International Journal of Social Science, Educational, Economics, Agriculture Research and Technology (IJSET) | ISSN (e) : 2827-766X
Volumes 4 No. 5 (2025)

THE EFFECT OF AGRICULTURAL LAND AREA AND AGRICULTURAL LABOR ON UNEMPLOYMENT IN INDONESIA

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Received	: 21 May 2025	Published	: 27 July 2025
Revised	: 30 May 2025	DOI	: https://doi.org/10.54443/ijset.v4i5.787
Accepted	: 17 June 2025	Publish Link	: https://www.ijset.org/index.php/ijset/index

Abstract

This study analyzes the effect of agricultural land area and agricultural labor on the unemployment rate in Indonesia during the period 1994–2021 using multiple linear regression. The results show that agricultural land has a significant negative effect on unemployment, while agricultural labor has a significant positive effect. This indicates that expanding agricultural land can reduce unemployment, but an increase in agricultural labor without adequate land absorption may increase unemployment. The findings suggest the need for agricultural modernization and rural economic diversification to reduce unemployment more effectively.

Keywords: ***Unemployment, Agriculture, Land Area, Labor.***

1. Introduction

Unemployment is a specter that has been a serious concern for economists so far, unemployment if we look further then we can see unemployment must be viewed as a factor of production in the demand for labor. (Krugman, 2009) views that if the unemployment rate is not controlled then inflation will occur in the labor market. Therefore, unemployment has an optimal percentage for each growth that is desired to be achieved so that the economic growth rate is controlled. The opposite applies when the demand for labor is high, the wage rate will be low and affect the low GDP in the country's economy which means poor.

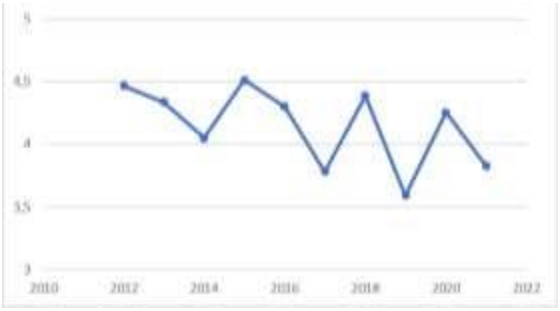


Figure 1.1 Unemployment Data 2012-2021 (%)
source has been reprocessed: World Bank, 2025

The area of agricultural land (land) must be viewed from the historical aspect and economic civilization that occurred where feudalism and imperialism, land was seen as wealth that brought prosperity that was fought over and colonized. Tan Malaka in the mass action had the view that land is a symbol of true freedom and independence. Of course, having land as a factor of production is a luxury in Indonesia, the BPS release in 2018 agricultural land controlled by households was only 0.7ha, sad. Where currently there is someone named Hj. Isam opening land for agriculture 1 million Ha, not to mention corporations engaged in agriculture. We actually view

agricultural land as an absorber of labor and has a production factor that will later contribute to GDP, (Piketty & Goldhammer, 2014) in his view of the area of land held by a handful of capitalists, wealth will be increasingly concentrated in the hands of a handful of people, and inequality (the gap between rich and poor) will widen.

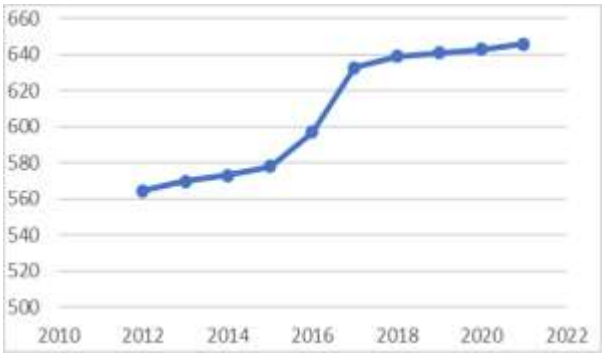


Figure 1.2 Agricultural Land Area Data 2012-2021 (Km)
source has been reprocessed: World Bank, 2025

Agricultural labor is a person who works on agricultural land either in the Formal or Informal sector such as their own land, of course this has reduced the burden on the government in terms of overcoming unemployment which continues to rise, finding that only about 7.1% of children from farming families continue their parents' profession as farmers, indicating the low interest of the younger generation in the agricultural sector, in the economy it looks negative because it will increase unemployment. But we should not blame it just like that, what needs to be questioned is whether the agricultural exchange rate or the very small land area so that income from farming is very small.

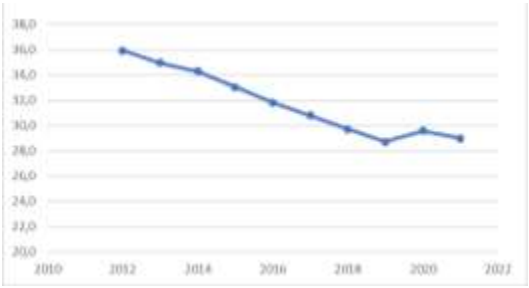


Figure 1.3 Agricultural Labor Data 2012-2021 (%)
source has been reprocessed: World Bank, BPS Indonesia 2025

So from the understanding and thoughts above, we see that data on unemployment trends and agricultural labor have continued to decline in the last ten years and only the area of agricultural land has increased.

2. Literature review

Unemployment is one of the focuses in the economy (Lin, 2011) emphasizes that unemployment is mainly structural, caused by the economic transition from traditional agricultural sectors to more modern industries and services. Lin suggests investing in labor-intensive industries and improving the quality of vocational education to address this problem. (Barbieri et al., 2021) that unemployment has no significant effect on poverty in Indonesia, Possible causes include the existence of a government social safety net and the absorption of labor by the informal sector which is not recorded in official data. (Azzahra et al., 2024) unemployment can cause consumption to decline, because unemployment can reduce household income, which in turn can reduce consumer spending. The area of agricultural land must be used for agricultural production (Liu & Xin, 2022) looking at the negative impacts of agricultural land conversion and also looking at efficient land use, not just expanding agricultural land. This is in line

with the thoughts of (Piketty & Goldhammer, 2014) where land is very important for economic growth and also views that if agricultural land is not distributed there will be significant income inequality. (Andriyani & Aznuriliana, 2022) the area of agricultural land has a positive and significant effect on labor absorption in the agricultural sector, the wider the agricultural land, the greater the workforce absorbed, so that it can reduce the unemployment rate in this sector. Agricultural workers are individuals who work in the agricultural sector both in the formal and informal sectors, (Fitri et al., 2019) The agricultural sector still plays an important role in absorbing labor in Indonesia. The growth of the agricultural sector has a negative relationship with rural and national unemployment, meaning that an increase in the workforce in the agricultural sector contributes to a decrease in the unemployment rate. (Jibril et al., 2022) The workforce in the agricultural sector has a negative and significant effect on the open unemployment rate in provinces in Indonesia. This shows that the more workers are absorbed in the agricultural sector, the lower the unemployment rate will be. (Liao et al., 2019) A decrease in the availability of labor can reduce production capacity if it is not balanced with mechanization or technology.

Conceptual Framework

The researcher describes the conceptual framework of thinking as follows:

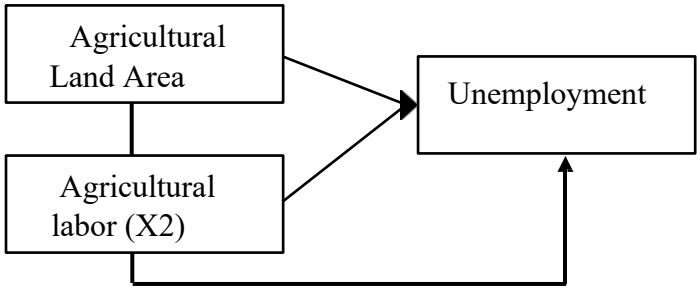


Figure 2.1 Conceptual framework of Hypothesis

Based on the researcher's framework, the intended hypothesis is:

H1 The area of agricultural land has a positive effect on unemployment
H2 Agricultural labor has a negative effect on unemployment
H3 The area of agricultural land and agricultural labor have a simultaneous effect on unemployment.

3. Research Methods Types and sources of data

The data analyzed in this study are secondary data. The time series data used are data from 1994-2021. The data in this study were obtained from the Word Bank.

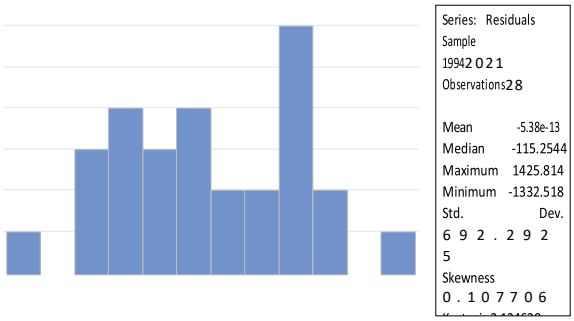
Data Analysis Methods

The model used is Multiple Linear Regression, so it can be made:

$$Yt = \beta_0 + \beta_1 x1_t + \beta_2 x2_t + \varepsilon t$$

Yt Unemployment
$\beta 0$ Constants
$X1_t$ Area of agricultural land
$X2_t$ Agricultural labor
εt Term error

4. Results and Discussion of Normality Test Results



Heteroscedasticity Test Results

Heteroscedasticity Test: White
Null hypothesis: Homoscedasticity

F-statistic	2.091818	Prob.F(2.25)	0.1445
Obs*R-squared	4.013955	Prob. Chi-Square(2)	0.1344
Scaled explained SS	1.799366	Prob. Chi-Square(2)	0.4067

Based on the White Heteroscedasticity Test, with a probability value of F-statistic of 0.1445 and Obs*R-squared of 0.1344, both of which are greater than the significance level of 0.05, heteroscedasticity does not occur.

Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1374815.	74.37024	NA
X1	9.37E-05	3.420051	2.002969
X2	1065.329	89.73648	2.002969

The Jarque-Bera test results show a probability value of 0.6225 (> 0.05), so that the residuals are normally distributed. Thus, the assumption of normality in multiple linear regression has been met.

Classical Assumption Test Results Autocorrelation Test Results

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 4 lags

F-statistic	1.999524	Prob. F(4,21)	0.1315

Obs*R-squared	7.722807	Chi-Square Prob.(4)	0.1023

obtained probability values of 0.1315 (Prob. F) and 0.1023 (Prob. Chi-Square). Both values are greater than 0.05, so they fail to reject the null hypothesis. This means that there is no autocorrelation. Based on the results of the Variance Inflation Factor (VIF) test, the Centered VIF value for variables X1 and X2 is 2.002969. Because the VIF value for both independent variables is less than 10 (it can be concluded that there is no multicollinearity problem between variables X1 and X2 in this regression model.

Multiple Linear Regression Data Processing Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4354.989	1172.525	-3.714197	0.0010
X1	-0.050986	0.009681	-5.266654	0.0000
X2	272.7840	32.63938	8.357512	0.0000

R-squared	0.738733	Mean dependent variable	5436.036
Adjusted R-squared	0.717831	SD dependent var	1354.401
SE of regression	719.4515	Akaike infocriteria	16.09581
Sum squared residual	12940262	Black criterion	16.23855
Log likelihood	-222.3414	Hannan-Quinn critter.	16.13945
F-statistic	35.34372	Durbin-Watson stat	1.130003
Prob(F-statistic)	0.000000		

1. Coefficient = -4354.989: This is the average value of the dependent variable when all independent variables (X1 and X2) are zero.
2. Coefficient = -0.050986: This means that for every one unit increase in variable X1, the dependent variable is expected to decrease by 0.050986 units.
3. Coefficient = 272.7840: This means that for every one unit increase in variable X2, the dependent variable is expected to increase by 272.7840 units, assuming variable X1 is constant.

Hypothesis Testing Partial T-Test Results

Based on the results of the partial test (t-test), it can be concluded that the constant (C) with a P-value of 0.0010, variable X1 with a P-value of 0.0000, and variable X2 with a P-value of 0.0000, all show a statistically significant effect on the dependent variable at a 95% confidence level, because the probability value of each is far below 0.05.

F Test Results

The results of the simultaneous test (F test) with an F-statistic of 35.34372 and a P-value of 0.000000 confirm that overall, this regression model is very significant, which means that variables X1 and X2 together have a significant influence on the dependent variable.

Conclusion

1. The results of the t-test show that: The regression results show that the area of agricultural land (X1) has a negative and significant effect. to levelunemployment, with a coefficient of -0.050986. This shows that increasing the area of agricultural land is able to absorb labor and reduce the unemployment rate. On the other hand, agricultural labor (X2) has a positive coefficient of 272.7840. This means that the increase in the number of agricultural labor is actually followed by an increase in the unemployment rate. This can happen if the growth of the workforce is not balanced by land expansion or increased productivity, resulting in unemployment in the agricultural sector. Thus, increasing the workforce alone is not enough to reduce unemployment if it is not accompanied by an expansion of productive employment opportunities.

2. F Test Results The results show that variables X1 and X2 simultaneously have a significant effect on the dependent variable. This is evidenced by the Prob (F-statistic) value of 0.000000 (<0.05).
3. The coefficient of determination (R-squared) of 0.738733 indicates that 73.87% of the variation in the dependent variable can be explained by the independent variables (X1 and X2), while the remainder (26.13%) is influenced by other factors outside the model.

Suggestion

From what has been seen with the 1994-2021 data above, the suggestions that researchers can conclude are:

1. The area of agricultural land has been proven to reduce unemployment by 0.050986 for a $1km2$ increase in agricultural land area, that is a very sad result. Therefore, the government should pay attention to the distribution of agricultural land area.
2. Local governments need to encourage agricultural land expansion programs productive and intensification of existing land, so that the addition of workers in the agricultural sector is balanced with an increase in production capacity and real employment opportunities.
3. It is necessary to map the optimal number of agricultural workers based on the area and type of land available, so that there is no mismatch between the number of workers and the sector's capacity.

REFERENCES

Andriyani, D., & Aznuriliana, A. (2022). Pengaruh Ump Dan Luas Lahan Terhadap Penyerapan Tenaga Kerja Sektor Pertanian Di Provinsi Indonesia. *Jurnal Ekonomi Pertanian Unimal*, *5*(2), 53. https://doi.org/10.29103/JEPU.V5I2.88 24

Barbieri, E., Huang, M., Pi, S., Pollio, C., & Rubini, L. (2021). Investigating the linkages between industrial policies and M&A dynamics: Evidence from China. *China Economic Review*, *69*, 101654. https://doi.org/10.1016/j.chieco.2021.1 01654

Fitri, I., Fitri, I. F., & Satrio, I. (2019). Analisis Hubungan Pertumbuhan Pertanian Terhadap Pengangguran di Indonesia. *AGRIEKONOMIKA*, *8*(1), 1–6. https://doi.org/10.21107/agriekonomika .v8i1.5086

Jibril, H. T., Susilo, S., & Sakti, R. K. (2022). Pemodelan tingkat pengangguran di Indonesia dengan random effect spasial autoregression (Sar-Re). *JPPI (Jurnal Penelitian Pendidikan Indonesia)*, *8*(4), 1090. https://doi.org/10.29210/020221721

Krugman. (2009). *International Economics Theory and Policy Book 9th Edition* (9th ed.).

Liao, L., Long, H., Gao, X., & Ma, E. (2019). Effects of land use transitions and rural aging on agricultural production in China's farming area: A perspective from changing labor employing quantity in the planting industry. *Land Use Policy*, *88*, 104152. https://doi.org/10.1016/J.LANDUSEPO L.2019.104152

Lin, J. Y. (2011). *Demystifying the Chinese Economy*. Cambridge University Press. https://doi.org/10.1017/CBO978113902 6666

Liu, X., & Xin, L. (2022). Assessment of the Efficiency of Cultivated Land Occupied by Urban and Rural Construction Land in China from 1990 to 2020. *Land*, *11*(6), 941.
https://doi.org/10.3390/LAND1106094 1/S1

Piketty, Thomas., & Goldhammer, Arthur. (2014). *Capital in the twenty-first century*. 685.

Siti Fatimah Azzahra, Lystiana Dewi Putri, Fachriza Yunanda Purba, Dahri Tanjung, Ajeng Rezkitaputri, & Ratu Zaskia Daimatul Zulva. (2024).

Dampak Pengangguran Terhadap Stabilitas Sosial Dan Perekonomian Indonesia. *MENAWAN : Jurnal Riset Dan Publikasi Ilmu Ekonomi*