

Confronting the Duality of Unemployment and Education: Breaking the Cycle of Poverty in West Kalimantan

Alma Putri Awalia^{1*}, Fanny Rahmasari², Fransiskus Fran³

^{1,2,3}Universitas Tanjungpura,
Jl. Prof. Dr. H. Prof. Dr. H. Hadari Nawawi, Kota Pontianak;
Correspondence Writer *e-mail*: h1011201007@student.untan.ac.id
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ABSTRACT

Poverty is one of the obstacles to the progress of a region/country. West Kalimantan is one of the areas in Indonesia that faces challenges in reducing destitution. Therefore, this study intends to analyze the impact of the unemployment rate and education level on the poverty rate in the West Kalimantan Area. The strategy applied in this study is board information relapse analysis, which combines time series data for six years (2017-2022) and cross-area information from 14 regencies/cities in West Kalimantan Area. In this consideration, a random impacts model was used and the regression equation $Y=4.71-0.37X_1+0.03X_2$ was found. The results indicate that the education level contains a negative and critical influence on the poverty rate. In contrast, the unemployment rate incorporates a positive and critical impact on the poverty rate.

Keywords: panel data regression, random effects model, West Kalimantan

INTRODUCTION

Destitution can be characterized as a state of social creatures in this case people as people or bunches who are incapable to meet their essential needs in supporting themselves fiscally and to make strides in their standard of living (Syawie, 2011). Poverty is one of the obstacles to the progress of a region/country. Poverty can reduce the quality of human assets by closing off get to education, health, and good nutrition, leading to decreased productivity. (Todaro & Smith, 2011) states that there are five reasons why policies should focus on poverty alleviation: (1) high levels of poverty make it difficult for people to get credit because they cannot afford to pay for their children's education; (2) rich people who fall into poverty tend not to save, save or invest; (3) low income and living standards affect health and nutrition and reduce productivity; (4) increasing the income of the poor will encourage the growth of local products for daily needs; (5) poverty alleviation can encourage healthy economic expansion. Seeing this phenomenon, the current government needs to seriously eradicate poverty, not just for reasons of status.

One of the islands in Indonesia that has no more than one million poor people in Kalimantan. Figure 1 shows information on the percentage and number of destitute individuals by island in 2022.

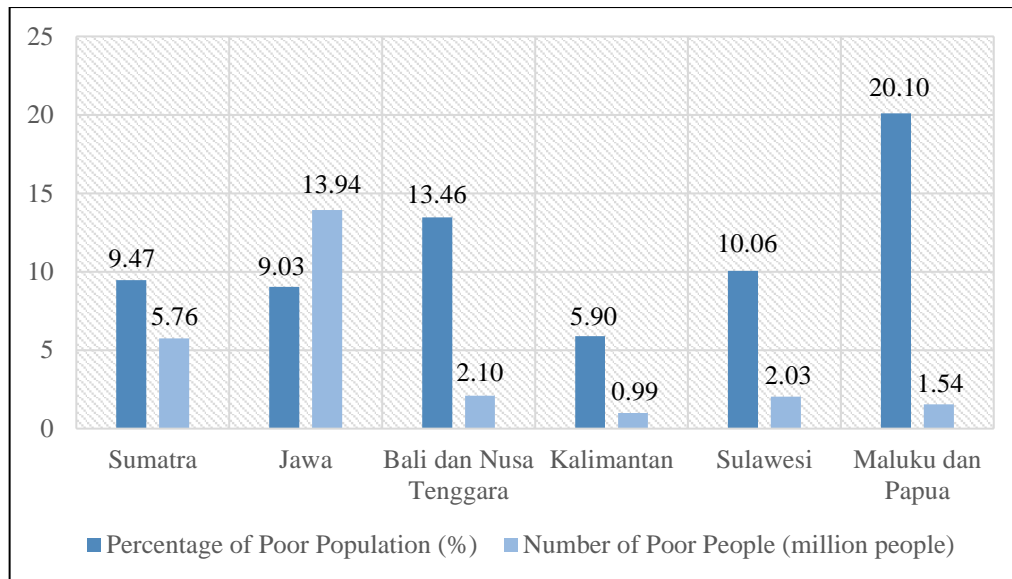


Figure 1. Percentage of Poor Population by Island, September 2022
Source: Statistics Indonesia, 2023.

Figure 1 appears that Kalimantan Island has the lowest rate of destitute individuals at 5.90 percent. Meanwhile, the highest percentage of poor people, 20.10 percent, is located on the islands of Maluku and Papua. Numerically, the majority of the poor live on Java Island (13.94 million people), while the least number of poor people live on Kalimantan Island (0.99 million people). According to (BPS, 2023), of the 0.99 million poor people obtained from Kalimantan Island, it turns out that West Kalimantan is the largest contributor to the poor population at 350.25 (thousand people), compared to East Kalimantan which is the second largest contributor at 236.25 (thousand people), the third is South Kalimantan at 195.702 (thousand people), the fourth is Central Kalimantan at 145.10 (thousand people), and the last or fifth is North Kalimantan where only 50.58 (thousand people). This has increased from the previous year, namely 2021 when West Kalimantan ranks second which has the second-highest percentage of poor people in Kalimantan Island after North Kalimantan (Anisa, 2021).

Another thing that happened in West Kalimantan is that based on BPS data, in 2017 the rate of destitute individuals in West Kalimantan was 7.88 percent, relatively higher than in 2018 which amounted to 7.77 percent, and continued to decline until 2022 to 6.73 percent. Although the percentage of poor people in Kalimantan continues to decline, this is inversely proportional to the poverty line which continues to increase. Taken from BPS data, in 2017 the poverty line in West Kalimantan was Rp377,219.00/capita/month and increased periodically until 2022 to Rp520,660.00/capita/month.

One factor in the level of poverty is high unemployment. People who have jobs and income mean that they are not unemployed, and are expected to fulfill their needs with this income. People will not be poor if their needs are met (Susanto, Rochaida, & Ulfah, 2017). West Kalimantan has experienced an increase in economic growth every year, but unemployment in West Kalimantan is still relatively low, especially in urban areas. This is also a common problem faced by developing countries around the world, where the difficulty in overcoming unemployment is a serious issue. In recent times, the situation in developing countries shows that despite development efforts, the available job opportunities are not able to accommodate the existing labor force. This happens because the development of the labor constraint is faster than the development of available job openings (Laksamana, 2016).

Agreeing to Statistics Indonesia, the labor force is the population group aged 15 years and above and consists of those who are working, not working but have a job, and also those who are unemployed. The labor force refers to the number of individuals who are available and actively engaged in economic activities, both in formal and informal employment. The labor force consists of individuals who are

working, looking for work, or ready to work. This concept is important in analyzing the labor dynamics of a particular country or region.

A low level of education limits the choice of professions to make ends meet, so decision-making is largely based on labor, in this case affecting income which also becomes low (Susanto, Rochaida, & Ulfah, 2017). A good education prepares individuals with the necessary skills, knowledge, and capabilities to enter and contribute to the job market. A high level of education also increases an individual's chances of obtaining a quality job, with better earnings and the potential for social mobility.

This indicates that the poverty rate is still high and further research is needed to understand the relationship between the unemployment rate, education level, and poverty rate in West Kalimantan. This research can be carried out utilizing the board information relapse examination strategy because the method can analyze panel data and can provide a deeper understanding of the relationship between variables in the context of panel data. Considering this background and the data provided by Statistics Indonesia, this thinks about points to analyze in more profundity the relationship between the unemployment rate, education level, and poverty rate in West Kalimantan, and provide useful insights for poverty alleviation policies in the region.

METHODOLOGY

Research Type and Data Source

This research refers to descriptive and explanatory research. The strategy utilized in this investigation may be a quantitative strategy with a graphic confirmation approach, which explains the effect of research variables (Sugiyono, 2011). The research was conducted on locale/cities in West Kalimantan comprising 12 locale and 2 cities. There are 3 (three) variables studied, namely the normal length of tutoring to see the level of education, the open unemployment rate to see the unemployment rate, and the rate of poverty to see the unemployment rate. These variables are used to see how education and unemployment affect poverty in 14 regencies/cities in West Kalimantan.

Data Collection Methods

This inquires about employment documentation and literature study methods for data collection techniques. The documentation method is used to collect information that can support the analysis and findings of the research. Meanwhile, the literature study was conducted to obtain a comprehensive understanding of previously conducted research, related theory developments, and relevant findings in scientific literature. According to (Margono, 2017), a literature study is a type of secondary information used to assist the research process and is published in previous research articles, newspapers, and scientific works. In this study the data collected is pooled the information could be a combination of time arrangement information for 6 a long time, namely 2017-2022, and with a cross-section of 14 (fourteen) locale/cities in West Kalimantan. The purpose of this study is to utilize board information relapse since the method can analyze panel data and can provide deeper insight into the relationship between variables in the context of board information.

Panel Data Relapse Estimation Method

(Basuki, Agustri, & Yuliadi, 2014) mentioned that three approaches can be applied in estimating regression models using panel data. The three approaches incorporate the common impact demonstrate, settled impact show and arbitrary impact demonstrate.

1. Common Impact Show

This technique is not distinctive from performing relapse with cross-section or time arrangement information. Be that as it may, within the case of board data, the step that has to be taken some time recently performing relapse is to combine cross-section information with time arrangement

information. This combined information is at that point treated as a set of perceptions to appraise the demonstration utilizing the OLS (standard slightest squares) method (Munandar, 2017). The common impact board demonstrates features of a show equation:

$$Y_{it} = \beta_0 + \sum_{j=1}^k \beta_j X_{jit} + \varepsilon_{it}$$

2. Settled Impact Demonstrate

The estimation method in board information regression in the settled impact demonstration uses the Least Square Dummy Variables (LSDV) method, which involves adding dummy variables as an approach (Hsiao, 2003). The settled impact panel demonstrates a show condition:

$$Y_{it} = \beta_0 + \sum_{j=1}^k \beta_j X_{jit} + \mu_i + \varepsilon_{it}$$

3. Arbitrary Impact Demonstrate

In the arbitrary impact demonstration of board information relapse, the approach used in the estimation technique is Generalized Least Squares (GLS) (Hsiao, 2003). The arbitrary impact panel demonstration includes a model equation:

$$Y_{it} = \beta_{0i} + \sum_{j=1}^k \beta_j X_{jit} + \varepsilon_{it}$$

Where $\beta_{0i} = \beta_0 + \mu_i$

Panel Data Regression Modeling

Determining the foremost suitable show among the common impact, settled impact, and irregular impact models includes a few levels as takes after:

1. Chow Test

The Chow test could be a statistical test utilized to decide whether the combined model (common impact) or the settled impact show is more significant in explaining the data. The test statistic applied is:

$$F_0 = \frac{(RRSS - URSS)/(N - 1))}{(URSS/(NT - N - K))}$$

The sum of squared errors of the combined model estimation results in a Restricted Remaining Sum of Squares (RRSS), while the whole of squared errors of the settled impacts shows estimation results in Unhindered Remaining Sum of Squares (URSS). The speculation made within the Chow test is as takes after:

H_0 : Common Impact Show

H_1 : Settled Impact Demonstrate

H_0 is rejected on the off chance that the $p - value$ is littler than the alpha significance level of 5 percent. Alternately, H_0 is acknowledged if the $p - value$ is more prominent than alpha. jika nilai $p - value$.

2. Hausman Test

Hausman has created the Hausman test to select between the settled impact strategy and the irregular impact strategy in relapse examination. The Hausman test is conducted based on the concept that the Slightest Squares Sham Factors (LSDV) demonstrate within the settled impact show and Generalized Least Squares (GLS) within the arbitrary impact show are considered efficient, while the Standard Slightest Squares (OLS) demonstrate within the common impact demonstrate is considered wasteful (Munandar, 2017). The theory made within the Hausman test is as takes after:

H_0 : Arbitrary Impact Demonstrate

H_1 : Settled Impact Demonstrate

H_0 is rejected in case the $p - value$ is more noteworthy than the alpha esteem of 5 percent. On the other hand, H_0 is acknowledged if the $p - value$ is littler than the alpha esteem.

3. Lagrange Multiplier Test

The Lagrange multiplier (LM) is used to test whether the arbitrary impact shown is superior to the common impact demonstrated (Widarjono, 2007). The speculation made within the LM test is as takes after:

H_0 : Common Impact Show

H_1 : Arbitrary Impact Demonstrate

Reject H_0 on the off chance that the Breusch-Pagan value is greater than the alpha esteem of 5 percent. Alternately, H_0 is acknowledged if the Breusch-Pagan value is smaller than alpha.

Classical Assumption Test

1. The Ordinariness Test is utilized when the number of perceptions is less than 30, with the point of assessing the degree to which the mistake term is near to the typical conveyance. However, in case the number of perceptions exceeds 30, there is no need to conduct a Normality Test because it is assumed that the sampling distribution of the error term is close to (Syahputra, Hamzah, & Syahnur, 2015). In this study using 84 observations, the normality test can be ignored.
2. The multicollinearity test aims to detect multicollinearity by performing partial regression between independent variables. According to (Gujarati & Polestarirter, 2012), the possibility of multicollinearity in panel data is very small, so researchers can focus on autocorrelation tests and heteroscedasticity tests.
3. The autocorrelation test aims to identify and measure the level of dependence between observations in the same time series at different time intervals.
4. Heteroscedasticity test points to test whether the variance of residuals within the relapse show isn't the same between one perception and another. On the off chance that it is steady, it is called homoscedasticity, if it varies, it is called heteroscedasticity.

Hypothesis Test

1. Partial Relapse Coefficient Test (T-Test)

The T-test is utilized to decide the impact of the free variable on the halfway subordinate variable which is tried at a noteworthy level of 5 percent. Based on the calculated t esteem, the speculation made within the T-test is as takes after:

$$H_0 : \beta_0 = \beta_1 = \beta_2 = 0$$

$$H_1 : \beta_0 \neq \beta_1 \neq \beta_2 \neq 0$$

In case t_{count} is higher than t_{table} or the measurement is lower than 0.05, at that point, H_0 is rejected and H_1 is acknowledged, meaning that there's an impact of the autonomous variable on the subordinate variable. Meanwhile, if t_{count} is lower than t_{table} or insights are higher than 0.05, at that point, H_0 is accepted and H_1 is rejected, meaning that there's no impact of the autonomous variable on the subordinate variable.

2. F Test

The F test is utilized to determine whether or not a free variable works together to impact the subordinate variable. F calculation results (F-statistics) are compared with the F table, provided that if the F-statistic is more prominent than the F table at that point H_0 is rejected and H_1 is

acknowledged, meaning that the free variable features a critical impact on the free variable simultaneously. The following is the definition of the speculation within the F test:

$H_0: \beta_0 = \beta_1 = \beta_2 = 0$ (free factors together have no impact on the subordinate variable)

$H_1: \beta_0 \neq \beta_1 \neq \beta_2 \neq 0$ (autonomous factors together influence the subordinate variable)

3. Coefficient of Assurance or R^2

The coefficient of assurance could be a degree of how much an autonomous variable influences the subordinate variable. assurance investigation is utilized to see the rate of influence of the impact of the free variable on the subordinate variable at the same time.

RESULTS AND DISCUSSION

To perform regression analysis on panel data, the initial stage is to choose the most excellent demonstration between the common impact, settled impact, and irregular impact models. To decide the foremost suitable demonstration, a few tests can be performed, counting the Chow Test and Hausman Test, among others, as follows:

Table 1. Chow Test Results

Effects Test	Statistic	Prob.
(1)	(2)	(3)
Cross-section F	255.819811	0.0000
Cross-section Chi-Square	328.453090	0.0000

Source: Eviews 12 Output Results (2023).

In this study, a confidence level of 5% or 0.05 was used. From Table 1, the Prob. The Chow test is 0.0000 and this esteem is less than the predetermined certainty level, which is lower than 0.05. From these results, it can be concluded that the fixed impact show is more suitable than the common impact model.

Table 2. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Prob.
(1)	(2)	(3)
Cross-section random	3.603877	0.1650

Source: Eviews 12 Output Results (2023).

The comes about of Hausman test in Table 2, shows that the more appropriate method to use between settled impact and arbitrary impact is irregular impact. Usually, since the probability value of 0.1650 is greater than 0.05, which suggests that the invalid theory is acknowledged. This result indicates that the irregular impact show is way better than the settled impact show. However, since the Hausman test does not provide a definitive decision regarding the finest estimation strategy that ought to be utilized in this think about, the next step is to conduct the Lagrange Multiplier Test.

Table 3. Lagrange Multiplier Test Results

Hypothesis Test	Cross-section	Time	Both
(1)	(2)	(3)	(4)
Breusch-Pagan	178.5660 (0.0000)	1.494043 (0.2216)	180.0601 (0.0000)

Source: Eviews 12 Output Results (2023).

Based on the Lagrange Multiplier test comes about in Table 3, it is found that the Breusch-Pagan esteem of 0.0000 is lower than the 0.05 importance level. Hence, the invalid theory is rejected. This result appears that the Arbitrary Impact Demonstrate is superior to the Common Impact Show. Therefore, in this research model, the most excellent estimation method used is the Lagrange Multiplier test with the comes about utilizing the Irregular Impact Demonstrate.

Classical Assumption Test

Because the model formed is an arbitrary effect, there is no need to continue with the classical suspicion test. This is often because the irregular impact shows the employment of the Generalized Slightest Squares (GLS) estimation strategy. The GLS method is considered successful in managing problems such as time arrangement autocorrelation and the relationship between observations (cross-segment). The GLS strategy produces estimators that meet the Leading Straight Fair-minded Estimation (BLUE) properties, which could be a strategy utilized to overcome infringement of homoskedasticity and autocorrelation suspicions (Kosmaryati, Handayani, Isfahani, & Widodo, 2019). Thus, since the arbitrary impact show uses the GLS method, this method inherently overcomes several violations of classical assumptions such as homoscedasticity and autocorrelation. Therefore, researchers did not conduct additional classical assumption tests.

Regression Equation

Regression equations are utilized to determine the relationship between the autonomous variable and the subordinate variable. By using the help of Eviews 12, the regression model is obtained as follows:

Table 4. Regression Equation Results

	Coefficient	Std.Error	t-Statistic	Prob.
	(1)	(2)	(3)	(4)
C	4.718832	1.163462	4.055852	0.0001
Education	-0.379012	0.166015	-2.283007	0.0251
Unemployment	0.03997	0.040180	0.994940	0.3227

Source: Eviews12 Output Results (2023).

In Table 4, the regression equation that refers to the random effect model is as follows:

$$Y = 4.71 - 0.37X_1 + 0.03X_2$$

From the above equation, the taking after conclusions can be drawn:

1. Variable Y represents the dependent variable, which is the poverty rate, while variable X represents the independent variables, which are education and unemployment, with X_1 referring to education and X_2 referring to unemployment.

2. The constant value shows the amount of the dependent value when there's no influence from the free factors used. The comes about of data processing in this study shows that when there's no impact from the free variables (education and unemployment), the value of the subordinate variable (poverty) obtained is 4.71%.
3. The regression coefficient β_1 is -0.37 indicating that any decrease in the education level will lead to an increment within the percentage of destitute individuals. In other words, if the education level decreases, then the number of poor people will increment by 0.37%, accepting other factors are considered steady or fixed.
4. The regression coefficient β_2 is 0.03, indicating a positive relationship between poverty and unemployment, i.e. the higher the unemployment rate will increase poverty in West Kalimantan. So if unemployment decreases, the number of poor people will moreover decrease by 0.03%, accepting other factors are considered steady or fixed.

T-test

Table 4 can be interpreted as follows:

1. From the analysis conducted, a t_{count} value of -2.2830 was obtained for the education variable. If this value is compared with the t_{table} value, the t_{count} of -2.2830 is smaller than the t_{table} of 1.9893. Therefore, it can be concluded that the null hypothesis (H_0) is acknowledged. Based on this result, it can be concluded that education encompasses a critical impact on the poverty rate in West Kalimantan.
2. In testing the impact of the open unemployment rate on poverty, the t_{count} value is 0.9949 for the education variable. If this value is compared with the t_{table} value, the t_{count} of 0.9949 is smaller than the t_{table} of 1.9893. Therefore, it can be concluded that the null hypothesis (H_0) is acknowledged. Based on this result, it can be concluded that unemployment incorporates a noteworthy impact on the poverty rate in West Kalimantan.

F Test

Theory testing is done with the F test, which is comparing the regression analysis result of F count with the value of F table, or comparing Prob. F at a noteworthiness level of 5% or 0.05.

Table 5. F Test Results

	F-Statistic	Prob.	Conclusion
	(1)	(2)	(3)
Value	34.1496	0.0000	Significant

Source: Eviews 12 Output Results (2023).

Based on the investigation comes about in Table 5, the calculated F esteem or F-statistic of 34.149 is more prominent than the F table of 1.654 and the Prob. esteem is also smaller than the significance level (0.0000 is littler than 0.05). This appears that the education and unemployment factors simultaneously have a noteworthy influence on the poverty variable.

Determination Coefficient Test

This test is conducted with the point of assessing the degree to which the education and unemployment variables can explain the level of poverty that occurs.

Table 6. Results of the Determination Coefficient Test

Determination Coefficient Test	Value
(1)	(2)
R-squared	0.457465
Adjusted R-squared	0.444069
S.E. of regression	0.347702
F-statistic	34.14960
Prob(F-statistic)	0.0000000

Source: Eviews 12 Output Results (2023).

From Table 6, it can be concluded that the coefficient of determination of this model is 0.44. This shows that about 44% of the variation in poverty in West Kalimantan can be clarified by the education and unemployment factors discussed in this consideration. However, about 56% of the remaining variation in poverty is clarified by other components not included within the show and not discussed in this study.

The Impact of Education on Poverty

The comes about appeared that the level of education features a noteworthy impact on 14 regencies/cities in West Kalimantan utilizing the normal long time of tutoring as a variable. According to (Todaro, 2000), the level of education achieved plays a key role in building a developing country's capacity to retain present-day innovation and strengthen its ability to form maintainable development and growth. It can be concluded that higher education gives individuals the ability to obtain higher quality and more profitable jobs. Higher levels of education are closely linked to higher incomes. Through well-paying jobs, individuals have a greater chance of meeting their basic needs and preventing falling into poverty.

Individuals with higher education tend to have better access to better-paying and more stable employment. Such individuals have skills and knowledge that match the demands of the labor market and thus have a higher chance of securing adequate employment. In contrast, individuals with low or no formal education are often limited in their available employment options, which can lead to low earnings and increase the risk of poverty. The results of this study reinforce the assumption that education level, which in this case is measured by average years of schooling, has an impact on reducing poverty. This inquiry about is steady with a past consider conducted by (Putra & Arka, 2016), which also shows that the normal long time of tutoring features a negative and critical impact on the poverty rate.

The Impact of Unemployment on Poverty

Based on the comes about of past investigations, it was found that the open unemployment rate encompasses a noteworthy negative impact on poverty. Typically in line with (Yacoub, 2013) which found that the unemployment rate encompasses a critical impact on the poverty rate in regencies/cities in West Kalimantan. When someone experiences unemployment, they lose their main source of income. Without a steady salary, people or families tend to confront challenges in assembly essential needs such as nourishment, lodging, education, well-being, and transportation. This condition can lead to being trapped in a cycle of poverty that is difficult to escape. High levels of unemployment in a society can have far-reaching social impacts. It can create social instability, tension, and conflict. It can worsen poverty, prevent financial development, and decrease openings for the social and financial advancement of the community as an entirety as well as ruin endeavors to discover work.

The Impact of Education and Unemployment on Poverty

Education and unemployment are interrelated in affecting poverty because the relationship between education and income is quite close. Higher education increases a person's chances of getting a quality and well-paid job. Individuals with a good education have skills and knowledge that are relevant to the needs of the labor market, so they are better able to compete and obtain adequate employment. Individuals who obtain a good education also have a greater chance of improving their social and economic status. This can open the door for anyone to get a better job, develop new skills, and overcome the limitations of poverty that may exist in their family. Meanwhile, unemployment results in limited economic opportunities. When someone is unemployed, they face difficulties in finding a job that matches their skills and education. These limitations can prolong the period of unemployment and increase the risk of poverty.

CONCLUSSION AND RECOMMENDATION

Conclusion

This ponder points to analyzing the impact of the unemployment rate and education level on the poverty rate of the population in the West Kalimantan Area within the 2017-2022 time span. In this consideration, information on the unemployment rate, education level, and poverty rate of the population was collected from secondary data taken from Statistics Insights of West Kalimantan. The examination strategy utilized is the board information relapse examination to look at the relationship between the free factors (unemployment rate and education level) and the subordinate variable (poverty rate). The result of the investigation appears that education and unemployment at the same time influence the poverty rate in West Kalimantan. This can be said because the results of the simultaneous test obtained a result of 0.4406, meaning that this model can explain about 44.06% of the causes of poverty that occur in West Kalimantan while about 55.94% of others are explained by variables outside this model.

The comes about of this think about moreover demonstrates that the level of education includes a negative and noteworthy impact on the poverty rate. This implies that the level of education has an impact on the poverty rate, the higher the level of education, the lower the poverty rate. Then again, a diminish in the level of education can lead to an increment in the poverty rate. As for the unemployment rate, the comes to appear that the unemployment rate incorporates a positive and noteworthy impact on the poverty rate. This implies that the unemployment rate includes a coordinated impact on the poverty rate, that's, if the unemployment rate increments, the poverty rate will moreover increment. Then again, if the unemployment rate diminishes, the poverty rate in the West Kalimantan area will moreover diminish.

Recommendation

Based on the conclusions of this consideration, to reduce the poverty rate, the government, and the community ought to work together to improve the openness and quality of education, as well as address the unemployment rate. In terms of education, an increase in prioritizing the education sector in 14 regencies/cities in West Kalimantan is needed to improve the accessibility, quality, and adequacy of education so that it can help reduce the gap that can affect the poverty level in West Kalimantan. Meanwhile, to overcome unemployment, the government needs to provide a budget for training programs for workers in the regencies/cities of West Kalimantan Province resulting them to have good hard skills or soft skills so that they can work with good income and the poverty rate can decrease. Because this study can only explain 44.06 percent, for further research on Poverty other variables can be added so that it can explain more about Poverty.

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