Al-Sharf
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The Effect of Minimum Wages and Population Number on Unemployment in Jambi Province 2019-2023

Besse Nurilmi[1*], Eja Armaz Hardi[2], Rafidah[3]

Sultan Thaha Saifuddin State Islamic University of Jambi *[1, 2, 3]
[*1]email:bessenurilmi@gmail.com
[2]email: eja.armaz.hardi@uinjambi.ac.id
[3]email: Rafidah_era@uinjambi.ac.id

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Abstract: This study aims to analyze the effect of minimum wages and population on the unemployment rate in Jambi Province in the period 2019-2023. The method used is panel data regression with the Fixed Effect Model (FEM) approach. The results of the study indicate that partially, minimum wages and population do not have a significant effect on the unemployment rate in Jambi Province. However, simultaneously, both variables have a significant effect on the unemployment rate. This finding indicates that employment policies must not only consider increasing minimum wages, but also create more productive jobs and adjust labor market needs to population growth. Therefore, the government is expected to implement a more comprehensive policy to reduce the unemployment rate.

Abstrak: Penelitian ini bertujuan untuk menganalisis pengaruh upah minimum dan jumlah penduduk terhadap tingkat pengangguran di Provinsi Jambi pada periode 2019-2023. Metode yang digunakan adalah regresi data panel dengan pendekatan Fixed Effect Model (FEM). Hasil penelitian menunjukkan bahwa secara parsial, upah minimum dan jumlah penduduk tidak memiliki pengaruh signifikan terhadap tingkat pengangguran di Provinsi Jambi. Namun, secara simultan, kedua variabel tersebut berpengaruh signifikan terhadap tingkat pengangguran. Temuan ini mengindikasikan bahwa kebijakan ketenagakerjaan tidak hanya harus mempertimbangkan kenaikan upah minimum, tetapi juga menciptakan lebih banyak lapangan kerja yang produktif serta menyesuaikan kebutuhan pasar tenaga kerja dengan

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

	pertumbuhan penduduk. Oleh sebab itu, pemerintah diharapkan dapat mengimplementasikan kebijakan yang lebih komprehensif untuk menekan tingkat pengangguran.
Keywords: Minimum Wage; Population; Unemployment; Panel Data Regression; Jambi Province.	***Kata Kunci:*** Upah Minimum; Jumlah Penduduk; Pengangguran; Regresi Data Panel; Provinsi Jambi.

A. Introduction

Indonesia is a large country with a large population, not despite various economic problems that can threaten welfare its population, one of which is the problem of unemployment. The high level of Unemployment in Indonesia can affect the rate of economic growth in a region (Bantu, Lusia Fransiska, 2022). Unemployment is a situation in which a group of people individuals who are ready to work have tried to find work but have not been successful get it. This problem is a common challenge in the economy, especially in developing countries. In other words, unemployment refers to conditions in where a person does not have available job opportunities (Jannah et al., 2023)

Unemployment occurs due to an imbalance in the labor market, which the number of workers available exceeds the number of existing demands. This condition causing shortages due to the division of labor, so that some workers who do not get jobs or become unemployed. The high level of Unemployment in a country has a negative impact on its economy. On the other hand, low unemployment rate indicates healthy economic growth, which also shows an increase in the quality of life of the population and equality income, which ultimately contributes to increased welfare society (Anjani et al., 2023)

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

Unemployment is a serious problem and has a negative impact on both individuals and the economy in a region, including in Jambi Province. The instability of unemployment figures in Jambi Province shows that opportunities sufficient jobs are not yet available. This unemployment problem arises because the labor force employment is growing rapidly, while employment growth tends to be slow. The level of high unemployment also reflects the lack of success of development in several areas (Gea, 2023)

One factor that can influence unemployment is the minimum wage Minimum Wage is the lowest monthly payment amount received by employees as compensation for work or services that have been or will be performed, which stated in the form of money. The determination of this wage is done based on an agreement or applicable laws and regulations, and paid in accordance withemployment agreement between employer and employee, including benefits for employees both himself and his family (Sabyan & Widyanti, 2022). Minimum wage is one of the considerations for investors who want to investing capital in an area, especially investors who want to set up a factory or industries that absorb a lot of labor (No et al., 2024)

Apart from wages, another factor that influences the unemployment rate is the number of population. Population is an important indicator that reflects the potential labor supply. The greater the population, the greater the pressure to the job market. If population growth is not balanced by creation adequate employment opportunities, there will be an increase in unemployment. The number of people working in a place will increase along with the increasing number its population. This causes job opportunities to become increasingly limited because of the number existing employees are not comparable to the number (Sambaulu1 et al., 2022)

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

According to research conducted by Mathilda, Agnes, and Hanly, it was found that that wages have a significant effect on unemployment, while population has a negative and significant effect on unemployment (Malangkas Twaine et al., 2022). Research conducted by Handy and Hidayah shows that the population and level of education have no influence on unemployment. On the other hand, the Labor Force Participation rate has a negative effect on unemployment, while the Minimum Wage has a positive effect on unemployment, and GRDP has a negative effect on unemployment(Putra & Hidayah, 2023). Research conducted by Sarito and Nunuk shows that the generation employment, education, minimum wage, and gross domestic product (GDP) simultaneously affect unemployment in Indonesia. However, partially, the workforce, education, and minimum wages have a significant impact on unemployment, while GDP has no effect on unemployment in Indonesia (Pasuria & Triwahyuningtyas, 2022). Based on previous research, this study focuses on The influence on district/city minimum wages and population on unemployment in Jambi Province, with the title "The Effect of Minimum Wages and Population Number on Unemployment in Jambi Province 2019-2023."

B. Research Methods

This research uses a quantitative approach. Types of quantitative research is a structured scientific research to analyze parts, phenomena and causal relationships between variables. Quantitative research refers to a process an organized investigation of a phenomenon by collecting data. are numerical and measurable, and analyze them using statistical techniques or mathematics (Ummul Aiman et al., 2022).

The method used in this study is the panel data method. Panel data is a combination of time series data and cross section data n (Basuki, 2021). Time series

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

data The series in the study covers the years 2019-2023. While the cross-section data includes 11 districts/cities in Jambi Province. The data obtained is based on information provided published by the Central Statistics Agency (BPS) and the Provincial DISNAKERTRANS Jambi. The instrument in this study is the documentation method. Documentation method is a method used to obtain or collect data by check, read, study and record all information relevant to the research subjects (Kuriain & Winarni, 2022).

C. Results and Discussion

1. Testing the Specification of the Panel Data Regression Model

Before conducting panel data regression, researchers conducted several tests. to determine the appropriate research model. The model that can be used in panel data regression / multiple linear regression, including the Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). In determining model specifications, researchers use three tests, including the Chow Test, the Hausman and Lagrange Multiplier Tests if necessary

a. Chow Test

The Chow test has a provision where if the resulting Prob. value is smaller from the level of significance = 0.05 or 5% then the selected model is fixed effect model (FEM). However, if the value of Prob. the resulting level is greater than the Sig level. = 0.05 or 5% then the model selected is the Common Effect Model (CEM) (Caraka, n.d.) Berikut hasil dari Uji Chow: Here are the results of the Chow Test:

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

Table 1. Chow Test Results

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	25.089036	(10,42)	0.0000
Cross-section Chi-square	106.817081	10	0.0000

Source: Eviews 12 Data Processing Results (2025)

Based on table 1 above, the Chi-Square Probability value can be seen. generated is 0.0000, which means it is smaller than the significance value = 0.05. So the model chosen is *the fixed effect model* (FEM).

b. Hausman Test

The Hausman test has a provision, namely if the resulting Prob. value is smaller from the level of significance = 0.05 or 5% then the selected model is Fixed Effect Model (FEM). However, if the value of Prob. resulting is greater than the level Significance = 0.05 or 5% then the selected model is Random Effect ModeL(REM)(Caraka, n.d.) The following are the results of the Hausman test

Table 2. Hauman Test Results

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.956615	2	0.0009

Source: Eviews 12 Data Processing Results (2025)

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

Based on table 2 above, the Random Cross-section Probability value can be seen. the resulting value is 0.0002, which means it is smaller than the significance value = 0.05. So the model chosen is the fixed effect model (FEM).

After determining the model, both the Chow test and the Hausman test results were the same. shows that the fixed effect model (FEM) is the most suitable model used as an estimate of the research equation. Because both tests revealed the same results, namely the fixed effect model (FEM), then for the LM test there is no need to test because the LM test is useful for determining the model between Common Effect Model (CEM) and Random Effect Model (REM).

2. Results of the Classical Assumption Test

a. Normality Test

The normality test has a provision that if the probability of JB > 0.05 then the data normally distributed, but if the probability of JB < 0.05 the data is not normally distributed abnormally (Vikaliana et al., 2022). The following are the results of the normality test

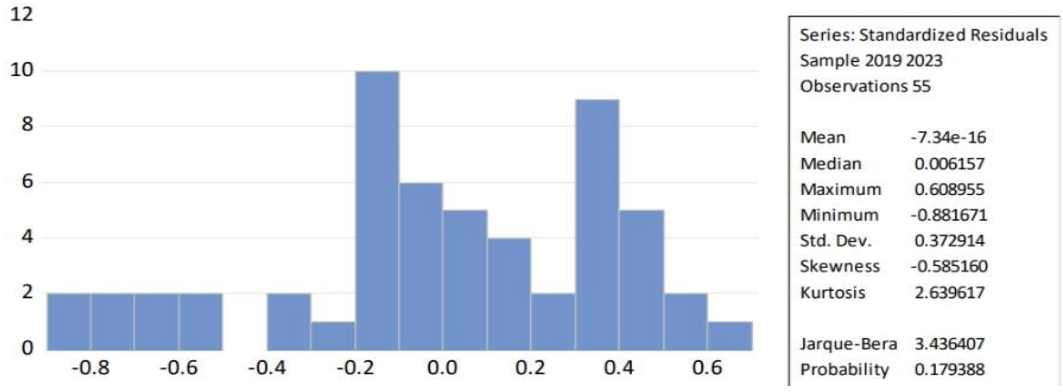

Figure 1 Normality Test Results Graph
Source: Eviews 12 Data Processing Results (2025)

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

Based on Figure 1, the results of the normality test can be seen. At the probability value of JB 0.179388> 0.05 which means the data is normally distributed.

b. Multicollinearity test

The multicollinearity test has the following provisions: If the resulting probability value independent variables > 0.80 then there is a multicollinearity problem. However, if the value the probability generated by the independent variable is <0.80 then there is no problem multicollinearity (Vikaliana et al., 2022). The following are the results of the multicollinearity test:

Table 3. Multicollinearity Test Results

	X1_UMK	X2_JP
X1_UMK	1.000000	0,327698
X2_JP	0,327698	1,000000

Source: Eviews 12 Data Processing Results (2025)

Based on table 3 above, it can be seen that the values produced between variables independent < 0.80. So it can be concluded that there is no multicollinearity problem.

c. Heteroscedasticity test

To test heteroscedasticity, researchers used the Glejser test with condition if the probability value > 0.05, meaning there is no regression model heteroscedasticity. On the other hand, if the probability value < 0.05, it means that the regression model there is heteroscedasticity (Vikaliana et al., 2022). The following are the test result heteroscedasticity.

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

Table 4. Results of Heteroscedasticity Test

Heteroskedasticity Test: Glejser
Null hypothesis: Homoskedasticity

F-statistic	1.479022	Prob. F(2,52)	0.2373
Obs*R-squared	2.960302	Prob. Chi-Square(2)	0.2276
Scaled explained SS	3.437317	Prob. Chi-Square(2)	0.1793

Source: Eviews 12 Data Processing Results (2025)

Based on table 4. above, it can be seen that the regression model does not occur. heteroscedasticity. Which is characterized by the probability value of all variables having.

d. Autocorrelation test

Decision Making testing is different from other classical assumption tests, namely with: seeing the DW number approaching the number 2 indicates there is no problem autocorrelation. The following are the results of the autocorrelation test

Table 5. Autocorrelation Test Results

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	39.37713	Prob. F(2,50)	0.0000
Obs*R-squared	33.64148	Prob. Chi-Square(2)	0.0000

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 02/21/25 Time: 22:23
Sample: 1 55
Included observations: 55
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9775.837	4081.993	2.394869	0.0204
X1_UMK	-0.003865	0.001596	-2.422222	0.0191
X2_JP	2.050386	2.479313	0.826998	0.4122
RESID(-1)	0.896581	0.133228	6.729647	0.0000
RESID(-2)	-0.099698	0.137819	-0.723398	0.4728

R-squared	0.611663	Mean dependent var	3.08E-12
Adjusted R-squared	0.580596	S.D. dependent var	3216.559
S.E. of regression	2083.088	Akaike info criterion	18.20760
Sum squared resid	2.17E+08	Schwarz criterion	18.39008
Log likelihood	-495.7089	Hannan-Quinn criter.	18.27817
F-statistic	19.68856	Durbin-Watson stat	1.934845
Prob(F-statistic)	0.000000		

Source: Eviews 12 Data Processing Results (2025)

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

Based on table 5. above, it can be seen that the regression model is free from autocorrelation Which is marked with the Durbin-Watson stat value of 1.934845. This means that the value approaching 2. So it can be concluded that the regression model above is free from autocorrelation problem.

3. Results of Multiple Linear Regression Analysis

After the initial estimate is made, the results are used to select the best model. *Fixed effect model* (FEM) was selected as the best model in this study.

Table 6. Multiple Linear Regression Test Results

Dependent Variable: Y_PGRN
Method: Panel Least Squares
Date: 02/19/25 Time: 16:52
Sample: 2019 2023
Periods included: 5
Cross-sections included: 11
Total panel (balanced) observations: 55

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.688125	6.585928	1.319195	0.1943
X1_UMK	0.702713	0.387819	1.811959	0.0771
X2_JP	-1.828629	0.914340	-1.999944	0.0520

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.959998	Mean dependent var	8.645796
Adjusted R-squared	0.948569	S.D. dependent var	0.808849
S.E. of regression	0.183433	Akaike info criterion	-0.350867
Sum squared resid	1.413208	Schwarz criterion	0.123594
Log likelihood	22.64884	Hannan-Quinn criter.	-0.167389
F-statistic	83.99661	Durbin-Watson stat	1.927573
Prob(F-statistic)	0.000000		

Source: Eviews 12 Data Processing Results (2025)

Based on table 6 above, the value of the multiple linear regression equation can be seen. in the table. The multiple linear regression equation can be seen as follows

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

Y = a+b1X1 + b2X2

Y = 8.688125+0.702713X1+ -1.828629X

From the regression equation above, it can be explained as follows:

1) The Constant Value is 8.688125, meaning that if the Minimum Wage (X1) and The number of population (X2) is considered to be the same as the value (0), then the unemployment value(Y) is 8.688125.
2) The regression coefficient value on the Minimum Wage variable is 0.702713. The value Minimum Wage coefficient is positive on unemployment with coefficient regression 0.702713. The coefficient has a positive value, meaning that there is a positive relationship. influential and significant between the minimum wage and unemployment variables
3) The regression coefficient value on the population variable is -1.828629. The value negative population coefficient on unemployment with coefficient regression -1.828629. The coefficient is negative, meaning there is no relationship. influential and significant between the variables of population and unemployment

4. Hypothesis Test Results

a. Partial test (T-test)

The T test is conducted to determine how significant the influence of the variable is. independent of each dependent variable.

1) If the Prob value < 0.05, then Ha is accepted and Ho is rejected, meaning that partially independent variables affect dependent variables, vice versa
2) If the Prob value > 0.05 then Ha is rejected and Ho is accepted, meaning that partially independent variables do not affect the dependent variable

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

Table 7 T-Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.688125	6.585928	1.319195	0.1943
X1_UMK	0.702713.	0.387819	1.811959	0.0771
X2_JP	-1,828629	0.914340	-1.999944	0.0520

Source: Eviews 12 Data Processing Results (2025)

Based on Table 7. above, the T-test results show that the Prob X1 UMK value is 0.0771. greater than the sig. value = 5% (0.05) and X2 JP 0.0520 is greater than the sig. value. = 5% (0.05). So it can be concluded that each variable is:

1) Results of the t-test on the variable X1_UMK or District/City Minimum Wage shows a Prob value of (0.0771 > 0.05). This shows that Ho accepted and Ha is rejected. So it can be concluded that partially the wages Minimum district/city does not have a significant effect on unemployment in Jambi Province in 2019-2023.
2) The results of the t-test on the variable X2_JP or Population Number show the Prob value of (0.0520 > 0.05). This shows that Ho is accepted and Ha is rejected. So it can be concluded that partially the population does nothad a significant impact on unemployment in Jambi Province in 2019- 2023.

b. Simultaneous Test (F Test)

The F test is conducted to determine how significant it is simultaneously.of each independent variable affects the dependent variable. Analysis based on the comparison of the Prob Prob (F-statistic) values with considering sig. = 5% (0.05). with the provisions that can be taken are:

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

1) If the Prob value (F-statistic) < 0.05 then Ha is accepted and Ho is rejected, meaning the variable independent variables simultaneously have a significant effect on the dependent variable
2) If the Prob value (F-statistic > 0.05 then Ha is rejected and Ho is accepted, meaning that simultaneous independent variables do not have a significant effect on the independent variables dependent (Wahidmurni, 2017).

Table 8 F Test Result

F-statistic	Prob (F-statistic)
83.99661	0.000000

Source: Eviews 12 Data Processing Results (2025

Based on the table 8 results of the f-test above, it can be seen that the F-statistic value is 83.99661 with a Prob. value (F-statistic) of 0.000000 which is smaller than 0.05, then Ha accepted and Ho is rejected. So it can be concluded that the Regency/City Minimum Wage (UMK) and Population Number (JP) simultaneously have a significant influence on Unemployment in Jambi Province 2019-2023.

5. Results of the Determination Coefficient Test (R^2)

The coefficient of determination test is used in multiple linear regression models, to knowing how well the independent variables and dependent variables contribute to each other. This can be seen if the Adjusted R^2 value approaches one (1), which indicates that independent variables can explain the dependent variable well. On the other hand, if the value Adjusted R^2 approaches zero (0), then the ability of the independent variable in explains the dependent variable is considered very small.

Al-Sharf
Jurnal Ekonomi Islam
Vol. 6, No. 2 (2025) || ISSN 2723-5440 (Online)

Table 9. Results of the R Determination Coefficient Test

R-squared	Adjusted R-squared
0.959998	0.948569

Source: Eviews 12 Data Processing Results (2025)

Based on the table 9 determination coefficient test above, the coefficient value is shown. Adjusted R-squared determination of 0.948569 or 94%. This shows that independent variables (district/city minimum wage and population) can explains the dependent variable (Unemployment) well. While the remaining 6% explained by variables outside the research.

D. Conclusion

1. Partially, the Regency/City Minimum Wage has no significant influence. significant impact on the unemployment rate in Jambi Province during the 2019-2023 period.
2. Partially, the number of residents does not have a significant influence on the level of unemployment in Jambi Province.
3. Simultaneously, minimum wages and population have a significant influence against unemployment, which shows that the economic dynamics.

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