



The Effect of Income Perkapita, Interest, and Inflation on Economic Growth through Investment in North Maluku Province

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ABSTRACT: Most economists argue that investment plays an important role in increasing economic growth, but the fact is that in North Maluku Province the increase in investment has not been followed by an increase in economic growth. This study aims to see the effect of per capita income, interest rates, and inflation on economic growth through investment. Data collection is done through documentation studies, namely in the form of panel data (pooled data) that combines cross-section data (cross-section) and time series data (time series). Data were analyzed quantitatively using the Two Stage Least Square (2SLS) method. The results show that per capita income has a positive and significant effect on economic growth through investment, interest rates have a negative and significant effect on economic growth through investment, inflation has a negative and significant effect on economic growth through investment.

KEYWORDS: Per capita income, interest rates, inflation, investment and economic growth

Received 14 December, 2018; Accepted 31 December, 2018 © The author(s) 2018. Published with open access at www.questjournals.org

I. INTRODUCTION

Although there have been many related studies on the issue of economic growth, the fact is that economic growth is one of the global problems. For ordinary people, maybe developed countries are considered to be free from all kinds of problems including economic problems. In fact, no country in this world can be free from this vicious circle.

Economic growth is one indicator of the success of development and the level of welfare of the population. A large population can provide the potential for public consumption and labor production factors which are sources of economic growth. However, on the other hand the problems faced by each region in Indonesia, one of which is in North Maluku Province is the lack of financing capital for economic growth that is used to encourage the economy in an area. Where investment is one indicator that can determine the level of economic growth.

Neo Classical Theory emphasizes the importance of saving as a source of investment. Investment is seen as one of the main drivers of economic growth and development. The faster the development of investment rather than the rate of population growth, the faster the development of the volume of stock of labor capital on average. The higher the ratio of labor capital tends to be higher labor production capacity. Neo Classical figures, Sollow and Swan dalam (Arsyad, 2010) focus on how population growth, capital accumulation, technological progress and output interact with each other in the process of economic growth.

The theory is supported by the findings of research conducted by (Sabila Aulia, 2018) analyzing the relationship between investment and economic growth in East Kalimantan in 2005-2014. From the results of data analysis, it can be concluded that: The effect of investment is positive and significant for economic growth. Research conducted by (Nwakoby, 2016) analyzes the relationship of domestic investment with economic growth. This study investigates the effect of private sector investment on economic growth in the liberalization of the Nigerian economy from 1986 to 2014. The co-integration test results show that private sector investment and economic growth have long had a significant effect on each other.

If examined, based on publication data by the Central Maluku Province's Central Bureau of Statistics, the increase in investment has not yet had an impact on consistently increasing economic growth in North Maluku Province, marked by the existence of certain years where the investment did not affect the previous

year's economic growth rate. This is contrary to the Harrod-Domar theory. Harrod-Domar maintained the opinion of the previous economists which was a combination of the opinions of the classics and Keynes, which emphasized the role of capital growth in creating economic growth.

Investment can be measured by indicators of per capita income, interest rates and inflation. Keynes said that there is income that is important for investment and interest rates, because interest rates depend on money supply and demand, and are not dependent on investment. Based on the previous description, the authors are interested in conducting research on "The Influence of Perpetual Income, Interest Rates and Inflation on Economic Growth through Investment in North Maluku Province".

II. RESEARCH METHODS

2.1 Location and Type of Research

This research was conducted in North Maluku Province. The type of research used is quantitative research that measures and analyzes the influence of per capita income, interest rates, and inflation on economic growth through investment.

2.2 Data Types and Analysis Methods

The type of data to be analyzed in this research is secondary data in the form of panel data (pooled data) with the characteristics of cross section and time series simultaneously. The cross section data in this study is data consisting of regency / city data in North Maluku Province. Whereas for time series data, it is an entity data with the time / period dimensions in this study using the 2010-2016 period. Furthermore, the analysis data used in this study is the Two Stage Least Square (2SLS) analysis method. The Two Stage Least Square (2SLS) analysis model equation can be written into the equation as follows:

$$Y_{1it} = f(X_{1it}, X_{2it}, X_{3it}) \dots\dots\dots (1)$$

$$Y_{2it} = f(Y_{1it}) \dots\dots\dots (2)$$

Dimana :

X₁: Per Capita Income

X₂: Interest Rate

X₃: Inflation

Y₁: Investment

Y₂: Economic Growth

i: Cross Section

t: Time Series

$$e^{Y_{1it}} = \alpha_0 X_{1it}^{\alpha_1} X_{2it}^{\alpha_2} e^{\alpha_3 X_{3it} + \epsilon_1} \dots\dots\dots (3)$$

$$e^{Y_{2it}} = \beta_0 \beta_1 Y_{1it} + \epsilon_2 \dots\dots\dots (4)$$

Because the above equation is an onlinear equation, then to get the elasticity value it is converted into a linear equation using natural logarithms (ln) so that the equation becomes:

$$Y_{1it} = \alpha_0 + \alpha_1 \ln X_{1it} + \alpha_2 X_{2it} + \alpha_3 X_{3it} + \epsilon_1 \dots\dots\dots (5)$$

$$Y_{2it} = \beta_0 + \beta_1 \ln Y_{1it} + \epsilon_2 \dots\dots\dots (6)$$

Subtitution Equation (5) Into Equation (6)

$$\begin{aligned} Y_{2it} &= \beta_0 + \beta_1 (\alpha_0 + \alpha_1 \ln X_{1it} + \alpha_2 X_{2it} + \alpha_3 X_{3it} + \epsilon_1) + \epsilon_2 \\ &= (\ln \beta_0 + \beta_1 \ln \alpha_0) + (\beta_1 \alpha_1) \ln X_{1it} + (\beta_1 \alpha_2) X_{2it} + (\beta_1 \alpha_3) X_{3it} + (\beta_1 \epsilon_{2it}) \\ &= \delta_0 + \delta_1 \ln X_{1it} + \delta_2 X_{2it} + \delta_3 X_{3it} + \epsilon_{3it} \end{aligned}$$

Where :

$\delta_0 = \ln \beta_0 + \beta_1 \ln \alpha_0 =$ Total Constants

$\delta_1 = (\beta_1 \alpha_1) =$ Total effect of Per capita Income on economic growth indirectly through Investment.

$\delta_2 = (\beta_1 \alpha_2) =$ Total influence of Interest Rates on indirect economic growth through Investment.

$\delta_3 = (\beta_1 \alpha_3) =$ Total influence of Inflation on economic growth indirectly through Investment.

III. RESEARCH RESULT

The indirect effect of per capita income variable (X1) on economic growth (Y2) through investment (Y1) has an influence value of (0.0325). This means that the variable income per capita indirectly affects the variable economic growth of 3.25 percent. This number is positive so that it can be said that the variable income per capita has an influence on the variable economic growth through investment variables. So that in this case, the more per capita income, the more investment increases. Increasing investment will have an effect on increasing economic growth.

The indirect effect of Interest Rate (X2) on Economic Growth (Y2) through Investment (Y1) has a negative influence value of (-0.0818). This means that the interest rates indirectly also affect the variable

Economic Growth by (-8.18) percent. This number is negative so it can be said that the interest rate variable has an influence on the variable economic growth through the investment variable. So in this case, the lower the interest rate, the more investment increases. Increasing investment will have an effect on increasing economic growth.

The indirect effect of inflation (X3) on economic growth (Y2) through investment (Y1) has a negative effect of (-0.0047). This means that the inflation variable indirectly affects the variable economic growth by (-0.47) percent. This number is negative so that it can be said that the inflation variable has an influence on the variable economic growth through investment variables. So in this case, the lower the inflation, the more investment increases. Increasing investment will have an effect on increasing economic growth.

IV. DISCUSSION

The effect of per capita income on economic growth through investment in North Maluku Province shows significant results. Per capita income in North Maluku Province has contributed significantly to the increase in investment. Per capita income to investment in North Maluku Province has a greater influence on increasing investment so that in turn it will have an impact on increasing economic growth.

Research conducted (Lutvi Fauziana, 2014), This study aims to determine the relationship between investment and national income in Indonesia. The findings show that between investment and GDP influence each other. Investment encourages expansion of employment, which will result in employment. With the increase in labor, GDP will increase. Increased income per capita community will encourage an increase in national income, so that the country's economic growth improves. So that it will encourage investors to invest.

The policy strategy adopted by the North Maluku provincial government to increase consumption and expenditure data can be used in research on the application of economic law, one of which is expressed by (Ernest Engel, 1857) that if there is no difference in taste, the percentage of food expenditure decreases with increasing income. Therefore the composition of household expenditure can be used as a measure to assess the level of welfare of the population, where the lower the percentage of expenditure for food on total expenditure, the better the level of the economy of the population. According to Engel, if the percentage of food expenditure to total expenditure is more than 80 percent, then the welfare level is very low. This indication is not indicated by population expenditure in March 2015, where the percentage of expenditure on food to total expenditure reached 53.33 percent. According to the area of residence, it can be seen that the pattern of urban and rural population expenditure shows an inverse pattern where most of the percentage of expenditure in rural areas is for food while in urban areas it is for non-food items (BPS North Maluku, 2017).

The effect of interest rates on economic growth through investment in North Maluku Province showed significant results. Interest rates in North Maluku Province have contributed significantly to the increase in investment. The interest rate variable on investment in North Maluku Province has a negative influence on increasing investment so that in turn it will have an impact on increasing economic growth. The research conducted by (Obamuyi, 2009) investigated the relationship between interest rates to investment and economic growth in the country, using an annual time series and data analysis period 1970 - 2006. The findings of empirical results show that real lending rates have a significant negative effect on the relationship between interest rates, investment and economic growth.

The interest rates of commercial bank loans throughout 2010-2016 have varied fluctuations. The lowest credit interest rate in 2011 was 14.46 percent and the highest interest rate in 2010 was 19.46 percent. The policy to reduce credit interest rates to 13.41 percent is an appropriate policy because at the lowest point of the loan interest rate, the amount of investment that occurred experienced a significant increase from the previous year and the inflation condition also decreased.

In 2014 loan interest rates rose higher. The drastic increase occurred because of the inflation rate which also rose dramatically during the year so that it changed the interest rate on investment loans. The increase in investment credit interest rates is due to the high perception of banks in the long-term lending seen from the growth of low investment loans.

The effect of Inflation on economic growth through investment in North Maluku Province shows negative and significant results. The results of these statistical analyzes have shown consistency with the quantity theory and the fisher equation, both stating that money growth affects the nominal interest rate. An increase in money growth of one percent causes a one percent increase in the inflation rate. Whereas a one percent increase in the inflation rate causes a nominal interest rate increase called the fisher (Fisher effect) effect.

Some economists say that the increase in the value of future money is lower than the present. So if there is an increase in inflation, the value of money falls very sharply, the community's perspective to save will decrease, which will affect the collection of bank funds from the public.

Research conducted by (Aisha Ismail, 2010) analyzed the relationship between inflation, investment and economic growth for Pakistan from 1980 to 2009. The findings reveal that inflation has a significant

negative impact on investment and economic growth in the short term. Costs that continue to rise cause production activities to be very unprofitable. Entrepreneurs prefer to use their money for speculative purposes, so that productive investment will decrease and the level of economic activity will decline. As a result more unemployment will materialize.

V. CONCLUSIONS AND RECOMMENDATIONS

Based on the data processed and analyzed, it can be concluded: Per capita income has a positive and significant effect on economic growth through investment in North Maluku Province, thus the initial hypothesis is accepted. Interest rates have a negative and significant effect on economic growth through investment in North Maluku Province, thus the initial hypothesis is accepted. Inflation has a negative and significant effect on economic growth through investment in North Maluku Province, thus the initial hypothesis is accepted.

Per capita income and interest rates in North Maluku Province will be more influential if: From the results of the study it was found that interest rates have a negative and significant effect. For this reason, the Government must open the way for the private sector to invest in a larger amount of investment besides that the Government needs to pay attention to the policies of the monetary authority, because investors are sensitive to the increase in lending rates determined by the Bank. Efforts needed to encourage increased investment need to be realized and developed so that the capital stock can be maximally utilized to accelerate economic growth in North Maluku Province. It is expected that the regional government in promoting growth will be directed to the development priority of the sector which has a high level of employment, so that sector productivity and community income will increase and in turn will improve the welfare of the community.

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ATTACHMENT

Data on per capita income, interest rates, inflation, Investment and Economic Growth In North Maluku Province 2006 - 2017

Year	Income Per Capita (Million Rupiah)	Interest Rate (Percent)	Inflation (Percent)	Investation (In billion)	Economic growth (Percent)
2010	656.334	6,50	5,32	1.710,00	6,99
2011	717.704	6,00	4,52	2.245,4	7,12
2012	775.231	5,75	3,29	2.737,29	5,81
2013	843.226	7,50	9,78	3.710,73	5,78
2014	450.900	7,75	9,34	3.270,2	5,22
2015	488.800	7,50	5,70	3.742,3	6,05
2016	5.329.530	6,50	1,91	3.774,69	5,54

Source: BPS and BI

Results of Estimates on the Effect of Percentage Income, Interest Rates, and Inflation on Investment

Dependent Variable: Y1
Method: Panel Two-Stage EGLS (Cross-section weights)
Date: 11/16/18 Time: 23:04
Sample: 2010 2016
Periods included: 7

Cross-sections included: 9
 Total panel (balanced) observations: 63
 Linear estimation after one-step weighting matrix
 White cross-section standard errors & covariance (no d.f. correction)
 Instrument specification: C X1 X2 X3
 Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.95241	1.237370	9.659531	0.0000
X1	1.500447	0.074823	20.05323	0.0000
X2	-0.377134	0.025282	-14.91721	0.0000
X3	-0.021772	0.004328	-5.030397	0.0000

Weighted Statistics

R-squared	0.864249	Mean dependent var	52.69216
Adjusted R-squared	0.857347	S.D. dependent var	67.33441
S.E. of regression	0.769135	Sum squared resid	34.90253
F-statistic	125.2068	Durbin-Watson stat	0.572776
Prob(F-statistic)	0.000000	Second-Stage SSR	34.90253
Instrument rank	4		

Results of Estimated Effects of Investment on Economic Growth

Dependent Variable: Y2
 Method: Panel Two-Stage EGLS (Period weights)
 Date: 11/16/18 Time: 22:55
 Sample: 2010 2016
 Periods included: 7
 Cross-sections included: 9
 Total panel (balanced) observations: 63
 Linear estimation after one-step weighting matrix
 White cross-section standard errors & covariance (no d.f. correction)
 Instrument specification: C X1 X2 X3 Y1
 Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.055304	0.694849	1.518753	0.1340
Y1	0.217164	0.026547	8.180372	0.0000

Weighted Statistics

R-squared	0.073972	Mean dependent var	17.44730
Adjusted R-squared	0.058791	S.D. dependent var	10.85720
S.E. of regression	3.355729	Sum squared resid	686.9161
F-statistic	4.872723	Durbin-Watson stat	1.409007
Prob(F-statistic)	0.031056	Second-Stage SSR	686.9161
Instrument rank	5	Prob(J-statistic)	0.160952

Unweighted Statistics

R-squared	0.029511	Mean dependent var	6.755079
Sum squared resid	947.3987	Durbin-Watson stat	2.217292

Results of Estimated Indirect Effects of Each Variable in the Model

Relationship indirect Variables	Parameter	Value of Influence Indirect	Information
X1→Y1→Y2	α_1, β_1	0,0325	Significant
X2→Y1→Y2	α_2, β_1	-0,0818	Significant
X3→Y1→Y2	α_3, β_1	-0,0047	Significant

Hasym. " The Effect of Perkapita, Interest, and Inflation Income on Economic Growth through Investment in North Maluku Province. "Quest Journal of Research in Business and Management, vol. 06, no. 06, 2018, pp 27-32.