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The Influence of the Human Development Index, Labor Force Participation Rate, and Open Unemployment Rate on Poverty with ZIS as a Moderation Variable in Central Java Province, 2018-2023

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Abstract. This research aims to determine the effect of the human development index, labor force participation rate, and open poverty rate on poverty with ZIS as a moderating variable in Central Java Province in 2018-2023. The data used in this research is secondary data in the form of panel data (time series and cross section data). The analytical tool used to process the data is Eviews 10. The data collection process was taken via the Central Statistics Agency (BPS) website and obtained from the BAZNAS institution. This research uses quantitative methods with those taken using saturated techniques, where all members are sampled. The analysis technique uses stationarity tests, panel data regression selection tests, classical assumption tests, statistical tests and MRA tests. Based on the results of the analysis, it was found that the human development index had a significant negative influence on poverty, the labor force participation rate had an insignificant negative influence on poverty, the level of open poverty had a significant positive influence on poverty. In this study, ZIS was unable to moderate the human development index, labor force participation rate, and level of open poverty in Central Java Province.

Keywords: Human Development Index, Labor Force Participation Rate, Level, Open Unemployment, ZIS, Poverty

1 Introduction

Poverty is one of the problems in economic development faced by almost every developed and developing country (Ningsi Goni, Josep Bintang Kalangi, 2022). Poverty is defined when an individual or group has limitations in meeting the standard of living needs such as clothing, food and shelter, employment opportunities, as well as meeting the level of education and health (Sinta, 2022). Poverty is caused by several factors, such as low quality of human resources, limited employment opportunities, differences in access to capital and low income (Waluyo, 2013). This situation will be made even worse if the unemployment rate in the region is high.

Table 1. Number of Poor People in Central Java 2018-2023

Year	Poverty	
	Percentage	Thousands people
2018	11,32%	3897,20
2019	10,80%	3743,23
2020	11,41%	3980,90
2021	11,79%	4109,75
2022	10,93%	3831,44
2023	10,77%	3791,50

Source: BPS, 2024

Table 1 above is poverty data in Central Java for the last six years. In 2018-2019 poverty in Central Java decreased from 11.32% to 10.80%, while in 2019-2021 the poverty rate increased from 10.80% to 11.79%, this was due to the occurrence of Covid-19. which causes people to lose their jobs, thus becoming unemployed and causing the poverty rate to increase. However, in 2022 and 2023 the poverty rate will decrease again, reaching

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10.77%. The rise and fall of poverty rates is influenced by several factors such as unemployment, population and literacy rates.

The government plays a role as a provider for the community in overcoming poverty, by facilitating or responding to community needs and activities. For this reason, the government has a number of poverty reduction programs such as the Family Hope Program, poor rice program, Smart Indonesia Card, Healthy Indonesia Card and BOS funds for education. It would be better if reducing the poverty rate should also be accompanied by reducing the level of income inequality, namely by opening job vacancies and Job Training Centers to people who need them. Apart from that, there is also the need to carry out development in the sector of improving the quality of human resources.

The Human Development Index is an indicator for measuring economic development that measures the physical and non-physical qualities of the population, such as education level, health and economic indicators (Damayanti et al., 2022). Development of the quality of human life will have an impact on the quality of human resources, which in turn will lead to a reduction in poverty rates (Sinta, 2022).

The level of labor force participation can also affect poverty because the large population will create problems, namely employment. Labor Force Participation Rate is the labor force participation rate which shows how economically active a person is in daily activities. The greater the number of people who are not in the labor force, the smaller the number of the labor force, which results in a lower labor force participation rate and the more people who work, the more impact it will have on reducing poverty (Mala et al., 2017).

The next factor that influences poverty is the unemployment rate. Unemployment is a problem that is influenced by economic conditions and performance in a region. Unemployed people are usually also called people who have not found work or people who are looking for work, because there are few job opportunities (Maulana et al., 2022). Unemployment is caused by an imbalance in the number of workers who increase every year with the number of jobs available and is caused by education that does not match the required job specifications (Agustin Nengsih et al., 2021).

Moderating variables function to strengthen or weaken the relationship between the independent variable and the dependent variable. ZIS is a moderating variable in this research, which is considered to play a role in helping to eradicate poverty (Yaasin et al., 2022). The purpose of moderating here is to measure the strength of the relationship between the dependent and independent variables. Research by Inayah, (2020) can moderate the level of poverty in Central Java.

2 Research Methods

The research method used is using a quantitative model with MRA and the type of data used is secondary data using panel data (time series data and cross section data). This research uses data samples from 35 regencies/cities in Central Java Province in 2018-2023, totaling 210 data. This research determines the number of samples using saturated sampling, which is a sample determination technique if all members of the population are sampled. The data collection technique in this research was obtained from BAZNAS and obtained through the official BPS website.

3 Results and Discussion

3.1 Panel Data Regression Test

Panel data regression is used to test the influence of the independent variable on the dependent variable with a combination of time series and cross section data. From the results of the panel data regression model estimation test, it was found that the fixed effect model was the selected model.

Tabel 2. Regression Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.71801	2.716735	9.098424	0.0000
IPM_X1	-0.201838	0.037795	-5.340362	0.0000
TPAK_X2	-3.94E-05	6.43E-05	-0.612269	0.5412
TPT_X3	0.130241	0.038129	3.415771	0.0008
X1Z	2.82E-13	5.55E-13	0.507785	0.6123
X2Z	-8.09E-15	1.52E-13	-0.053083	0.9577
X3Z	-9.97E-16	5.47E-12	-0.000182	0.9999
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.989092	Mean dependent var		10.78657

Adjusted R-squared	0.986510	S.D. dependent var	3.413287
S.E. of regression	0.396446	Akaike info criterion	1.160713
Sum squared resid	26.56163	Schwarz criterion	1.814196
Log likelihood	-80.87491	Hannan-Quinn criter.	1.424892
F-statistic	383.0896	Durbin-Watson stat	1.984604
Prob(F-statistic)	0.000000		

Source: Data Processed, 2024

Fixed effect regression model obtained from the results of model estimation testing, the following regression equation is obtained:

$$\mathbf{Yit = \alpha + \beta 1\ X1 + \beta 2X2 + \beta 3X3 + \beta 4\ (X1\ Z) + \beta 5\ (X2\ Z) + \beta 6\ (X3\ Z) + \varepsilon}$$

$$Proverty\_Y = 24.71801 - 0.201838\ IPM\_X1 - 3.94E\text{-}05\ TPAK\_X2 + 0.130241\ TPT\_X3 + 2.82E\text{-}13\ X1Z - 8.09E\text{-}15\ X2Z - 9.97E\text{-}16\ X3Z + \varepsilon$$

3.2 Hypothesis Testing

3.2.1 T Test

1. Human Development Index
   Based on the tests carried out, the results were -0.201838 with a probability value of 0.0000 <0.05. So it can be said that the human development index has a significant negative influence on poverty. Equations should be centred and should be numbered with the number on the right-hand side.
2. Labor Force Participation Rate
   Based on the tests that have been carried out, the results were -3.94E-05 with a probability of 0.5412 > 0.05. So it can be said that the labor force participation rate has no effect on poverty.
3. Open Unemployment Rate
   Based on the tests that have been carried out, the results are 0.130241 with a probability of 0.0008 <0.05. So it can be said that the open unemployment rate has a significant positive influence on poverty.
4. ZIS moderates the Human Development Index against Poverty
   Based on the tests carried out, the results were 2.82E-13 with a probability of 0.6123 > 0.05. So it can be said that ZIS cannot moderate the influence of the human development index on poverty.
5. ZIS moderates the level of labor force participation on poverty
   Based on the tests that have been carried out, the results were -8.09E-15 with a probability of 0.9577 > 0.05. So it can be said that ZIS cannot moderate the influence of labor force participation levels on poverty.
6. ZIS moderates the Open Unemployment Rate towards Poverty
   Based on the tests that have been carried out, the results were -9.97E-16 with a probability of 0.9999 > 0.05. So it can be said that ZIS cannot moderate the influence of the open unemployment rate on poverty.

3.2.2 F Test

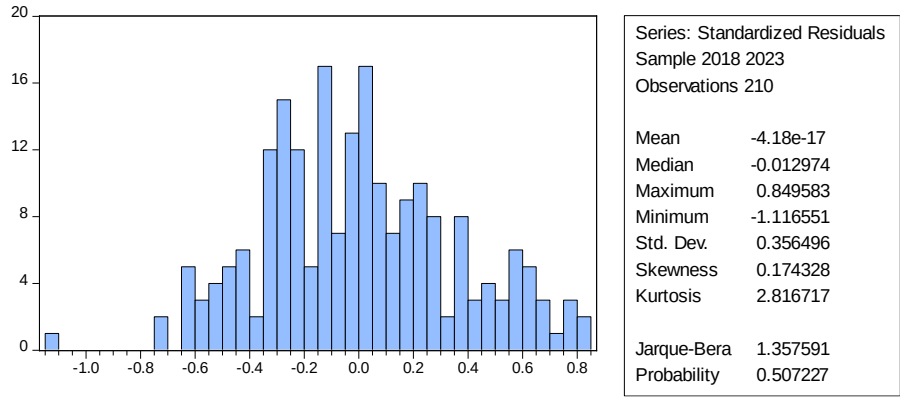
The results of the test above show the value of Prob. (F-statistic) which is 0.000000 < 0.05, it can be concluded that all independent variables namely HDI, TPAK, and TPT simultaneously have a significant effect on the poverty variable.

3.2.3 Coefficient Of Determination (R^2)

From the test results above, it is known that the Adjusted R-squared value is 0.986510. This value can be interpreted as meaning that the variables HDI, TPAK, and TPT simultaneously or together influence poverty by 98.65%, the remaining 1.35% is influenced by other variables.

3.3 Test Classical Assumptions

3.3.1 Normality test



Source : Data Processed, 2024

Fig. 1. Normality Test Result

Based on the results of the normality test in Figure 1, it shows that the probability value is 0.507227. This value indicates a probability number greater than 0.05, so it is normally distributed.

3.3.2 Multicollinearity Test

Table 3. Multicollinearity Test Result

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	28.54670	280.8968	NA
IPM__X1_	0.005160	270.4739	1.000143
TPAK__X2_	5.41E-05	3.852211	1.001798
TPT__X3_	0.027609	8.406472	1.001657

Source: Data Processed, 2024

From the test results, it is known that the Variance Inflation Factor (VIF) value is <10. So it can be concluded that there is no multicollinearity.

3.3.3 Autocorrelation Test

Table 4. Autocorrelation Test Result

R-squared	0.989092	Mean dependent var	10.78657
Adjusted R-squared	0.986510	S.D. dependent var	3.413287
S.E. of regression	0.396446	Akaike info criterion	1.160713
Sum squared resid	26.56163	Schwarz criterion	1.814196
Log likelihood	-80.87491	Hannan-Quinn criter.	1.424892
F-statistic	383.0896	Durbin-Watson stat	1.984604
Prob(F-statistic)	0.000000		

Source: Data Processed, 2024

Table 5. Durbin Watson

dL	dU	dW	4-dU	4-dL
1.75483	1.79326	1.984604	2.20674	2.20674

Based on table 5, it shows the results of the autocorrelation test that the Durbin-Watson stat value is 1.984604, so the value dU < DW < 4 – Du means that there is no autocorrelation.

3.4 Discussion

The coefficient value of the human development index variable is -0.201838 with a probability value of 0.0000 where this value is smaller than 0.05, so it can be concluded that the Human Development Index has a significant negative influence on poverty so that the conclusion drawn is that H1 is accepted. This research is in line with research conducted by Prasetyoningrum, (2018) and Andhykha et al., (2018) which shows the results that the Human Development Index has a negative and significant influence on poverty.

The coefficient value of the labor force participation rate variable is -3.94E-05 with a probability value of 0.5412 where this value is greater than 0.05, so it can be concluded that the Labor Force Participation Rate (TPAK) has no effect on poverty so that a conclusion can be drawn that H2 is rejected. The results of research conducted by Tio Nurwani,(2021) and Fauziah et al., (2021) which show the results that the Labor Force Participation Level has a negative and significant effect on poverty.

The coefficient value of the open unemployment rate variable is 0.130241 with a probability value of 0.0008 where this value is smaller than 0.05, so it can be concluded that the Open Unemployment Rate (TPT) has a significant positive influence on poverty so that it can be concluded that H3 is accepted. This research is in line with research by Andhykha et al., (2018) and Prasetyoningrum, (2018) which shows the results that the Open Unemployment Rate has a significant positive influence on poverty.

The results of the MRA test show that the coefficient value of This is in line with research conducted by Siti Madania, (2023) which states that ZIS has not been able to moderate the Human Development Index on poverty. However, this is not in line with research by Inayah, (2020) which states that ZIS can moderate the Human Development Index on poverty.

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The results of the MRA test show that the coefficient value of the X3Z coefficient or the interaction between TPAK and ZIS is -9.97E-16 and the probability value is 0.9999 > 0.05, which means that ZIS has not been able to moderate the influence of the Open Unemployment Rate on poverty, thus H6 rejected. This is in line with research by Hermawan & Bahjatulloh, (2022) which states that zakat has not been able to moderate the level of open unemployment and poverty. However, this is not in line with research by Ridlo & Sari, (2020) which states that ZIS is able to moderate the level of open unemployment against poverty.

4 Conclusion and Suggestion

4.1 Conclusion

The conclusion based on the results of the data analysis test is that the Human Development Index has a significant negative influence on poverty, the labor force participation rate has a negative and insignificant influence on poverty, and the open unemployment rate has a significant positive influence on poverty. Furthermore, ZIS was unable to moderate the human development index, labor force participation rate, and open unemployment rate against poverty in Central Java in 2018-2023.

4.2 Suggestion

1. Future researchers can use the ZIS variable as a dependent or independent variable.
2. Future researchers can add years of research, in order to get maximum results.

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