

THE EFFECT OF INVESTMENT, EXPORT AND FOREIGN WORKERS ON THE OPEN UNEMPLOYMENT RATE IN INDONESIA 2015-2022

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Abstract

This study aims to analyze the effect of investment, exports, and foreign workers on the open unemployment rate in Indonesia in the period 2015 - 2022. This study used a quantitative descriptive analysis method. The hypothesis test in this study is used to explain the causal relationship between the variables of each selected variable to ensure that quantitatively the relationship exists directly or indirectly. The results of the ECM analysis or short-term analysis show that only investment variables have a significant and negative effect on TPT in Indonesia. In contrast, exports, foreign workers, and wages have no effect. Meanwhile, the results of Multiple Linear Regression show that investment and export variables significantly and negatively affect TPT in Indonesia. Meanwhile, the variables of foreign workers and wages do not significantly affect TPT in Indonesia.

Keywords: Investment, Exports, Foreign Employment, Open Unemployment

INTRODUCTION

Economic growth that continues to increase can describe the success of economic development in an area. Conversely, economic growth that continues to decline can describe economic development not working or experiencing a setback.

Several things affect growth economics as an investment. Own investment is influenced by foreign and domestic investment. Investments in the regions consist of government investment, and private investment can come from government and private investment. Investment from the private sector can come from within the country or abroad (foreign) (Hellen et al., 2018).

An indicator of economic development in a country is the Islamic capital market as an option for someone to make investments (Silvi Adiningtyas. Luqman Hakim, 2022). The role of the capital market in today's modern economy is very real. The capital market performs Commercial and financial functions (Rizky et al., 202).

Besides investment, labor is also a factor that affects a country's output. Foreign investment and foreign workers are inseparable issues in a country's economic liberalization (Yuliastuti et al., 2018). In the era of globalization with the existence of the ASEAN Economic Community (AEC), foreign workers are free to enter Indonesia, the implementation of which began in 2015. The existence of foreign workers is a clear reality and even plays an important role in the economic sector of Indonesia (Fajriawati, 2018).

The influence of foreign labor can affect all aspects that exist in public, including education and culture. With the presence of foreign workers fostering an attitude of respect for time and willing to work time and willing to work hard, hard, the transfer of knowledge/knowledge experts/technologists and culture-positive work ethic to the local workforce. The negative





impact that arises is the occurrence of social jealousy between the community and foreign workers and a large number of unemployed.

Indonesia is one of the countries that adhere to an open economic system, which means that the country carries out economic transaction activities with other countries called international trade (Dandel, Kumaat, &Mandej, 2022). Therefore, the government must encourage public or private companies to increase exports to support economic growth.

Indonesia has abundant natural resources, both in the form of mining products such as oil, natural gas, and coal and other minerals such as bauxite, manganese, sand and agricultural products such as coffee, corn and many other agricultural products. In Indonesia, there is a boom in activity in increasing exports to all countries in the world.

The government began to subsidize various policies so that exports continued to fluctuate. The government is looking for various aspects of the economy that are right in handling both procedures and their actualization, which are useful for increasing state foreign exchange, employment, and tax revenues. Indonesia's exports are categorized into non-oil and gas exports and oil and gas exports; data on oil and gas and non-oil exports are shown in the following table 1:

Year	F	Total	
	Oil and Gas	Non-Oil and Gas	Total
2015	18 574,40	131 791,90	150 366,3
2016	13 105,45	132 080,76	145 186,21
2017	15 744,34	153 083,85	168 828,19
2018	17 171,72	162 840,93	180 012,65
2019	11 789,24	155 893,76	167 683
2020	8 251,1	154 940,7	163 191,8
2021	12 247,4	219 362,1	231 609,5
2022	16 019,7	275 959,4	291 979,1

Table 1: Development of the Value of Oil and Gas and Non-Oil and Gas Exports in2015-2022 (FOB Value: Million US\$)

Source: Central Statistics Agency (BPS) 2023

Based on the data in the table 1, it can be seen how the value of oil and gas and non-oil and gas exports to Indonesia's total exports dominates the non-oil and gas sector. Seen from 2015 to 2022, it shows a fairly good development in each period, Export Upgrades and Upgrades Investment, the government has shown a clear orientation towards policies for accelerating economic growth in tackling underdevelopment during the past crisis. In this regard, investment is one of the driving elements of economic growth (Wartaman & Koestoer, 2019). The emergence of this policy is reasonable because, in the last two years, investment inflows have remained stagnant.

The three variables, namely investment, exports, and foreign workers, are the focus of this research regarding their effect on the unemployment rate in Indonesia. On the other hand, this study uses variable control, i.e. wages where demand and supply curves for labor are a function



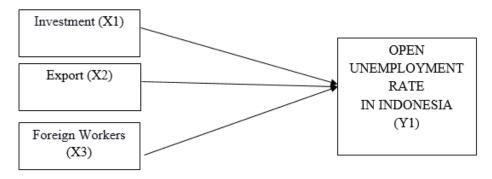


of the wage rate. From the several research results that have been discussed, it shows that there is a gap in the research results, so this research was conducted to analyze the effect of investment, exports, and foreign workers on Indonesia's open unemployment rate in 2015–2022

METHOD

In this study, the data used are quantitative descriptive secondary data types. Study This study uses data originating from sources including Bank Indonesia, the Central Bureau of Statistics (BPS), the Ministry of Trade, the World Bank, the International Coffee Organization (ICO), as well as journals and literature others related to the topic of this research and literature study references were obtained through previous research journals.

Hypothesis testing in this study is used to explain the causal relationship between each selected variable's variables to ensure that the relationship exists directly or indirectly quantitatively. This can be illustrated in the following figure:





- 1. Investment (X1), which is meant in this study is the investment in the unemployment rate
- 2. Exports (X2), what is meant in this study is the number of exports from Indonesia to foreign countries and their influence on the availability of labor
- 3. Foreign Workers (X3), referred to in this study, is the impact of foreign workers on the unemployment rate in Indonesia.
- 4. Open Unemployment Rate in Indonesia (Y1), as a result of investment, exports and foreign employment

RESULTS AND DISCUSSION

Overview of the Open Unemployment Rate in Indonesia Year 2015- 2022

The development of the Open unemployment rate in Indonesia for 2015-2022 is shown in Table 2 below:





Year	2015	2016	2017	2018	2019	2020	2021	2022
Total	6,9 jt	7,1	6,93 jt	8,77 jt	8,75 jt	9,1 jt	8,4 jt	8,42 jt
%	4,98%	5,23%	4,94%	7,07%	6,26%	6,49%	5,83%	5,86%

Table 2: Open Unemployment Rate in Indonesia 2015-2022

Source: Central Bureau of Statistics (BPS)

According to the Central Statistics Agency (BPS) records, the number of unemployed people in Indonesia reached 8.42 million in August 2022. This number has increased compared to February 2022, which was 8.40 million people. However, when compared to the same period a year earlier, the number of unemployed in Indonesia was recorded to have decreased. In August 2021, the number of unemployed people in Indonesia was 9.1 million.

Compared to the total workforce of 143.72 million people, Indonesia's open unemployment rate (TPT) was monitored at 5.86% in August 2022. This figure increased by 0.03% compared to February 2022, which was 5.83%.

Based on gender, the TPT for men tended to be higher, namely 5.93%. Meanwhile, female TPT was recorded at 5.75%. By region, TPT in urban areas was monitored at 7.74% in August 2022. The figure is much higher than the TPT of Rural, which amounted to 3.43%. Meanwhile, the rate of participation in the workforce was recorded at 68.63% in August 2022. The percentage has increased compared to August 2021, which was 67.80%. The TPAK in August 2022 is also the highest since 1986.

Stationarity Test

Based on the Augmented Dickey-Fuller Test conducted with Eviews to find out the stationarity of the variables TPT, investment, exports, TKA, and wages, the results are in Table 3 below:

Series	Prob.	Lag	Max Lag	Obs
D(logY)	0.0000	0	8	32
D(logX1)	0.0300	8	8	24
D(logX2)	0.0000	0	8	32
D(logX3)	0.0018	0	8	32
D(logX4)	0.0000	0	8	32

 Table 3: Intermediate ADF test result

Source: processed data, E-views

The table 3 above shows that all variables, namely Y, X1, X2, X3, and X4, are stationary at the first difference level with probability values of 0.0000, 0.0300, 0.0000, 0.0018, and 0.0000, respectively. At first, the data were first tested for stationarity at the level. However, the degree of integration test was carried out because the data was not stationary at the level level. This test found that all variables were stationary at the first difference level with a significance level of 5% and 10%.

Co-integration Test

The following is Table 4, which is the result of the co-integration test of the residues obtained





from the multiple linear regression equation:

8	J	(,
		t-Statistic	Prob.*
Augmented Dickey-Fulle	r test Statistic	-3.776930	0.0072
	1%	-3.646342	
Test critical values	5%	-2.954021	
	10%	-2.615817	

Table 4: Augmented Dickey-Fuller (ADF) test

Source: processed data, E-views

The table 4 above shows that the residual level has a probability value of 0.0072 which is smaller than the level of $\alpha = 5\%$, so it can be stated to be stationary. This means that there has been co-integration among all variables. In addition, the co-integration implies that the multiple linear regression model used has a long-term relationship.

Error Correction Model (ECM)

The following is the result of the ECM:

Table 5: Error Correction Model (ECM)

Dependent Variable: DLOGY Method: Least Squares

Date: 09/21/19 Time: 16:24 Sample (adjusted): 2001S2 2017S2

Included observations: 33 after adjustments

Variable Coefficient St		Std. Error	t-Statistic	Prob.
DLOGX1	-0.162675	0.054970	-2.959345	0.0063
DLOGX2	-0.001415	0.068618	-0.020624	0.9837
DLOGX3	-0.033563	0.103901	-0.323028	0.7492
DLOGX4	-0.197361	0.185524	-1.063804	0.2968
RESID01(-1)	-0.491596	0.491596 0.155554		0.0039
С	0.006259	0.013466	0.464755	0.6458
R-squared	0.367829	Mean dependent var	-0.009880	
Adjusted R-squared	0.250760	S.D. dependent var	0.059067	
S.E. of regression	0.051127	Akaike info criterion	-2.946033	
Sum squared resid	0.070578	Schwarz criterion	-2.673941	
Log likelihood	54.60955	Hannan-Quinn criter.	-2.854483	
F-statistic	3.141990	Durbin-Watson stat	2.1374	36
Prob(F-statistic)	0.023102			

Source: processed data, E-views

The above results found that RESID01 (-1) was significant with a value of 0.0039 and a negative coefficient of -0.492; this indicates a significant short-term relationship between the independent variables and the dependent variable. From the results of the ECM estimation above, it is found that only the investment variable with a coefficient value of -0.163 has a significant effect on the open unemployment rate because the probability is 0.0063 below the level of α =5%. This shows that in the short run, investment changes will negatively affect the



open unemployment rate.

From the ECM results, an R2 value of 0.251 or 25.1% is obtained, so this study indicates that together the influence of investment, exports, foreign labor, and wages on the open unemployment rate is only 25.1%. This indicates that there is still around 75% influence of other factors or other variables on the open unemployment rate, which is not present in the model. Furthermore, the ECM results also obtain a calculated F Probability value of 0.023, where this value is smaller than the level α =5%, so it can be stated that the ECM is feasible to use.

The results of the classic assumption test on the Error Correction Model (ECM) model are as follows:

1. Multicollinearity

The VIF values on X1, X2, X3, X4, and RESID01 (-1) are respectively 1.195, 1.081, 1.159, 1.218, and

1.129, where the value is not more than 10. Thus, the ECM model can be said to pass the multicollinearity test.

2. Autocorrelation

Based on the results of the Breusch-Godfrey Serial Correlation LM Test Show that the Prob Value. F (2.27) is 0.1993. The value obtained is greater than $\alpha = 5\%$, so the ECM model is free from autocorrelation problems.

3. Normality

Based on the Histogram - Normality Test shows that the Probability value Jarwue-Bera is 0.666. The results indicate that the ECM model has passed the normality test because the value of 0.666 is greater than α =5%.

4. Linearity

The results of the Ramsey RESET Test show a value of 0.1565, where this value is more than α =5%. This shows that the ECM model has passed the linearity test.

5. Heteroscedasticity

In the Heteroscedasticity Test: Glejser shows a probability result of 0.3821. This shows that the ECM model has escaped the heteroscedasticity problem because the value of 0.3821 is more than $\alpha = 5\%$.

Multiple Linear Regression

The following is the output of multiple linear regression, which is an analytical tool to determine the effect of the independent variables on the dependent variable in the long run:





Table 6: Multiple Linear Regression

Dependent Variable: LOGY Method: Least Squares Date: 10/03/19 Time: 06:42 Sample: 2001S1 2017S2 Included observations: 34

Variable	Coeffi	cient	Std.	Error	t-Statistic	Prob.
LOGX1	-0.2582	287	0.02	8292	-9.129458	0.0000
LOGX2	-0.1806	541	0.07	1213	-2.536640	0.0168
LOGX3	0.0216	20	0.09	7013	0.222856	0.8252
LOGX4	0.0015	82	0.06	5786	0.024051	0.9810
С	15.132	55	2.06	9880	7.310837	0.0000
R-squared		0.928	8625	Mean de	pendent var 2	2.028533
Adjusted R	-squared	10.918	8781	S.D. dep	endent var (.228610
S.E. of reg	ression	0.065	5152	Akaike i	nfo criterion -	2.489144
Sum square	ed resid	0.123	3098	Schwarz	criterion -	2.264679
Log likelih	ood	47.31	1545	Hannan-	Quinn criter	2.412595
F-statistic		94.32	2665	Durbin-	Watson stat 1	.261520
Prob(F-stat	tistic)	0.000	0000			

Source: processed data, E-views

Based on the output of multiple linear regression on the independent variable X1, namely the investment variable, the calculated probability value of t is 0.0000, where the value is smaller than $\alpha = 5\%$ until influential investment variables are significant against TPT. The X2 variable, namely the export variable, has a t-count probability value of 0.0168, where the value is less than $\alpha = 5\%$, so the export variable significantly affects TPT. Furthermore, the variable X3, namely foreign workers, has a probability t-count value of 0.8252 which indicates that the value is greater than $\alpha = 5\%$ so that the variable foreign workers does not significantly affect the Open Unemployment Rate. Variable X4, namely the wage variable, has a probability value of t count 0.9810, meaning it is greater than α =5%, so the wage variable has no significant effect on TPT. Of the four independent variables, only investment and exports have a significant effect. The coefficients of the investment and export variables have the same negative sign; the values are -0.258 and -0.180, which means that the investment and export variables negatively affect the Open Unemployment Rate. This also means that the Open Unemployment Rate will decrease when investment and exports increase. Second, the F test is a test conducted to find out whether the model is suitable for use or not. A model can be interpreted as feasible when the calculated F probability value is less than $\alpha = 5\%$. Based on the output of multiple linear regression, the model has a calculated F probability of 0.000000 where the value is less than α = 5%, so this model is feasible to use. Third, the R2 test is a test used to determine how big the proportion of the dependent independent variable is. Based on the multiple linear regression output, a value of 0.918781 is obtained. This value means that the independent variables, namely investment, exports, foreign workers, and wages, affect 91.88% of the Open Unemployment Rate. Then the remaining 8.12% is another variable not included in the model. The results of the classic assumption test on the Error Correction Model (ECM) model are as follows:





1) Classical Assumption Test: Multicollinearity

The VIF values of variables X1, X2, X3, and X4 are respectively 2.72, 5.94, 8.79, and 8.63, where none exceed 10. So, the linear regression has passed the multicollinearity test.

2) Classical Assumptions Test: Autocorrelation

Based on the Breusch-Godfrey Serial Correlation LM Test, it was found that the Prob F(2.27) value was 0.1217. The value obtained is greater than $\alpha = 5\%$, so it can be interpreted that the multiple linear regression is free from autocorrelation problems.

3) Classical Assumption Test: Normality

Based on the Histogram - Normality Test, which can be seen in the table above, shows that the Jarque-Bera Probability value is 0.959. The results indicate that the multiple linear regression has passed the normality test because it has a value of 0.959, greater than $\alpha = 5\%$.

4) Classical Assumptions Test: Linearity

The results of the Ramsey RESET Test show a value of 0.617, where this value is more than α =5%. Thus, this value indicates that multiple linear regression has passed the linearity test.

5) Classical Assumption Test: Heteroscedasticity

In the Heteroskedasticity Test: Glejser shows a probability result of 0.1509. This shows that the multiple linear regression has escaped the heteroscedasticity problem because the value of 0.1509 is greater than $\alpha = 5\%$.

DISCUSSION

Investment and Open Unemployment Rate

In the long run, the investment variable is proven to have a significant and negative effect on Indonesia's Open Unemployment Rate. On the other hand, in the short term, it is also evident that investment changes have a significant and negative effect on Indonesian TPT. The investment effect on Indonesia's TPT in the long term is -0.258287. Meanwhile, in the short term, the effect of changes in investment on TPT in Indonesia is -0.162675. These results indicate that the Open Unemployment Rate will decrease when there is an increase in investment. This situation follows J.M. Keynes's statement in his book, which reads, "A slight increase in investment will result in full employment", Skousen (2016).

Exports with an Open Unemployment Rate

The export variable in multiple linear regression analysis and Error Correction Model (ECM) analysis gives different results. In multiple linear regression or long-term analysis, exports have a significant and negative effect on TPT. The large influence of exports on TPT in Indonesia is -0.180641. Meanwhile, in the short term, changes in exports have no significant effect on the open unemployment rate in Indonesia. This shows that the export variable takes some time to affect TPT.





Foreign Workforce with Open Unemployment Rate

Based on the output results from multiple linear regression and Error Correction Mode (ECM), the Foreign Workers variable does not affect TPT in Indonesia. This means that even if the number of foreign workers increases or decreases, it will not significantly impact TPT in Indonesia in the long or short term. With these results, the Foreign Workers variable is not following the initial hypothesis, namely that there is a positive influence between Foreign Workers on TPT in Indonesia.

Wages at the Open Unemployment Rate

Based on the analysis of the Error Correction Model (ECM) and multiple linear regression, it was found that wages have no significant effect on the Indonesian Unemployment Rate (TPT). This means that the hypothesis that wages significantly and positively affect TPT is rejected. This result is inconsistent with the explanation in the previous chapter that the demand for and supply of labor is a function of the wage rate. Then, when wages are not at equilibrium, there will be unemployment. This happens because when the wage is above the equilibrium point of supply and demand for labor, the supply of labor will increase, and the demand for labor will decrease, creating a surplus of labor. These conditions are when the number of workers who want to work is more than the number of jobs.

CONCLUSION

Based on the research that has been done, obtained conclusion is as follows:

- 1. Investment has a significant and negative effect on the Indonesian Unemployment Rate in the long and short term. This means that from 2001 2017, the increase in investment will reduce TPT in Indonesia. On the other hand, changes in investment also affect TPT.
- 2. Exports in the long term had a significant and negative effect on the open unemployment rate in Indonesia from 2001 2017, in the sense that when export volumes increase, TPT will decrease. Meanwhile, in the short term, the results are inversely proportional. Namely, changes in exports that occur do not have a significant effect on the level of open unemployment in Indonesia. This shows that the export volume takes more than one semester to influence TTP in Indonesia.
- 3. Foreign workers in Indonesia in the long term or short term have no significant effect on TPT in Indonesia. This illustrates that foreign workers in Indonesia are complementary to Indonesian workers.
- 4. Wages have no significant effect in the long term or short term on TPT in Indonesia. This is not following the theory that wages affect the demand for and supply of labor.

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