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Determinants of the Unemployment Rate in East Kalimantan Province

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ABSTRACT

Unemployment is a macroeconomic problem that affects human survival directly. For most people losing a job is a decreased standard of living. East Kalimantan is an Indonesian province on the eastern tip of Borneo Island bordering Malaysia, the capital of East Kalimantan province is Samarinda. East Kalimantan has several economic advantages, such as mining, fishing, plantations, and livestock. However, even though East Kalimantan has some economic advantages, the region has lagging development, declining welfare, lagging areas, and low economic market activity. The problem of unemployment. This analysis uses panel data, and the result of the best model selection is the Random Effect Model (REM). Independent variables influence 55.01% of the unemployment rate, and all independent variables positively impact unemployment.

Keywords: Unemployment, Eastern Kalimantan, panel data, REM

INTRODUCTION

Unemployment is a macroeconomic problem that directly affects human survival. For most people losing a job is a reduction in living standards. So, it is not surprising that unemployment is a topic often discussed in political debates by politicians who often assess that the policies they offer will help create jobs (Mankiw, 2000).

Various macroeconomic factors affect the unemployment rate, including inflation, minimum wage, and growth rate/PDRB. Philipa in Mankiw stated that the rate of inflation influences the unemployment rate. The high rate of inflation will result in declining economic growth, so there will be an increase in unemployment (Senet, 2014).

Another factor that affects unemployment is the Human Development Index (IPM). The new theory of growth explains that an increase in human capital reflected in the level of education and health can increase productivity caused by the increase in IPM. Economic growth will pick up. Economic growth is expected to increase opportunities, and employment can reduce unemployment (Mahriji & Nurkhasanah, 2019).

From an economic point of view, the province's job market is unable to absorb the available labor force. The relatively limited availability of jobs cannot absorb the ever-increasing number of new workers. The high unemployment rate does not only cause problems in the economic field. However, it also includes poverty and security insecurity (Shah & Khuhawar, 2019), including poverty (Akwara et al., 2013). For this reason, the government is trying to increase the growth of the output economy. The increase in output can be done by hammering out technological improvements to increase the efficiency of the production process or by changing the number of inputs. New technologies drive increased productivity and reduced costs (Caliskan, 2015).

According to Sukirno in (Cholili, 2014), the destructive effect of unemployment is that people's income becomes reduced, or they are even unable to earn income at all, which causes the level of community prosperity to decrease.

East Kalimantan is an Indonesian province on the eastern tip of Borneo Island bordering Malaysia, the capital of east Kalimantan province is Samarinda. Kalimantan Timur has several economic advantages, such as mining, fishing, plantations, and livestock. However, even though East Kalimantan has some economic advantages, the region has lagging development, declining welfare, lagging areas, and low economic market activity. The unemployment problem in east Kalimantan province is significant, with unemployment conditions showing an upward trend from year to year. Table 1 shows the unemployed in east Kalimantan province during the 20182021 period.

Table 1. Unemployment rate in East Kalimantan Province 2018-2021(%)

Regency/City	2018	2019	2020	2021
Paser	4.84	4.38	4.52	5.70
Kutai Barat	4.67	4.89	4.97	5.14
Kutai Kartanegara	5.74	5.79	5.70	5.66
Kutai Timur	5.85	5.45	5.45	5.35
Berau	5.45	4.95	5.08	5.82
PenajamPaser Utara	4.62	6.03	6.22	2.95
Mahakam Ulu	4.03	3.56	3.49	3.14
Balikpapan	9.27	7.15	9.00	8.94
Samarinda	5.99	5.73	8.26	8.16
Bontang	9.41	9.02	9.46	9.92

Table 1 shows that the number of unemployed in east Kalimantan province for the 2018-2021 period is still relatively high. This is a concern for the government, so programs that can reduce the unemployment rate in east Kalimantan province are immediately reevaluated. Bontang Regency is the district that has the highest unemployment rate of 9.92 percent among the unemployed in east Kalimantan province. The high unemployment rate in the east Kalimantan province indicates that welfare is not evenly distributed in the east Kalimantan province.

METHOD

To determine and measure the direction and magnitude of the influence of the minimum wage, economic growth, government spending, and human development index on the unemployment rate in East Kalimantan Province during the 2018-2021 period. Data Panel analysis tools are used with the following Econometric model:

$$UEMPt = \beta 0 + \beta 1\text{UMR}t + \beta 2GROWTHt + \beta 3GEXPt + \beta 4\text{IPM}t + \beta 5\text{RLS}t + \varepsilon t$$

As follows:

UEMP = Unemployment (%)
UMR = Minimum Wgae (Rupiah)
GROWTH = Economic Growth (%)
GEXP = Government Spending (Rp Billion)
IPM =Human Development Index(%)
RLS =Average School Years (Years)
ε =Error term (error factor)
$\beta 0$ = Constant
$\beta 1 \ldots \beta 5$ = Regression coefficient of the independent variable
t = year t

The data presented is panel data for 2018-2021, the source of panel data for east Kalimantan province obtained through the Central Statistics Agency (BPS).

RESULT AND DISCUSSION

Estimation Results

This study uses manel data with the estimation of the Common Effects Model (CEM), Fixed Effects Model (FEM), and Random Effects Model (REM) approaches along with the selection of the best estimator model with Chow test and Hausman test with a table of results as follows :

Table 2. Panel Data Regression Results

Variable	Regression Coefficient		
	CEM	FEM	REM
C	-11.85421	-25.81394	-20.40709
Log(UMR)	0.195093	3.652253	0.267384
GROWTH	-0.052593	0.050479	-0.039259
Log(GEXP)	-0.759396	0.867781	-0.360537
IPM	0.100787	-0.170797	0.305128
Log(RLS)	10.81065	-12.71917	3.401205
R^2	0.751542	0.859371	0.550165
$Adj.R^2$	0.710132	0.776273	0.475193
F-Statistik	18.14894	0.776273	7.338237
Prob. F-statistik	0.000000	0.000001	0.000135

Source: BPS(processed)

Model Selection Test

1. Chow Test Cross-section F(2.1086); prob F(2.1086) =0.0794
2. Hausman Cross section random $x2$(5.7217); prob $x2$(5.7217)= 0.3342

DISCUSSION

Chow Test

The Chow test is used to select an estimated model of the Common Effects Model (CEM) or Fixed Effects Model (FEM). H_0 Declares that the estimated model is CEM. Furthermore, Ha States that the estimated model is FEM. H_0 Not denied if F probability≥ α; H_0 is rejected when the statistical probability is F≤α. From table 1, it can be seen that the probability of F is 0.0794 ≤ 0.10, so H_0 is rejected. Thus, the estimated model is FEM.

Hausman Test

The thirst test selects a Fixed Effect Model (FEM) or Random Effects Model (REM) estimated model. H_0 States that the estimated model is REM, and, Ha states that the estimated model is FEM. H_0 is not rejected when the probability $\chi^2 \geq \alpha$; H_0 is rejected when the statistical probability $\chi^2 \leq \alpha$. From table 1, it can be seen that the probability of χ^2 is 0.3342 ≥ 0.10, so H_0 is accepted. Thus, the estimated model is REM.

Based on the model selector test that has been carried out, the selected result is the Random Effect Model (REM) Is the best model. The complete results of the REM model estimates are presented in Table 3 as follows:

Table 3. Fixed Effect Model Estimation Result

$UEMP_t$=20.40709+0.267384UMR_t-0.039259GROWTH-0.360537$GEXP_t$+
(0.5458) (0.9161) (0.5399)
0.305128 IPMt+3.401205$RLS_t + \varepsilon_t$
(0.3358) (0.7604)

R^2 = 0,5501 ; DW = 1.8738 ; F-stat = 7.3382; Prob(F-stat) = 0,000135

Source: BPS, processed.

Description: *significant at α = 0.01; **signify at α = 0.05; Singnificant at α = 0.10. The number in value is a probability of value t-statistic.

Table 4. Effects and Lowest And Highest Constants

Category provinces	Effect	Constants
Balikpapan Highest	0.587956	-2.040.708
Lowest East Kutai	-0.023105	-2.040.708

Table 4. shows the district constant in east Kalimantan province. It is known that the one with the highest constant is the Bontang district, with an effect figure of 0.587956. This shows that the effect of minimum wage, economic growth, government spending, human development index, and the average length of schooling in Balikpapan district has the highest effect compared to other districts. Meanwhile, the lowest effect is owned by the north Paser district, which is -0.023105, which shows the effect of minimum wage, economic growth, government expenditure, human development index, and the average length of schooling in East Kutai district tends to be low.

Test the Goodness of Selected Models

Model Efficiency Test (F Test)

The F test was performed to determine whether all independent variables in the regression model had a joint effect on the dependent variables H_0 = 1 = β2 = β3 = β4 = β5 = 0, which means that the entire regression coefficient is zero, so it can be concluded that

the minimum wage, economic growth, government spending, human development index, and the average length of schooling together do not affect the unemployment rate. $Ha = \beta 1 \neq \beta 2 \neq \beta 3 \neq \beta 4 \neq \beta 5 \neq 0$, which means that there is at least one coefficient whose regression is not worth zero, so it can be concluded that the minimum wage, economic growth, government spending, The human development index, and the average length of schooling affect the unemployment rate. H_0 = rejected when the statistical probability of F ≤ α. Ha not rejected if the statistical probability F ≥ α.

Table 2. It shows that the probability of F which about 0.000135 ≤ α; then H_0 is rejected, so this model is equally existing, minimum wage, economic growth, government spending, human development index, and the average length of schooling affect unemployment.

Interpretation of the Determinant Coefficient (R^2)

The R^2 value is used to see if the variable is independent in applying the dependent variable. From table 2, an R^2 is about 0.5501 is obtained, which means that 55.01% of the unemployment rate variable can be explained by independent variables, namely minimum wage, economic growth, government spending, human development index, and the average length of schooling. In comparison, the remaining 44.99% is explained by variables outside other variables outside the model.

Validation Test of the Effect of Independent Variables of the Selected Model

The results of the influence variable test for each independent variable can be seen in table 4.

Table 4. Effect Validation Test Results (ttest)

Variable	prob.t	category	conclusion
Log(UMR)	0.545	>0.10	β_1 influential positiv
GROWTH	0.9161	>0.10	β_2 influential positiv
Log(GEXP)	0.5399	>0.10	β_3 influential positiv
IPM	0.3358	>0.10	β_4 influential positiv
Log(RLS)	0.7604	>0.10	β_5 influential positiv

Table 4 shows that minimum wage, economic growth, government spending, human development index, and the average length of schooling positively affect the unemployment rate.

CONCLUSION

Based on the selection of Chow and Hausman tests, the estimation data that is proven to be the best model is the Random Effect Model (REM).

From the effect model test, the highest is the Balikpapan regency and the lowest is the East Kutai regency. The estimated model exists based on the Test of the model's existence (Test F). With an R^2 value of 0.5501, which means that independent variables can explain 55.01% validation of the unemployment rate : which means that minimum wage, economic growth, government spending, development index human, and the average length of schooling. Variable variations outside the model explain the remaining 44.99%.

Based on the effect validation test (Test t) that has been carried out, it was obtained that the variables. Minimum wage, economic growth, government expenditure, human development index, and the average length of schooling positively affect the unemployment rate in east Kalimantan province during the 20182021 period.

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