

**ANALYSIS OF SOCIAL ECONOMIC FACTORS AFFECTING POVERTY LEVELS IN DISTRICTS AND CITIES IN THE SPECIAL REGION OF YOGYAKARTA IN 2013-2022**

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**Abstract**

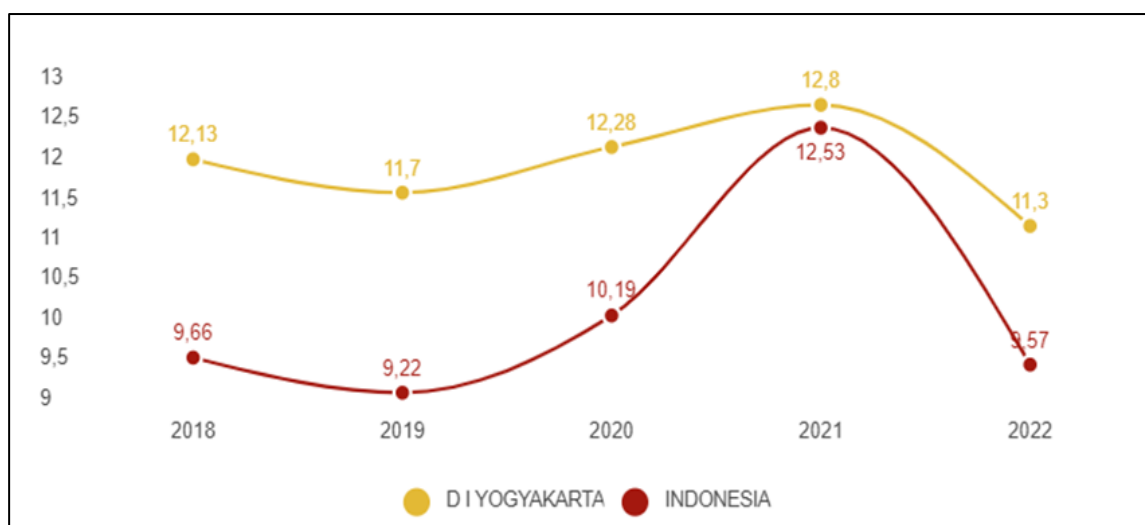
*The problem of poverty is complex. The existence of this complexity causes the need for countermeasures programs that are integrated and not overlapping. Nowadays, the government is still attempting to continue eradicating poverty. The percentage of poverty in DIY currently is the highest in Java and the value is above the national poverty average. The purpose of this research is to analyze what factors influence poverty in districts/cities in DIY. This research applied the panel data regression test with the dependent variable poverty and the independent variables TPT, RLS, UMK, and UHH. The panel data used is five regencies/cities in DIY and used data from 2013-2022. The selected model is FEM. The statistical test result indicates that the variables UMK, TPT, and RLS have a significant effect on poverty. However, UHH has no significant effect.*

**Keywords:** Poverty, TPT, RLS, UMK, UHH

**Introduction**

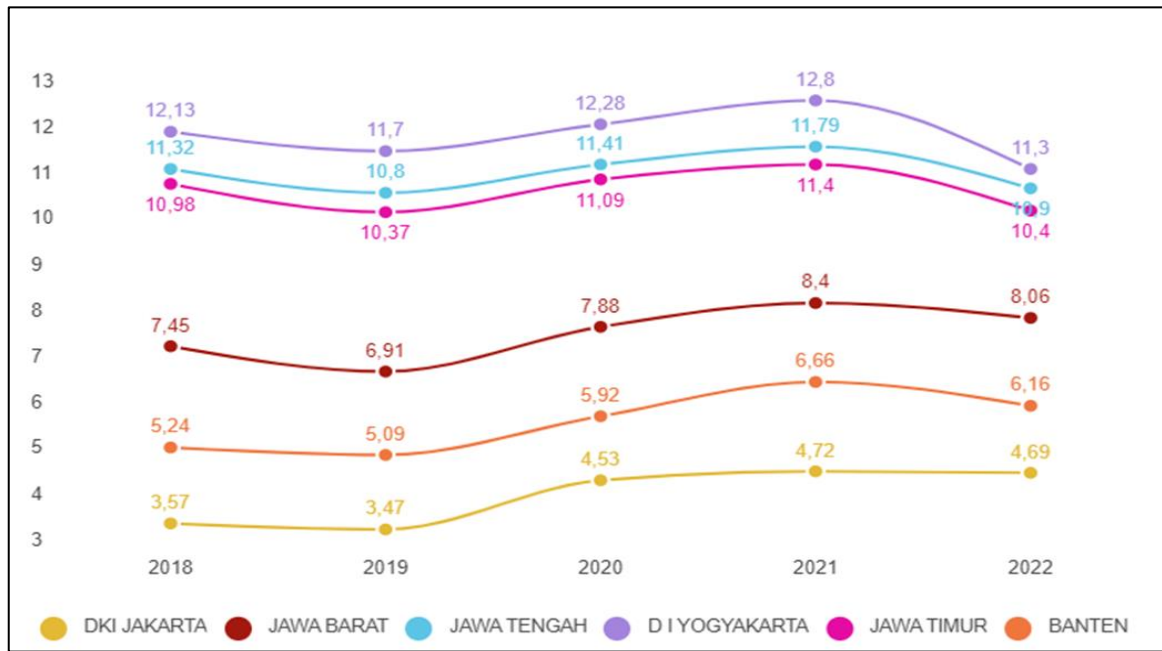
Poverty is a complex problem. This complexity has resulted in the need for prevention programs that are integrated and not overlapping. Currently, the government is still trying to alleviate poverty. Because according to Kuncoro (2005), high poverty is an obstacle to development in a country. Many development programs ranging from world development programs to village development include poverty as an issue to be resolved. One of the programs in the SDGs or Sustainable Development Goals approved by various countries in the United Nations (UN) congressional decision is to end all forms of poverty everywhere. One of the countries that participated as a member of the UN and agreed on the SDGs is Indonesia.

Indonesia is also currently a country that still has a high poverty rate. The government of the Republic of Indonesia has made various efforts to alleviate poverty in the country. The government targets that by 2024 extreme poverty will be close to 0%. DIY is a province in Indonesia where the percentage of poverty is still higher than the national poverty percentage. This is shown in the following figure.



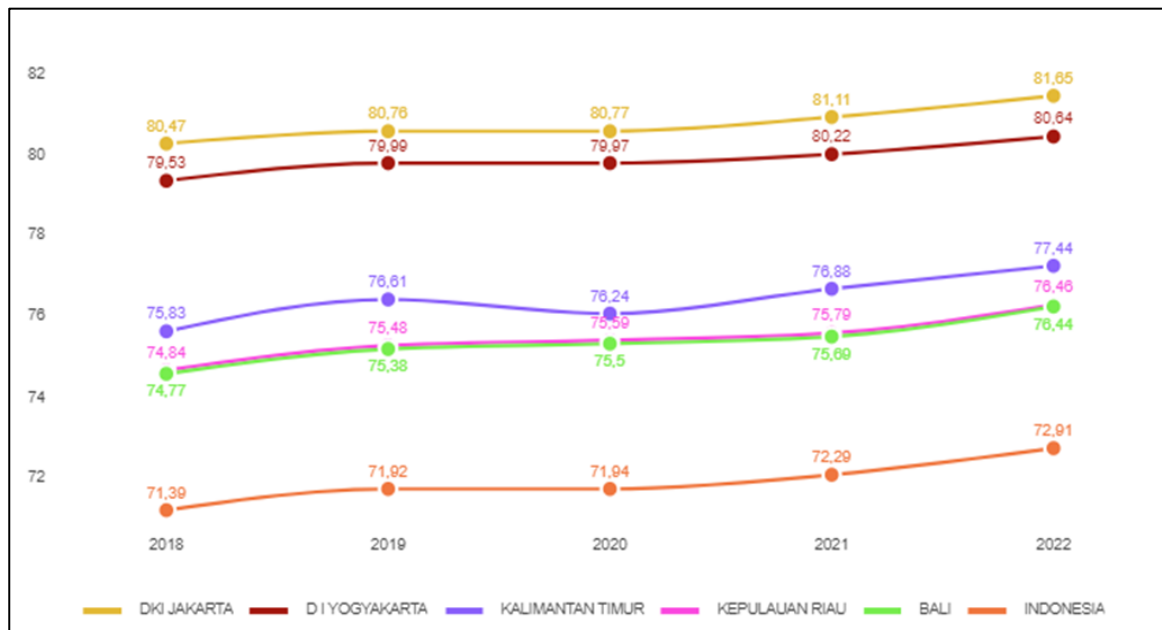
**Figure 1**  
**Poverty Percentages in DIY compared to National Poverty Rate**

When compared to poverty in Java, the province of Yogyakarta is currently in the first rank with the highest percentage of poverty. This is shown in Figure 2 below.



**Figure 2**  
Poverty Percentages of Each Province in Java Island

However, the HDI (Human Development Index) value in Yogyakarta is above the national HDI value. The HDI in Yogyakarta is in second place nationally.



**Figure 3**  
Five Provinces with the Highest HDI Value

HDI describes how successful people are in accessing development, in this case how they get income, health, and education (BPS, 2023). Based on the BPS (2023), the HDI is the result of the formulation of three (3) dimensions, namely knowledge, longevity healthy living, and a decent standard of living.

To overcome the problem of poverty in DIY, the DIY Government has also made every effort to provide basic needs for its people. Because the problem of poverty is a problem of high complexity and multidimensionality, solving it must be from several aspects. According to Renggapratiwi (2010) in Alifah & Ismaningsih (2023). There are several interconnected factors such as access to resources, education, geographical location, income, gender, and environmental conditions. In addition, the lack of employment opportunities that ultimately lead to unemployment, poor health, and poor education also has an impact on poverty (Alifah & Imaningsih, 2023), (Alifah & Imaningsih, 2023).

The unemployment rate is closely related to poverty because unemployment is high, of course, people do not have a source of income so their purchasing power will decrease and have an impact on the economy (Azis, Yulmardi, & Nurhayani, 2021). This card interpreted that when unemployment increases, GRDP will decrease so that welfare will also decrease, accompanied by an increase in poverty (Alifah & Imaningsih, 2023). This variable is closely related to poverty. Low education has an impact on poverty (Parwa, 2019, as cited in Alifah and Imaningsih, 2023)

Then, the level of education is also one of the indicators taken into account in the HDI According to Siilus (2017) in Pramesti and Bendesa (2018), education is the right factor when aimed at improving the quality of human resources. When the level of education in a society is high, it will be able to improve the welfare of its people and reduce poverty (Mankiw, 2012).

In addition to the education variable, an important factor that affects poverty is health This factor can be referred to as an investment in increasing the productivity of human resources so that it can ultimately improve the standard of living of the community (Adhitya, Prabawa, & Kencana, 2022)

According to Sari (2021), minimum wage is also a factor that affects poverty. Because when the minimum wage of an area does not match the standard of living needs in an area, it will have an impact on increasing poverty. What is meant by minimum wage is a benchmark that is used as a benchmark for businesses in paying wages to their workers. This minimum wage is also an important factor in labor issues. If based on Permenaker No. 18 of 2022, this UMK is the lowest monthly wage determined by the governor as a safety net for workers.

In this study, the author raises several aspects that describe the welfare of the community, which is reflected in several variables, namely the UMK, RLS, TPT, and UHH variables.

Based on this background, the author makes several problem formulations, namely how does the influence of the Regional Minimum Wage (UMK), Average Years of Schooling (RLS), Open Unemployment Rate (TPT), and Life Expectancy Age (UHH) on Poverty in each Regency/City in DIY partially and simultaneously? There are several factors that cause poverty, but researchers use four variables based on the following theories:

1. Income  
According to Keynes's consumption theory, when people's income is increased, it will increase people's income consumption. Increased public consumption indicates that the level of public welfare has also increased so that the poverty rate will decrease.
2. Education  
When the level of education in a society is high, it will be able to improve the welfare of its people and reduce poverty (Mankiw, 2012).
3. Unemployment  
Todaro (2006) said that the underdevelopment of population in developing countries is caused by high population growth rate but low labour absorption, resulting in low productivity and low income.
4. Health  
Amartya Sen in Todaro (2006), said that the problem of poverty is also related to the capabilities that must be owned by a person in this case one of them concerns the issue of access to health.

The difference between this research and the previous research is that it analyzes poverty from the social and economic sides at the same time and uses data from the last 10 years.

## 2. Research Method

This research analyzes the influence of the variables of UMK, RLS, TPT, and UHH on poverty in DIY Province in 2013-2022. The selection of DIY Province is because currently, DIY is the province with the highest percentage of poverty in Java. The data used is secondary data which is entirely obtained from BPS both central and regional. This research uses quantitative research methods using panel data regression analysis tools. The research data used is panel data consisting of a 10-year time series, namely 2013-2022, and a cross-section, namely districts and cities located in DIY. As for the variables in this study, among others:

1. Independent Variable (X)  
Independent Variable is a variable that causes changes in the dependent variable. In this study there are four independent variables, namely:
  - a. Regional Minimum Wage (UMK)  
As for the data used, namely the value of the minimum wage of each district/ city in DIY in 2013-2022 and expressed in rupiah units.
  - b. Average Years of Schooling (RLS)  
For the RLS variable, the data used is the average length of schooling in each district/city in Yogyakarta in 2013-2022 in units of years.
  - c. Open Unemployment Rate (TPT)  
The data used is the unemployment rate of each district/city in Yogyakarta in 2013-2022 expressed in percent.

d. Life Expectancy (UHH)

This UHH variable uses the average length of time the population lives from birth and will be achieved by the population according to districts/cities in DIY in 2013- 2022. Life expectancy is expressed in years.

2. Dependent Variable (Y)

Dependent Variable is the variable that is influenced by the independent variable. The independent variable in this study is poverty, which uses the percentage of poor people in each city district.

The analytical tool chosen by the researcher is panel data multiple regression. Multiple regression is a regression with more than one independent variable, and if panel data is used in the regression, it is called panel data regression (Widarjono, 2005). The model equation for panel data regression is:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_n X_{nit} + \epsilon_{it}$$

Which is

Y = Dependent variable

$\beta_0$  = Intercept/constant

$\beta_1, 2, n$  = partial regression coefficient

$X_1, 2, n$  = independent variable

e = is the error value or residual value, which is the value that cannot be explained in the research model.

i = 1, 2, 3, 4 ... N; N = number of *cross-sections*

t = 1, 2, 3, 4 ... T; T = number of time series

If the research variables in this study are included in the model, the composition of the research model equation is as follows:

$$\text{Poverty} = \beta_0 + \beta_1(\text{RLS})_{it} + \beta_2 (\text{TPT})_{it} + \beta_3 (\text{UHH})_{it} + \beta_4 (\text{UMK})_{it} + \epsilon_{it}$$

Due to the different units in each variable, in the data processing process, data whose units are other than percentages are first transformed into log form. The structure of the model that will be used after the data is transformed into log form is as follows:

$$\text{Poverty} = \beta_0 + \beta_1(\text{RLS})_{it} + \beta_2 (\text{TPT})_{it} + \beta_3 (\text{UHH})_{it} + \beta_4 (\text{UMK})_{it} + \epsilon_{it}$$

In the regression test, there are three estimation models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) (Gujarati, 2009). The three models are chosen according to the research conditions seen from the variables and individuals used in the study (Huda, 2019). The method that can be used to select the best model for estimating is as follows.

1. Chow Test

The test that can be used to choose which model is better between CE and FE is the Chow test. H<sub>0</sub> assumes that the better model is CE, while H<sub>1</sub> or the alternative hypothesis is to choose FE. The basis for deciding whether to accept CE or FE is by testing the value of Prob. Cross-Section Chi-Square. If the Prob. Cross-Section Chi-Square value is less than alpha (0.05) means that the model to be used is FEM Conversely, if the Prob. Cross-Section Chi-Square value is more than 0.05, the best model is CEM.

2. Hausman Test

This test is conducted to determine the best model between FE and RE. H<sub>0</sub> of the Hausman test is to choose RE and H<sub>1</sub> is to choose FE as the best model. The basis for determining the decision can be determined from the p-value. If the p-value is less than alpha (0.05), it means that the best model is FE. Meanwhile, if the p-value is more than alpha (0.05), it means that the best model is RE.

3. LM test

To find out which model is better between RE and CE, the LM test is conducted. H<sub>0</sub> in the LM test is to choose CE, while H<sub>1</sub> is RE. The basis for determining the decision is the prob value. Brush Pagan is less than 0.05 then H<sub>0</sub> is not accepted which means that the best model is REM. Conversely, if the Breush Pagan probability is more than 0.05 then H<sub>0</sub> is accepted which means that the best model is CE. After finding the best model, the classical assumption test is then carried out. In this study, the classic assumption tests used are Multicolonearity and Heteroscedasticity Tests.

### 3. Results and Discussions

A summary of the panel data regression test results that have been carried out on the CE, FE, and RE models is:

**Table 1 Summary of Panel Data Regression Test Results**

<i>Variable</i>	<i>CE</i>	<i>FE</i>	<i>RE</i>
T-statistik logRLS	-8,330973	-3,476718	-27,09115
T-statistik TPT	-0,900336	3,100709	-2,927732
T-statistik logUHH	0,3587761	0,154033	11,66686
T-statistik logUMK	-2,650292	-2,146484	-8,618383
<i>F statistic</i>	62,90833	386,9731	62,90829
Probilitas ( <i>F-statistic</i> )	0,000000	0,000000	0,000000
<i>R-Square</i>	0,848298	0,986929	0,848297
Observasi	50	50	50

Source: Data Processing Result, 2023

The estimation results on the three models above are then conducted Chow test and Hausman test to get the best model. The results of the test selection carried out are shown in the following description.

1. Uji Chow

A summary of the chow test results is provided in the following table.

**Table 2 Summary of Chow Test Results**

<i>Effects Test</i>	<i>Statistic</i>	<i>d.f.</i>	<i>Prob.</i>
<i>Cross-section F</i>	108,714473	(4,41)	0,0000
<i>Cross-section Chi-square</i>	122,577360	4	0,0000

Source: Data Processing Result, 2023

The data processing results listed in Table 2 show a Cross-section Chi-square probability value of 0.0000. This value is <0.05 (alpha) which means that the Chow test rejects the null hypothesis. This implies that the better model between FE and CE is the FE model. The output of the Chow test results shows that the FE model is better, so the next test is the REM model with the Hausman test.

2. Hausman Test

**Table 3 Summary of Chow Test Results**

<i>Test Summary</i>	<i>Chi-Sq. Statistic</i>	<i>Chi-Sq. d.f.</i>	<i>Prob.</i>
Cross-section random	434,854356	4	0,0000

Source: Data Processing Result, 2023

The Hausman test results show the probability value of the cross-section random is 0.0000. Since the value is less than 0.05 (alpha), it means that the Hausman test rejects HO and shows that the FE model is better than the CE model. Since the Hausman test selects FEM as the best model, the FEM model is used in this study.

Furthermore, the FE model is tested for classical assumptions. Since FE is chosen as the best model, the classical assumption tests that need to be carried out are heteroscedasticity and multicollinearity tests. The FE model does not require a classic assumption test for normality and autocorrelation. According to (Basuki in (Hidayah, 2022)), the autocorrelation test is only carried out on time series data so if you do the autocorrelation test on cross-section data and if it is carried out on panel data it is meaningless. In conclusion, not all classical assumption tests must be performed on panel data regression. The results of the classical assumption test that has been carried out are described in the following description.

1. Multicollinearity Test

A multicollinearity test is carried out to obtain information on whether there is a correlation or relationship between independent variables or not. The way that can be done is by testing multicollinearity, namely by testing the partial correlation coefficient between independent variables. The basis for decision-making is said to be free from multicollinearity problems if the correlation coefficient on each independent variable is less than 0.8. The following test results have been carried out on the FEM model.

**Table 4 Summary of Multikolinieritas Test Results on FE Model**

	LogRLS	TPT	LogUHH	LogUMK
LogRLS	1	0,79787377	0,36070695	0,37462634
TPT	0,79787377	1	0,25463211	0,33329477
LogUHH	0,36070695	0,25463211	1	0,39056682
LogUMK	0,37462634	0,33329477	0,39056682	1

Source: Data Processing Result, 2023

Table 4 shows that all independent variables have a correlation coefficient of <0.8. This means that the selected model (FE) is free from multicollinearity problems.

2. Heteroscedasticity Test

The heteroscedasticity test aims to see whether the variance of the disturbance variables of error terms of the regression model is constant or not. This study uses the Gletser method to test for heteroscedasticity. The Gletser method is done by regressing the absolute residual value with the independent variable. The basis for decision-making is if the probability > alpha (significance level 0.05) means that there is no heteroscedasticity problem. Below is a summary of the heteroscedasticity test results.

**Table 5 Summary of Heteroscedasticity Test Results on FE Model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.182999	0.318090	-0.575306	0.5680
RLS	-0.012095	0.011808	-1.024299	0.3112
TPT	0.000853	0.000508	1.678626	0.1002
UHH	0.135230	0.176254	0.767243	0.4469
UMK	-0.009178	0.006078	-1.509995	0.1380

From the results in Table 5, all variables have a regression coefficient value > 0.05, which means that all variables are free from heteroscedasticity problems. Next, hypothesis testing is carried out on the FEM model. The following is a summary of the FEM model test results.

**Table 6 Summary of FEM Model Test Result**

Variable	Koefisien	t-Statistic	Prob
T-statistik logRLS	-43,48697	-3,476718	0,0012
T-statistik TPT	0,361113	3,100709	0,0035
T-statistik logUHH	37,79988	0,154033	0,8783
T-statistik logUMK	-7,397011	-2,146484	0,0378
F statistic			386,9731
Prob(F-statistic)			0,00000
R-Square			0,986929
Adjusted R-Square			0,984379
Observasi			50

Based on the estimation results of the FEM model in Table 6, it can be analyzed how the independent variables affect the dependent variable both simultaneously and partially. The estimation of RLS, TPT, UHH, and UMK variables on poverty is as follows.

1. Simultaneous influence of RLS, TPT, UHH, and UMK variables

The effect of RLS, TPT, UHH, and UMK variables simultaneously can be seen in the F- F-statistic value and F-statistic probability. Table 6 shows that the F-statistic value is 386.9731 with a probability of 0.000000. This means that the RLS, TPT, UHH, and UMK variables simultaneously affect poverty significantly.

2. The effect of RLS, TPT, UHH, and UMK variables partially can be seen in the t-statistic value and probability of each variable.

a) Effect of RLS Variable

Table 6 shows that the t-statistic value of the RLS variable is -3.476718 with a probability of 0.0012. This means that the RLS variable has a negative and significant relationship with poverty.

b) Effect of TPT Variable

Based on Table 6, the t-statistic value of the TPT variable is 3.100709 with a probability of 0.0035. This means that the TPT variable has a positive and significant relationship with poverty.

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- c) Influence of UHH Variable  
Based on Table 6, the t-statistic value of the Years of Schooling variable is 0.154033 with a probability of 0.8783. This means that the UHH variable has a positive relationship but has no significant effect on poverty.
- d) Effect of UMK Variable  
Based on Table 6, the t-statistic value of the UMK variable is - 2.146484 with a probability of 0.0378. This means that the UMK variable has a negative and significant relationship.

Based on the results of data processing, the best model selected is the FE Model The estimation results using the panel data regression FE Model listed in Table 6 if included in the regression equation model will be as follows:

$$\text{Poverty} = \beta_0 + \beta_1 (\text{LogRLS})_{it} + \beta_2 (\text{TPT})_{it} + \beta_3 (\text{LogUHH})_{it} + \beta_4 (\text{LogUMK})_{it} + \text{eit}$$
$$\text{Poverty} = 29.07597 + (-43.48697) \text{LogRLS} + 0.361113 \text{TPT} + 37.79988 \text{LogUHH} + -7.397011 \text{LogUMK}$$

From the equation above, a discussion of each independent variable's influence on poverty in each district/city in DIY is made as follows:

- a. The Effect of Average Years of Schooling and Poverty  
The results of the data analysis test in Table 6 show that the RLS variable has a significant negative effect on the poverty variable. The coefficient value is 43.48697, it means that, when the average years of schooling increase by one percent, poverty will decrease by -43.48697 percent with the assumption that other variables remain constant. This shows that the RLS variable affects the poverty variable and has a negative relationship. The probability value of the RLS variable is 0.0012, which is smaller than the significance level of 0.05 so it can be interpreted that statistically the average years of schooling variable has a significant effect on poverty. The results obtained support research conducted by Adhitya, Prabawa, and Kencana (2022) and Pramesti and Bendesa (2018) which states that education has a negative and significant effect on poverty.
- b. The Effect of Open Unemployment Rate on Poverty  
Furthermore, the open unemployment rate variable. This variable has a positive and significant influence on the poverty variable with a coefficient of 0.361113, meaning that if the TPT increases by one percent, poverty will also increase by 0.361113 percent with the assumption that other variables remain constant. This provides information that the poverty variable is influenced by the TPT. These two variables have a positive relationship. The probability value of the open unemployment rate variable is 0.0035, which is smaller than 0.05, so it can be interpreted that the TPT variable statistically significantly affects poverty The results obtained are in line with the results of research conducted by Pradhana and Priseptian (2022) and Abda and Cahyono (2022) which state that unemployment has a positive and significant effect on poverty.
- c. The Effect of Life Expectancy (UHH) on Poverty  
Based on the results of the data analysis test in Table 6, the life expectancy variable has a positive relationship, but because the probability value of the life expectancy variable is 0.8783 or greater than the significance level of 0.05, it means that statistically, the life expectancy variable does not have a significant effect on poverty.  
The results obtained in this study support the results of research (Pramesti & Bendesa, 2018) who found that life expectancy does not affect poverty.
- d. The Effect of Regional Minimum Wage (UMK) on Poverty  
The last is the regional minimum wage variable. This variable has a positive and significant effect on the poverty variable with a coefficient value of -7.397011. This means that when the UMK increases by one percent, poverty will decrease by 7.397011 percent with the assumption that other variables remain constant. This provides information that the UMK variable has an influence on the poverty variable and has a negative relationship. The probability value of the regional minimum wage variable is 0.0378, which is smaller than the significance level of 0.05, so it can be interpreted that the regional minimum wage variable has a statistically significant effect on poverty.  
The results of this study are in line with research conducted by Alifah and Imaningsih (2023), Saputra (2021), and Dongoran, Sulfina, Syah, & Siahaan (2023) that minimum wages hurt poverty.

### 3. Conclusions

Based on the discussion, it can be concluded that the factors that influence poverty in each district city in DIY are 4 variables, namely the variables of UMK, TPT, RLS, and UHH Where partially the variables of Regional Minimum Wage, Open Unemployment Rate, and Average Years of Schooling affect poverty. Meanwhile, the Life Expectancy variable does not affect poverty. So, from the research that has been done, it can be an input for the relevant local government to maximize the improvement of human resources, especially development in the field of education because it is proven that the average length of schooling affects poverty. In addition, unemployment and the existing minimum wage also need special attention because it is proven to have a significant effect on the poverty rate in each city district in DIY.

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