The Antecedent of Gross Domestic Regional Bruto in Jakarta Province, Indonesia

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ABSTRACT

This study aims to determine how the influence of inflation, unemployment, poverty and investment in regional economic growth in Jakarta province for the period of 2008-2019. In this study the model used is error correction model by looking at the effect on short and long term inter-macroeconomic variables on economic growth in Jakarta Province. The results of the study show that only unemployment has an influence on the long term and has no effect in the short term, while the variables of inflation, poverty and investment have no influence on economic growth in the short and long term.

Keywords: Macroeconomic Variables, GDRP, Error Correction Model, Jakarta
JEL Classifications: E22, E24

1. INTRODUCTION

High regional economic growth can be a major factor in the sustainability of regional economic development in the Jakarta Province, a province that all Indonesians want to seek employment and as a pioneer in progress in the Java Island even Indonesia. With a population of 10.37 people, there are 7.14% or 740,718 inhabitants of Jakarta who are unemployed and 3.78% or 393,130 inhabitants of Jakarta are in the poverty line. With such a large amount, unemployment and poverty can be a problem for the economic growth of Jakarta Province due to a small absorption of labor.

Labor absorption is a little triggered by the high inflation rate in Jakarta. Based on BPS data, in 2017 Jakarta Province experienced an increase in inflation of 3.72% or an increase of 1.35% from the previous year of 2.37%. Thus, if an area experiences an increase in economic growth it will have an impact on decreasing

unemployment (Okun, 1962). However, increasing economic growth will lead to low inflation rates (Gokal and Hanif, 2004; Ayyoub et al., 2011).

High inflation in an area can be interpreted that the area is in an unstable position (Farid et al., 2012; Kalsie and Shrivastav, 2017). One way to curb inflation is to implement monetary policy that can increase investment so that employment opportunities can be increased and it also can reduce poverty (Cromwell et al., 2005; Cervantes-Godoy and Dewbre, 2010). Therefore, in encouraging investment in the province, the central government imposes regional autonomy which aims to contribute to national economic growth and increase regional development so that the province can obtain its own funds without the provision of funding from the central government (Mahi, 2016; Nasution, 2016). This can be done after the realization of the Law of the Republic of Indonesia No. 33/2004 concerning Balancing of Central and Regional Governments.

With the issuance of the act, it is expected that the regional government can absorb more investment from domestic investors and foreign investors to develop and develop their regions. Moreover, Jakarta Province has added value to investors because in addition to being the capital city of the country, the potential for public consumption in Jakarta Province is very high. This is supported by Jakarta Financial Report data which shows that the value of public consumption has increased from Rp. 715.52 billion in 2008 to Rp. 8.12 Billion in 2017. The increase in consumption which almost increased by 2x doubled Jakarta community to become the main attraction for investors so that it would increase output and increase input demand which would have an impact on the opening of employment opportunities and increasing community income (Thaver, 2013; Lindawati et al., 2018).

This study examines how inflation, poverty, unemployment, and investment influence economic growth which is analyzed by error correction model (ECM) in looking at the effects on the short and long term of these macroeconomic variables.

2. LITERATURE REVIEW

The relationship among inflation, poverty, unemployment, and investment with economic growth has long been the subject of research that is attractive to the economy of a region and the results obtained are very influential for both regional and national development. These macroeconomic variables are more likely to affect the economy in the long period, especially in economic growth in third world countries or developing countries, such as Indonesia. As in the study conducted by Svigir and Milos (2017), inflation does not affect economic growth in Italia and Austria and it is in line with Hossain et al. (2012) who research in Bangladesh but in the research conducted by Antwi (2013) inflation has a positive effect in Ghana. This difference is appropriate with the theory of Keynes which states that inflation cannot always affect economic growth if inflation in a region experiences low inflation. The higher inflation rate will cause an increase in unemployment and poverty and reduce economic growth.

In the theory of Okun (1962) states that if economic growth increases unemployment will be decreased in accordance with the trend as well the increase in growth. In other words, unemployment has an influence on the high and low economic growth. However, some studies disagree with the Okun law. Enejoh and Tsauni (2017) in their research in Nigeria found that in the short term unemployment had no effect on economic growth. The study was also supported by Makaringe and Khobai (2018) who found that unemployment had no significant influence in South Africa. With these differences, it can be interpreted that the number of unemployed people will increase economic growth. This is evidenced by data released by the Jakarta Financial Report which shows that Indonesia's economic growth has increased and the number of unemployed has also increased. Thus, the higher the number of unemployed, the more poverty increases.

There are two theories that discuss the relationship of poverty with economic growth, the theories are Trickle - Down theory and Theory Trickle - Up. The Trickle – down theory states that

poverty alleviation must be based on constant and overall income distribution (Kahsu and Nagaraja, 2017) and there is no sharp difference between income and assets owned by individuals (Meier and Stiglitz, 2001). In reducing these differences, the government must take policies aimed at reducing poverty in order to increase economic growth (Aghion and Bolton, 1997). Thus, poverty and economic growth have a negative relationship where growth increases it will reduce poverty (Adams, 2004).

On the other hand, the Trickle-up theory focuses more on raising the upper middle class and wealthy communities (Todaro and Smith, 2006). The impact is that the poor will be increasingly oppressed and not contribute to economic growth both regionally and nationally. Thus, a vicious circle will be formed and resulted in low aggregate economic growth (Thoerbecke, 2013). One policy that can be taken by regional and national governments is to increase investment. According to Keynes, besides the interest rate that affects investment, the amount of income also greatly influences the amount of investment (Tease et al., 1991; Islamoglu et al., 2015; Spengel and Heckemeyer, 2016). Thus, increasing investment can increase economic growth.

In a study conducted by Sayef (2017) supporting a statement from Keynes which states that investment has an influence on economic growth in Malaysia. Other research is also supported by Aurangzeb and Haq (2012) and Antwi (2013) who research in Pakistan and Ghana. However, in the research conducted by Rabnawaz and Jafar (2015) it is inversely proportional to what was stated by Keynes which states that investment does not affect economic growth in Pakistan. With the existence of two different research results, it indicates that the investment climate in Indonesia is still not stable and has not taken sides with investors.

3. DATA DESCRIPTION AND METHODOLOGY

3.1. Data
This study uses data time series taken between 2008 and 2019 in Yogyakarta with 5 macroeconomic variables such as regional economic growth, inflation, unemployment, poverty, investment. Data is secondary data taken from Jakarta. The model analysis in this study uses an ECM model that is processed with EViews 10.

3.2. ECM
The initial stage in the ECM model is testing the stationarity of the data using the unit root test. This test to solve the problem of data time series that is not stationary. This test was first introduced by Dickey and Fuller (1979) where when two variables are not in a stationary position but are interconnected then the two variables are co-integrated. There are three regression function equations used when testing Unit Root Tests (Dickey and Fuller, 1979).

$$\Delta Y_t = \theta Y_{t-1} + \varepsilon_t \text{ (Without intercept/none)} \quad (1)$$

$$\Delta Y_t = \alpha_0 + \theta Y_{t-1} + \varepsilon_t \text{ (With intercept)} \quad (2)$$

$$\Delta Y_t = \alpha_0 + \theta Y_{t-1} + \alpha_2 t + \varepsilon_t \text{ (Intercept and trend)} \quad (3)$$

The second step is to conduct a co-integration test which aims to confirm that there is a long-term relationship between variables (Gujarati, 2004). In this step using Engle - Granger Test to get the co-integration results with the equation:

$$Y_t = \beta_0 + \beta_1 INF_t + \beta_2 UN_t + \beta_3 POV_t + \beta_4 INV_t + \mu_t \quad (4)$$

The third step is representing the Granger theory. Based on this theory, if y and x variables are co-integrated. there is a relationship between these variables using ECM through error correction term (ECT) using OLS regression. In this study co-integrated variables prove the existence of a long-term relationship between variables. Basically the ECM model uses the equation:

$$\Delta Y_t = \beta_0 + \sum_{i=1}^{n} \beta_i \Delta y_t - 1 + \sum_{i=0}^{n} \delta_i \Delta x_t - i + \varphi Z_t - 1 \mu_t \quad (5)$$

The fourth step is to find multivariate co-integrated using Vector Auto-regression analysis (VAR). In this section, it is assumed that all variables are endogenous. In the section bivarite co-integration, to produce long-term coefficients and coefficients on ECM by using Johansen Maximum Likelihood procedure (Johansen, 1988: Johansen and Juselius, 1990).

The final step is to test error correction (ECT). The ECT is used to correct the imbalance between variables in the short term and make all variables in a balanced position in the long run.

4. RESULTS AND DISCUSSION

4.1. Root Test Unit Root
Test Unit or Unit Root Test is used to show data is stationary and interconnected or co-integrated with hypothesis H_0 all

variables have a root unit and H_1 all variables do not have unit root.

Table 1 shows that only GRDP is stationary at the level while other variables are not stationary. This means that the non-stationary variable receives a null hypothesis. At first difference, all variables are stationary at the 5% significance level and reject null hypotheses. That is, the alternative hypothesis is accepted and all variables are connected to I (1) and this is in accordance with the requirements of the ARDL model.

4.2. Co-integration Analysis
Co-integration test is a test that can determine the long-term relationship between dependent variables and independent variables where one or all variables are not stationary at level which means all of these variables have a stochastic trend (Shuaib et al., 2015). The co-integration test results in this study can be seen in Table 2.

Table 2 shows that the value of trace statistic on the trace is 130.5819 and the value of trace statistic at maximum Eigenvalue of 63.44789 is greater than the critical value of 5% in each part. This means that the null hypothesis is rejected where there is no co-integration between the dependent variable and the independent variable. Thus, this study shows that there is a long-term relationship between dependent variables and independent variables.

4.3. Long-term Results
With the co-integration between variables at the level of 5%, the relationship between variables can be done both in terms of long-term and short-term relationships. In Table 3 shows the long-term results between variables from this study.

Based on Table 3 shows that in the long run only unemployment variables affect regional economic growth in Jakarta. With a negative relationship between unemployment and economic growth, it will increase economic growth by 18.8%. That is, more work forces will increase the level of productivity or output in Jakarta. It is also supported by the results obtained with a poverty level that is negatively related and a positive level of investment but does not affect changes in economic growth in Jakarta.

Table 1: Unit root test

Variable	Level		First difference	
	ADF	PP	ADF	PP
GRDP	−3.54	−5.86*	−3.54*	−9.77*
INF	−3.54	−3.36	−5.67*	−3.54*
UN	−3.59	−1.18	−2.97*	−4.68*
POV	−2.94	−3.81	−3.55*	−4.23*
INV	−3.54	−2.35	−3.54*	−5.97*

Source: Data processed from E views 10. *Stationary at significance 5%

Table 2: Results of unrestricted co-integration rank test (trace)

Hypothesized No. of CE (s)	Eigenvalue	Trace statistic	0.05 Critical value	Prob.
None	0.845276	130.5819	69.81889	0.0000*
At most 1	0.597710	67.13401	47.85613	0.0003*
At most 2	0.446689	36.17426	29.79707	0.0080*
At most 3	0.282274	16.05187	15.49471	0.0412*
At most 4	0.131030	4.775179	3.841466	0.0289*
Unrestricted co-integration rank test (maximum eigenvalue)				
Hypothesized No. of CE (s)	Eigenvalue	Trace statistic	0.05 Critical value	Prob.
None	0.845276	63.44789	33.87687	0.0000*
At most 1	0.597710	30.95975	27.58434	0.0177*
At most 2	0.446689	20.12239	21.13162	0.0687
At most 3	0.282274	11.27669	14.26460	0.1409
At most 4	0.131030	4.775179	3.841466	0.0289

Source: Processed Data from Eviews 10

Table 3: Long-term results

Dependent variable of PDRB			
Variable	Coefficient	Std. Error	t-Stat.
C	10.271	3,152	3.25
INF	0.026	0.046	0.564
UN	−0.188	0.039	−4.797
POV	−0.396	0.678	−0.584
INV	0.384	0.361	1.062
R-Squared	0.464	AIC	1.139
Adj R-Squared	0.397	SC	1.357
F-statistic	6.948	DW	2.14

Source: Data processed from Eviews 10

Table 4: Short-term results

Dependent variables of PDRB			
Variable	Coefficient	Std. Error	t-Stat.
C	0.0206	0.1247	0.1652
D (GRDP (−1))	−0.2998	0.1971	−1.5207
D (INF (−1))	0.0434	0.1484	0.2925
D (UN (−1))	−0.0925	0.4805	−0.1926
D (POV (−1))	−0.5005	1.9153	−0.2613
D (INV (−1))	0.0332	1.4359	−0.0231
ECT (-1)	−0.6649	0.3707	−2.7938
R-squared	0.3342	AIC	1.7943
Adj. R-squared	0.1745	SC	2.1149
F-statistic	2.0922	DW	2.4298

Source : Data Processed From Eviews 10

4.4. Short Term Results

After estimating in the long run, the last step of the ARDL model is to look at the model in the short term. In Table 4 shows that ECT (−1) is negative and significant. This means that in this study all variables are interconnected in the long run.

Table 4 shows the short-term relationship between variables where all the independent variables, such as inflation, unemployment, poverty and investment have no influence on economic growth in Jakarta Province. This is corroborated by the results of the F-statistics which show that all the independent variables together have no influence on economic growth in the Jakarta Province in the short term. This research is also in accordance with what was done by Adams (2009) which states that investment plays an important role in long-term economic growth in developing countries where the role is in labor which can link output, price, income, free trade, and regional revenue as a very important factor in increasing economic growth.

4.5. Discussion

From the results of the research obtained it shows that in the long and short term, unemployment is negatively related to economic growth in Jakarta Province. This is proven in accordance with Okun's Law (1962) which states that the decline in the number of unemployed will increase economic growth and it is proven by the results obtained that poverty has a negative relationship in the long and short term and a positive relationship to investment both long and short term.

That is, the policies taken by the regional government of Jakarta Province are in accordance with the the trickle –down theory where there is an equal distribution of income and not sharp disparities.

However, the negative relationship of poverty and the positive relationship of investment does not have a significant effect on economic growth in Jakarta Province. This is because the results of the study found that both short and long term, inflation has a positive relationship to economic growth in Jakarta Province.

In other words, local governments cannot withstand high prices - prices of basic necessities in the market even though they have increased labor costs every year. Based on Jakarta Financial Report data, the minimum wage in Jakarta Province in 2008 was Rp. 972.605, - increased to Rp. 4.267.349, - in 2019 or almost 4x fold. This increase is also supported by an increase in the consumption of the people of Jakarta, where in 2008, public consumption was Rp. 715.52 Billion to Rp 8.21 Billion in 2019.

5. CONCLUSIONS

This study investigates the effect of inflation, unemployment, poverty and investment on economic growth in Jakarta for the period 2008-2019Q2 using the ECM model. The results of this study found that the variables of inflation and investment showed a positive relationship and unemployment and poverty were negatively related in the long run. However, only unemployment variables have a significant influence on economic growth in Jakarta Province. This means that the regional government is right in taking policies to increase economic growth in Jakarta Province by focusing on macroeconomic issues, such as reducing unemployment and poverty and increasing investment.

Whereas in the short term, this study found that all variables showed the same symptoms as long-term. However, all variables do not have any influence on economic growth. This is due to the increase in prices of basic necessities by 30% from 2008 to 2019Q2.

Thus, this study proves that policy makers are expected to understand the relationship between inflation, unemployment, poverty, investment, and economic growth in implementing and implementing its policies in Jakarta Province. One of the policies that can be implemented by the regional government of Jakarta Province is to add and empower business of home industry both on the micro and medium scale to be able to play a role in the workforce generation so that not many young people enter the unemployed workforce.

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