

## Effects of Education and Health and Unemployment against Poverty in Bangka Belitung Islands

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KEYWORDS	ABSTRACT
Education, Health, Unemployment and Poverty.	One of the main indicators of successful development is the decline in the number of poor people. This study aims to analyze the effect of education, health and unemployment on poverty rates in the Bangka Belitung Islands province in 2010-2021. This research is quantitative. The data used in this study are secondary data obtained from the Central Statistics Agency with cross section 7 districts / cities in Bangka Belitung Islands and time series for 12 (twelve) years. Analysis of the data used is panel data analysis with a random effect model. Data is processed by using Eviews 12. The results showed that: (1) Education had a significant negative effect on the poverty rate in Bangka Belitung Islands Province; (2) Health and positive influence are not significant on poverty rates in Bangka Belitung Islands Province; (3) Unemployment does not have a significant effect on the poverty rate in Bangka Belitung Islands Province.

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### 1. Introduction

The problem of poverty is a complex problem because within the poverty level there are areas classified as areas with severe poverty levels. This is shown by the wide gap in poverty and inequality between poor people in a region.

(Cahyat et al., 2007) Poverty is a situation where a person or household has difficulty meeting basic needs, while the supporting environment does not provide opportunities to improve welfare sustainably or to get out of vulnerability. (Fahmi, 2016) conducted a study entitled the effect of variable levels of education, health on poverty in Jambi Province in 2004-2014. From his research it was found that education was not significant while the level of health was partially significant.

Changes in poverty rates are caused by several factors, including according to (Arsani et al., 2020) the impact of education on poverty and health. Education is a major factor in finding a job, low education Human Resources produce low yield, the community is still very dependent on natural resources, but if it does not have adequate ability to utilize it will not compete with workers from outside the region. More education also affects the unemployment rate, whereas education workers influence the unemployment rate.

The level of education in Bangka Belitung Islands can be seen from the average length of

schooling. Average length of schooling describes the number of years spent by residents aged 15 years and over in formal education. The average length of schooling in Bangka Belitung Islands in 2010-2021 has increased compared to 2010 with an average length of schooling of 7.07 years and in 2021 it has amounted to 8.08 years.

In addition to educational factors that affect poverty is health. Health is one of the important success factors of development, especially to improve people's welfare. People who have a good level of health will have a high level of labor productivity, high income, high level of education and a host of other positive things that will improve the welfare of society then thereby will reduce poverty.

One of the health indicators is indicated by Life Expectancy (AHH). Based on data (BPS, 2023) of Bangka Belitung Islands in 2010-2021 shows that the life expectancy of people in Bangka Belitung Islands increased in 2010 by 69.15% and in 2021 to 70.73%.

Unemployment is one of the main problems that every country always faces. Talking about the problem of unemployment, means not only talking about social problems but also talking about economic problems, because unemployment in addition to causing social problems also affects the economic growth of a country, especially developing countries such as Indonesia. This is reinforced by Ady (Karisma & Soejoto, 2013) The poverty rate in East Java occurs because it is influenced by several factors including economic growth and unemployment.

## Theory

According to (BPS, 2023) poverty can be measured using the concept of *ability* to meet basic needs (*basic need approach*). With this approach, poverty is seen as the inability of the economy to meet the basic needs of food and not food measured in terms of expenditure. So the poor are the population having an average per capita expenditure per month below the poverty line.

According to (Chambers, 2010) poverty is understood as a state of lack of money and goods to ensure survival. In a broad sense, it is said that poverty is an integrated concept that has five dimensions, namely: 1) poverty (*proper*), 2) powerless (*powerless*), 3) emergency vulnerability (state of emergency), 4) dependence (*dependence*), and 5) alienation (isolation), both geographically and sociologically.

Unemployment according to (BPS 2023) is individuals or residents who do not work or look for work or prepare businesses or residents who are not looking for work because they find it impossible to get a job (desperate) or people who are not looking for work because they have been paid but have not started working. Furthermore, according to (Sukirno, 2013) unemployment is a complex problem because it is caused by several interrelated factors and causes several adverse impacts on economic, political, and social communities. For example, the number of unemployed, productivity and income will decrease and other consequences will give rise to social problems.

According to Law Number 20 of 2003 concerning the Education System: Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and state. Furthermore, Pervez (2014) studied the impact of poverty reduction education. This study shows that literacy rates have a negative influence and have a significant impact on poverty in the long run but in life expectancy have a positive impact on poverty. In this case, studying the indicators used in the study, namely the average length of schooling.

(Chairunnisa & Qintharah, 2022) in their research entitled "The Effect of Health, Education Level, and Minimum Wage on Poverty in West Java Province in 2019-2020." It was found that health had no effect on poverty, education had a significant negative effect on poverty, and the city/district minimum wage had no effect on poverty.

(Prince et al., 2022) Health is one of the basic needs of society, therefore health is the right of every citizen protected by the Constitution. Improving health services is basically an investment in human resources to achieve a *welfare society*. The level of public health will greatly affect the level of public welfare, because the level of health has a close relationship with poverty. While the level of poverty will be related to the level of welfare. Because health is the main factor in public welfare that the government wants to realize, health must be the main concern of the government as a provider of public services.

(Gupta & Partners, 2004) studies economic growth, health and poverty. The results suggest that economic growth and health status can reduce poverty rates. Empirical studies have also shown that health status and associated positive economic growth and literacy, industrialization seem to improve health and growth and reduce poverty. According to Todaro and Smith (in (Asrol & Ahmad, 2018), one of the core aspects of wealth is health. Health is an important aspect of sustainable development and is a necessity for increased productivity. Healthy and strong human resources (HR) are important aspects of basic capital in the development of clean water supply, access to health services, good nutrition, adequate food availability, and pollution-free housing, all of which contribute to a healthy population. If a number of these factors are ignored, population health risks will be affected, which in turn hinders the realization of sustainable development. Health is one of the key indicators of national development and well-being. In this study, the indicator used in health was life expectancy.

## 2. Materials and Methods

In this study the data used is a *balance panel*, where the number of units of time is the same for each individual. Data was collected from 7 districts/cities in Bangka Belitung Islands observed over a period of 5 years, namely the period 2010 to 2021 for all variables.

In the panel data model, the panel data equation can be written as follows:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_n X_{nit} + e_{it}$$

dimana:

$Y_{it}$  = *Dependent Variable*

$X_{it}$  = *independent Variable*

$i$  = Entity to- $i$

$t$  = period to- $t$

## 3. Results and Discussions

The variables used in this study are poverty, education, health and annual unemployment in 7 cities and 12 districts in the Bangka Belitung Islands for the period 2010-2021. As shown in Table 1 below:

Table 1 Descriptive Statistics

	POVERTY?	EDUCATION?	HEALT?	UNEMPLOYMENT?
Mean	2.284141	7.575714	70.27595	3.955357
Median	2.246001	7.475000	70.44500	3.850000
Maximum	3.077312	10.13000	73.41000	10.64000
Minimum	1.697449	5.340000	66.19000	0.000000
Std. Dev.	0.327334	1.189130	1.704907	2.156962
Skewness	0.314250	0.336210	-0.704058	0.508675
Kurtosis	2.261146	2.489990	3.229811	3.760327
Jarque-Bera	3.293214	2.492904	7.124617	5.645852
Probability	0.192703	0.287523	0.028373	0.059432

Sum	191.8679	636.3600	5903.180	332.2500
Sum Sq. Dev.	8.893251	117.3645	241.2566	386.1561
Observations	84	84	84	84
Cross sections	7	7	7	7

Source: BPS Babel 2023, processed

Based on Table 1 above, it can be seen that the average poverty in Bangka Belitung Islands is 2.28 percent, the average education (average length of schooling) is 7.57 years, the average health (life expectancy) is 70.27 years and unemployment (open unemployment rate) is 3.95 percent.

In determining the estimation model that can be used to conduct several tests in this study are the Chow test and the Hausmann test. The results of the Chow test show that the probability of Chi-squared cross-section of 0.0000 means less than the significance level of 0.05. Then it can be decided that  $H_0$  is rejected and  $H_a$  is accepted, the model chosen is a fixed effect model. When the selected model is a fixed effect, it is necessary to carry out the Hausman test. The results of the Hausman test are known that the chance of random cross-section is 0.5975 greater than alpha 0.05 so  $H_0$  is accepted and concluded that the best model with poverty level as an independent variable that can be used in this study is the Random Effect Model.

Based on the results of the chow test and the Hausman test, it can be determined that the best model estimate of the random effect model is as follows:

Table 2 Multiple Regression Results Random Effect

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.734295	1.470319	1.859661	0.0666
LOG(EDUCATION?)	-0.773181	0.282569	-2.736259	0.0077
HEALT?	0.015251	0.025448	0.599289	0.5507
UNEMPLOYMENT?	0.008693	0.006614	1.314401	0.1925
Random Effects (Cross)				
_BANGKA--C	0.570072			
_BELITUNG--C	0.358168			
_BANGKA_BARAT--C	-0.509928			
_BANGKA_TENGAH--C	-0.037776			
_BANGKA_SELATAN--C	-0.357797			
_BELITUNG_TIMUR--C	-0.094655			
_KOTA_PANGKALPINANG--C	0.071917			
Effects Specification				
			S.D.	Rho
Cross-section random			0.422774	0.9440
Idiosyncratic random			0.102939	0.0560
Weighted Statistics				
Root MSE	0.099753	R-squared		0.135505
Mean dependent var	0.160152	Adjusted R-squared		0.103086
S.D. dependent var	0.107930	S.E. of regression		0.102216

Sum squared resid	0.835850	F-statistic	4.179855
Durbin-Watson stat	1.449567	Prob(F-statistic)	0.008405
Unweighted Statistics			
R-squared	-0.255907	Mean dependent var	2.284141
Sum squared resid	11.16910	Durbin-Watson stat	0.108480

Source : BPS Babel 2023, processed.

Table 2 can be written based on the estimation model of this study as follows:  
 $LS(CX=R) \text{ LOG(POPERTY?) LOG(EDUCATION?) HEALT? UNEMPLOYMENT?}$

$$POPERTY = 2.86530100416 - 0.822769964577 * \text{LOG(EDUCATION)} + 0.0148233727645 * \text{HEALT} + 0.00840903116507 * \text{UNEMPLOYMENT} + [CX=F]$$

Based on the regression equation above, it can be seen that the constant coefficient of 2.86 shows that if the variables education, health and unemployment are considered constant, the average poverty rate is 2.86. In the value of the education variable, a regression coefficient value of -0.822 is obtained, meaning that every increase in variable education by 1 unit can cause a decrease in poverty by 0.822 units assuming other variables remain, then in the value of the unemployment variable, a regression coefficient value of 0.008 is obtained, meaning that every increase in the unemployment variable by 1 unit can cause an increase in poverty by 0.008 one with the assumption of the variable other stays

These results are in line with research conducted by Asrol & Ahmad (2018), Faturrohim (2011), Antara et al (2013), and Rusdarti & Lesta (2013)

Based on Table 3 below, the estimation of this research model can be written as follows:

$$Pit = -26.1862 - 2.2945PDit + 0.7477Ksit + \mu it$$

Based on the regression equation above, it can be seen that the constant coefficient of -26.1862 indicates that if the education and health variables maintain a constant average unemployment of -26.1862. In Education The value of the educational variable variable obtained a regression coefficient of -2.2945 means that every increase in the education variable by 1 unit, can cause a decrease in the unemployment rate to 2.2945 units. The value of the health variable coefficient of 0.7477, meaning that every increase in health by 1 unit, it can cause a decrease in poverty by 0.7477 units. In line with the research of hacyl Imrotus and Hendry (2013), Anggun (2013), and Zulhanafi et al (2013)

#### 4. Conclusion

Education is measured by the average length of schooling and has a significant negative effect on poverty rates in the Bangka Belitung Islands province. This can be seen from the probability of  $0.0077 < 0.05$  with a coefficient of -0.773181. This is because the dominating sectors in the Bangka Belitung Islands Province are mining and agriculture which require educated labor. Therefore, efforts are needed from various parties to increase awareness of the importance of education to improve the standard of living of the community, especially the poor. For this reason, the government needs to optimize assistance programs for poor students so that they can help them in completing education. The government also needs to improve the quality of public education through formal and non-formal education channels. Through formal



education, this can be done through a 9-year compulsory education program that must be optimized so that residents can graduate until graduating from high school. While through nonformal education can be done by providing courses or job training, entrepreneurship training for new jobs, etc.

Health is measured by life expectancy and has a positive insignificant effect on poverty rates in Bangka Belitung Islands Province. Judging from the probability of  $0.5507 > 0.05$  with a coefficient of 0.015251. This is because the life expectancy of the inhabitants of Bangka Belitung Islands is high. The awareness of the residents of Bangka Belitung Islands on the importance of health is very high and the availability of adequate health infrastructure greatly supports health in the Bangka Belitung Islands Province.

Unemployment has a positive and insignificant effect on the poverty rate in the Bangka Belitung Islands Province. Judging from the probability of  $0.1925 > 0.05$  with a coefficient of 0.008693. Unemployment has an insignificant negative effect on poverty in Bangka Belitung Islands Province

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