of trained teachers. Faisal and Martin (2019) added the importance of systematic development in teacher education and rigorous teacher selection before the pre-service teacher program. Adam (2017) states that design improvements and strengthening the implementation of improvement policies are important steps to take as part of efforts to encourage competitiveness and productivity in labour.

5 Conclusion and recommendation

The main purpose of this study, which used data from 2008 to 2018, is to measure the effect of education on poverty reduction. The BPS data were complete, including data regarding the poor population and workers' education level, as they represent a data panel from a quite long period. However, they have some limitations, such as detailed information on workforce education level by gender, needed to produce a more detailed analysis. The OLS analysis showed that poverty could be reduced by increasing education level. The statistical results are supported with suitable determinant coefficients and F-statistics. The diagnostic tests revealed that the error estimation or OLS regression was normally distributed, not correlated and homeostatic. The analysis confirmed that education played a crucial role in economic development and poverty reduction. As Sukasni and Efendy (2017) revealed, Indonesia needs a grand design for a national education system that involves all stakeholders in the country. Efforts to reduce poverty can also take place by increasing income from the non-real sector, for example, the creative economy sector, and the development of small-medium enterprises in the villages.

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