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DETERMINANT OF ECONOMIC GROWTH IN MALUKU PROVINCE YEAR 1986 – 2009: *Error Correction Approach*

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Abstract

The main target of this research is analyzing determinants economic growth in Maluku Province. This study using Engle-Granger Error Correction Model (EG-ECM), which determinants of variables are investment, inflation, export and labor, data used in this research are secondary one, period of year 1986-2009.

Result of research shows that in short run investment variable and labor variable is significant at 5 percent level, export variable significant at 10 percent level and all variable has a positive sign to economic growth. Co-integration test indicates that behavioral data has a possibility of existence of long run equilibrium. In the long run result shows that investment variable and export variable has a significant at 5 percent level and positive sign. Investment is the only variable that significant in the short run and also in the long run hence from that the local government must pushing increasing investment in many way so that can stimulus the local economic growth. Export significant in long run, labor significant in the short run meanwhile inflation not significant in the short and long run

***Keywords**: Investment, Export, ECM, Economic Growth.*

INTRODUCTION

Economic growth is the key macroeconomic objectives. There are three main components of economic growth, namely: 1) accumulation of capital, 2) population growth, and 3) technological progress (Todaro, 2003:92). Investment is capital formation that supports the government's role in spurring economic growth. Harrod Domar said the economic growth needed to support new investments as the stock of capital. With more and more savings are then invested the faster economic growth. However, in real terms, the rate of economic growth that occurs in any savings and investments depends on the level of productivity of these investments. Population growth has traditionally been regarded as one of the positive factors that spur economic growth but should also know that it mostly depends on the ability of the economic system to take advantage of the additional labor productively. Advances in technology which, for many economists is an important source of economic growth may in fact have a positive impact that an increase in capital and labor as well as the negative impact of the savings in capital and labor, when advances in technology have an impact on labor savings there will be an increase in unemployment. The negative impact of technological advances is the most feared occurred in an area rich in potential economic resources such as Maluku Province.

Maluku is an area that has the characteristics and unique natural resources, where most of the sea, so they have a nature oceanographically waters, biological and geographical that distinguishes itself with other seas in the archipelago of Indonesia. This makes the sea waters of Maluku contains resource fairly high economic potential as a source of marine biological, mineral and marine tourism.

Marine development opportunities in the province of Maluku are supported by the potential availability of abundant marine resources. Therefore, local governments should take measures to shift the paradigm of development oriented. From the land oriented (continental oriented) to the sea oriented (ocean oriented). So that regional development can synergize with the potential availability of the sea, as well as a carrying capacity for the achievement of development in the province of Maluku.

The agricultural sector is the sector that provides the greatest contribution to economic growth in Maluku which amounted to 32 percent of which 20 percent are from fisheries sub-sector with a broad of the sea that reaches 92 percent, based on the results of the study on fish stocks in the Maluku region in 2007, by the Marine and Fisheries Research Agency in collaboration with LIPI shows that Maluku are rich in natural resources ocean, visible from the standing stock of 1.9 million tons/year and the maximum sustainable yield (MSY) of 950,000 tons / year, to achieve sustainable utilization of 210 925 tons/year so that it can be said that the potential of fisheries resources in Maluku Province are still under exploited.

Trade, hotel and restaurant is the second largest sector contributing to economic growth this is because this sector has a close relationship with the agricultural sector especially the fisheries sub-sector, relating to trade in this fishery exports occupy a dominant position can be seen from the number of export commodities that as many as 13 species with a percentage of 30 percent of total exports and export destinations of 10 countries in Asia, Australia and America. From the type of fishery commodities exported its contribution to total exports in 2009 which amounted to 35 percent, or approximately U.S. $ 135,654,362. Commodities are experiencing rapid growth in trade is crude oil which in 2005 account for 40 percent and in 2009 contributed 60 percent. This indicates that exports are an excellent instrument in promoting economic growth in an area. Important function of trade is the export component of the profit and revenue rose, which in turn increase the amount of output and economic growth. Research conducted by Jawas (2008), about the impact of foreign investment and exports to economic growth in Muslim countries. Using panel data regression, the results show that FDI and exports has a significant effect on economic growth in Muslim countries.

Based on this conditions then the question that become interesting to research are how the pattern of the relationship and how much influence of the investment, inflation, exports and employment to economic growth in the province of Maluku?

The purpose of this research was to determine how the pattern of the relationship and how much investment, inflation, export and labor influencing the economic growth. Benefits of the research is to gain information and research results is expected to provide input for the government in making the policy for the development of regional economic growth Maluku province.

RESEARCH METHOD

Data that used is the type of time series data with the period of 1986-2009, which is sourced from the Central Bureau of Statistics (BPS) Maluku Province and Bank of Indonesia (BI).

Estimation will be using a dynamic model approach, especially error correction model Engle-Granger (Engle-Granger Error Correction Model, EG-ECM). Processing data used E-Views 6.

The steps undertaken are as follows: Test stationary of data and degree of integration, the stationary testing data time sequential by using unit root tests, known as Augmented Dickey Fuller test (ADF test) to find out stationary data, whether data is stationary at the same degree of integration. The consequences of these data are not stationary will be able to lead to the emergence of spurious regression in a model (See Granger, 1987and Thomas, 1997). Then once known as the degree of integration is equal then performed a co-integration test is a test to determine the possibility of long-term relationship or a balance relationship between the study variables. Observations of each variable to say co-integrated if the residual regression co-integrations stationary. Its way is to test the stationary residual manner as in the first stage. Residuals obtained from the initial estimation equation model, with the variables as follow:

Dependent variable in this study is Economic Growth (Y). The data used is a proxy of the annual Gross Domestic Regional Product issued by the Central Bureau Statistics (BPS) province of Maluku various editions unit Rupiah (Rp).

Independent variables in this study consisted of: Investments (X_1), is the realization of investment in the province of Maluku, in the form of annual data with the unit Rupiah (Rp). Inflation (X_2) is the inflation that occurred in Maluku, the data obtained from the BPS Maluku province in various editions of the unit percent (%). Exports (X_3), the value of the export trade for all types of commodities, data obtained from Bank Indonesia in various editions in units Rupiah (Rp). Labor (X_4), the number of workers who worked on various sectors of the economy, consisting of Indonesian workers (TKI) and foreign labor (TKA) in the number of people/year.

The balance will occurs when the variables of economic in the model are analyzed as below:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + e_t \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

But in general, is difficult to achieve the balance and even imbalance are frequent in the short term. The imbalance is illustrated by the value of Error Correction Term (ECT) is formulated as follows:

$$ECT_t = Y_t - \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} \quad \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

ECT_t called the error imbalance (disequilibrium error). Because X and Y are rarely in equilibrium, then the only observed relationship imbalance (short term) with input the elements of lagged so that the model equation becomes: (Insukindro 1991).

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_1 X_{1t-1} + \beta_2 X_{2t-1} + \beta_3 X_{3t-1} + \beta_4 X_{4t-1} + Y_{t-1} + e_t \quad \ldots\ldots\ldots\ldots (3)$$

The main problem in estimating equation (3) is if the data was not stationary at level. To overcome this, equation (3) need to be manipulated by reducing each right and left side equation (3) with variable Y_{t-1}. The results are as follows:

$$Y_t - Y_{t-1} = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{1t-1} + \beta_6 X_{2t-1} + \beta_7 X_{3t-1} + \beta_8 X_{4t-1} + \beta_9 Y_t - Y_{t-1} + e_t$$

$$= \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{1t-1} + \beta_6 X_{2t-1} + \beta_7 X_{3t-1} + \beta_8 X_{4t-1} - (Y_{t-1} - \beta_9 Y_{t-1}) + e_t$$

$$= \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{1t-1} + \beta_6 X_{2t-1} + \beta_7 X_{3t-1} + \beta_8 X_{4t-1} - (1 - \beta_9) Y_{t-1} + e_t$$

$$= \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{1t-1} + \beta_6 X_{2t-1} + \beta_7 X_{3t-1} + \beta_8 X_{4t-1} - \lambda Y_{t-1} + e_t$$

Where: $\lambda = (1 - \beta_9)$

Hereinafter, reduction and addition with $(\beta_1 X_{1t-1} + \beta_2 X_{2t-1} + \beta_3 X_{3t-1} + \beta_4 X_{4t-1})$ yielding equations as follows:

$$Y_t - Y_{t-1} = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{1t-1} + \beta_6 X_{2t-1} + \beta_7 X_{3t-1} + \beta_8 X_{4t-1} + \beta_1 X_{1t-1} + \beta_2 X_{2t-1} + \beta_3 X_{3t-1} + \beta_4 X_{4t-1} - \beta_1 X_{1t-1} - \beta_2 X_{2t-1} - \beta_3 X_{3t-1} - \beta_4 X_{4t-1} - \lambda Y_{t-1} + e_t$$

$$= \beta_0 + \beta_1 X_{1t} - \beta_1 X_{1t-1} + \beta_2 X_{2t} - \beta_2 X_{2t-1} + \beta_3 X_{3t} - \beta_3 X_{3t-1} + \beta_4 X_{4t} - \beta_4 X_{4t-1} + \beta_5 X_{1t-1} + \beta_1 X_{1t-1} + \beta_6 X_{2t-1} + \beta_2 X_{2t-1} + \beta_7 X_{3t} + \beta_3 X_{3t-1} + \beta_8 X_{4t-1} + \beta_4 X_{4t-1} - \lambda Y_{t-1} + e_t$$

$$DY_t = \beta_0 + \beta_1 DX_{1t} + \beta_2 DX_{2t} + \beta_3 DX_{3t} + \beta_4 DX_{4t} + (\beta_5 + \beta_1) X_{1t-1} + (\beta_6 + \beta_2) X_{2t-1} + (\beta_7 + \beta_3) X_{3t-1} + (\beta_8 + \beta_4) X_{4t-1} - \lambda Y_{t-1} + e_t$$

$$DY_t = \beta_0 + \beta_1 DX_{1t} + \beta_2 DX_{2t} + \beta_3 DX_{3t} + \beta_4 DX_{4t} - \lambda (Y_{t-1} - \delta_1 X_{1t-1} - \delta_2 X_{2t-1} - \delta_3 X_{3t-1} - \delta_4 X_{4t-1}) + e_t$$

$$DY_t = \beta_0 + \beta_1 DX_{1t} + \beta_2 DX_{2t} + \beta_3 DX_{3t} + \beta_4 DX_{4t} - \lambda (Y_{t-1} - \delta_0 - \delta_1 X_{1t-1} - \delta_2 X_{2t-1} - \delta_3 X_{3t-1} \delta_4 X_{4t-1} + e_t$$

$$DY_t = \beta_0 + \beta_1 DX_{1t} + \beta_2 DX_{2t} + \beta_3 DX_{3t} + \beta_4 DX_{4t} - \lambda ECT_{t-1} + e_t$$

Where: $\delta_0 = \beta_0 / \lambda$

$\delta_1 = (\beta_5 + \beta_1) / \lambda$

$\delta_2 = (\beta_6 + \beta_2) / \lambda$

$\delta_3 = (\beta_7 + \beta_3) / \lambda$

$\delta_4 = (\beta_8 + \beta_4) / \lambda$

$DX_t = X_t - X_{t-1}$

After going through the manipulation of equations and re-parameterization as above, then the EG-ECM model obtained is as follows:

$$DY_t = \beta_0 + \beta_1 DX_{1t} + \beta_2 DX_{2t} + \beta_3 DX_{3t} + \beta_4 DX_{4t} - \beta_5 ECT_{t-1} + e_t \quad \text{..... (4)}$$

From equation two steps Engle-Granger, the model is transformed in natural logarithm form, then the equation that will be estimated in this research are as follows:

$$\ln DY_t = \beta_0 + \beta_1 \ln DX_{1t} + \beta_2 \ln DX_{2t} + \beta_3 \ln DX_{3t} + \beta_4 \ln DX_{4t} - \beta_5 ECT_{t-1} + e_t \quad \ldots\ldots\ldots\ldots\ldots (5)$$

Where:

$\ln DY_t$ = First difference of economic growth in Maluku Province ($Y_t - Y_{t-1}$)

$\ln DX_{1t}$ = First difference of investment in Maluku Province ($X_1 - X_{1t-1}$)

$\ln DX_{2t}$ = First difference of inflation in Maluku Province ($X_2 - X_{2t-1}$)

$\ln DX_{3t}$ = First difference of export in Maluku Province ($X_3 - X_{3t-1}$)

$\ln DX_{4t}$ = First difference of labor in Maluku Province ($X_4 - X_{4t-1}$)

ECT_{t-1} = *Error Correction Term* at t-1 ($Y_{t-1} - \beta_0 - \delta_1 X_{1t-1} - \delta_2 X_{2t-1} - \delta_3 X_{3t-1} - \delta_4 X_{4t-1}$)

$\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficient from each economic macro variables

β_5 = Coefficient ECT (*error correction term*)

e_t = *Residual*

Short-term relationship, after estimating the EG-ECM with ordinary least square (OLS) methods, further conducted significance test research variables and the test of classical assumption toward EG-ECM estimation. In this process will know the influence of the independent variables toward dependent variable in the short term including the validity estimation model that can be views of ECT variable information.

Long-term relationship, after analyzing the short-term relationship continued with the analysis of long-term relationship, namely by estimating co-integration equations. This process can be known in a long-term effect of economic variables on economic growth.

RESULT AND DISCUSSION

A time series data stationary if the average variance and co-variance has a constant value at each time period, economic variables are generally non-stationary while the method of time series analysis requires stationary of the series are used. Therefore, in this study used the Augmented Dickey Fuller test for detecting unit roots can be seen in the following table.

Table 1 Augmented Dickey Fuller Test at Level

Variable		***ADF Test Statistic***	***Prob.****	***Critical Value***		
				1 %	**5 %**	**10 %**
Y	*None*	1.743559	0.9767	-2.669359	-1.956406	-1.608495
	Intercept	-0.143020	0.9331	-3.752946	-2.998064	-2.638752
	Trend & Intercept	-1.927120	0.6082	-4.416345	-3.622033	-3.248592
X1	*None*	4.095526	0.9999	-2.669359	-1.956406	-1.608495
	Intercept	2.850166	1.0000	-3.752946	-2.998064	-2.638752
	Trend & Intercept	0.871842	0.9996	-4.416345	-3.622033	-3.248592
X2	*None*	-1.227648	0.1946	-2.669359	-1.956406	-1.608495
	Intercept	-2.280943	0.1859	-3.752946	-2.998064	-2.638752
	Trend & Intercept	-2.209156	0.4628	-4.416345	-3.622033	-3.248592
X3	*None*	2.061332	0.9875	-2.679735	-1.958088	-1.607830

	Intercept	*0*.845313	0.9924	-3.788030	-3.012363	-2.646119
	Trend & Intercept	*-2*.935240	0.1713	-4.440739	-3.632896	-3.254671
X4	*None*	*2*.795351	0.9977	-2.669359	-1.956406	-1.608495
	Intercept	1.570951	0.9990	-3.752946	-2.998064	-2.638752
	Trend & Intercept	0.298569	0.9973	-4.416345	-3.622033	-3.248592

Source: data processed

The table above shows that the results of unit root test using the augmented dickey fuller test at level (I0) which indicates that the variables used in this study are not stationary (have unit roots) this can be seen from the ADF test-statistic values that tend to be smaller than its critical value or also can be seen from the number of probability that is greater than 5 percent. So that further testing is needed to eliminate the unit root with the ADF test at first difference. By using the ADF test at first difference expected to make data stationary on variables that used, the first difference of ADF test can be seen in Table 2, as follows:

Table 2 Augmented Dickey Fuller Test at First Difference

Variable		***ADF Test Statistic***	***Prob.*****	***Critical Value***		
				1 %	**5 %**	**10 %**
Y	*None*	-4.370319	0.0001	-2.674290	-1.957204	-1.608175
	Intercept	-5.211704	0.0004	-3.769597	-3.004861	-2.642242
	Trend & Intercept	-5.157071	0.0023	-4.440739	-3.632896	-3.254671
X1	*None*	-2.892639	0.0048	-2.674290	-1.957204	-1.608175
	Intercept	-3.660738	0.0218	-3.769597	-3.004861	-2.642242
	Trend & Intercept	-3.973979	0.0471	-4.467895	-3.644963	-3.261452
X2	*None*	-4.959644	0.0000	-2.674290	-1.957204	-1.608175
	Intercept	-4.840038	0.0009	-3.769597	-3.004861	-2.642242
	Trend & Intercept	-4.735524	0.0054	-4.440739	-3.632896	-3.254671
X3	*None*	-4.453544	0.0001	-2.679735	-1.958088	-1.607830
	Intercept	-5.060383	0.0006	-3.788030	-3.012363	-2.646119
	Trend & Intercept	-5.473474	0.0013	-4.467895	-3.644963	-3.261452
X4	*None*	-2.714827	0.0091	-2.674297	-1.957204	-1.608175
	Intercept	-3.409785	0.0305	-3.769597	-3.004861	-2.642242
	Trend & Intercept	-3.825581	0.0407	-4.440739	-3.632896	-3.254671

Source: data processed

Table two shows that with using the ADF test at first difference hence the data in each variable has a stationary, visible from the ADF test-statistic is greater than the critical value or can also be seen from the probability that an average of less than 5 percent. So it can be said that the research variables are integrated in the same degree, namely one degree (I1) or in other words, the conditions to conduct the co-integration test have been done.

Integration test results indicate the existence of co-integration relationship at the initial equation of the research, it can be known from the stationary tests of the residuals obtained from the estimation of the initial equation. Here are the results of co-integration test ECT.

Table 3 Co-integration Error Correction Term (ECT)

Variable	*ADF Test Statistic*	*Prob.***	*Critical Value*		
			1 %	**5 %**	**10 %**
STATIONARY AT LEVEL (I0)					
ECT(-1) (I0)	-4.159200	0.0003	-2.669359	-1.956460	-1.608495
STATIONARY AT FIRST DIFFERENCE (I1)					
ECT(-1) (I1)	-5.848739	0.0000	-2.674290	-1.957204	-1.608175

Source: data processed

Stationary test of the residual (ECT) showed that the absolute value of ADF is greater than its critical value at a significance level of 1 percent, 5 percent and 10 percent, or can also be seen in the probability value that less than 5 percent. Co-integration test in this research also uses the Johansen Co-integration test also indicates that there are four inter-variable co-integration equation. It can be concluded that the initial equation model is the co-integration equation model where the behavior of the data has the possibility of long-term equilibrium relationship.

After doing a stationary test and co-integration tests, continues to form error correction model through the estimation of EG-ECM. In this process it can be seen the influence of independent variables toward the dependent variable in the short-term and also the validity of the estimation model which can be determined from the coefficient of the variable Error Correction Term (ECT). If the ECT of the regression model significant mean error correction model (ECM) that used valid. Existence of error correction generates error correction coefficients that indicate the existence of the phenomenon of aberration correcting toward equilibrium. EG-ECM results can be seen in Table 4.

Table 4 Estimating Result of Engle Granger – Error Correction Model

Dependent Variable: D(PDRB)
Method: Least Squares
Sample (adjusted): 1987 2009
Included observations: 23 after adjustments

	Coefficient	Std. Error	t-Statistic	Prob.
D(INVESTASI)	0.239206	0.000210	3.984102	0.0389
D(INFLASI)	745.6105	19747.66	1.077518	0.1705
D(EKSPOR)	3.826528	3.013788	1.964674	0.0613
D(TK)	287.3776	694.7666	6.413632	0.0003
RESID01(-1)	-0.655510	0.239800	-2.899541	0.0416
C	111374.6	143079.8	0.778409	0.4470
R-squared	0.569820	Mean dependent var		253670.8
Adjusted R-squared	0.455062	S.D. dependent var		586788.7
S.E. of regression	570405.2	Akaike info criterion		29.56554
Sum squared resid	5.53E+12	Schwarz criterion		29.86176
Log likelihood	-334.0037	Hannan-Quinn criter.		29.64004
F-statistic	4.256388	Durbin-Watson stat		2.115787
Prob(F-statistic)	0.027155			

Source: data processed

Based on the results in the table 4 it can be argued that the independent variables in the short-term has a significant effect on economic growth are investment variable (X_1) with a significance level of 5 percent and has a positive slope, which means that the increase in value of investments will boost economic growth. Labor variable (X_4) with a significance level of 5 percent and has a positive slope, which means an increase in employment in the province of Maluku will have positive impact on regional economic growth. Export

variable (X_3) is significant at level of 10 percent and has a positive slope, meaning that an increase in exports has the same movement direction of economic growth but the increase in exports does not have a major impact in the economy in the short-term. Meanwhile, the inflation variable (X_2) does not significantly affect economic growth in the region. While the ECT variables have a significant effect on the level of significance 5 percent this indicates that the empirical model used in this study had a valid model specification so that the estimate can be used to see the effect of macroeconomic variables on economic growth in the province of Maluku.

ECT coefficient value has a meaning that the differences between the actual value with its equilibrium value is equal to 0.65 which explained that about 65% discrepancy between the actual value of economic growth in the Maluku province in the short-term and the balance of economic growth in the long-term will be corrected each year.

Classical Assumptions Test

Heteroskedasticity test, to detect the presence of heteroskedasticity in the model used the White test.

Table 5 Result of White Test

Heteroskedasticity Test: White			
F-statistic	4.135940	*Prob. F(20,2)*	0.2125
*Obs*R-squared*	22.45703	*Prob. Chi-Square(20)*	0.3162
Scaled explained SS	14.08178	*Prob. Chi-Square(20)*	0.8263

Source: data processed

White test results in the table 5 shows that in the research model used that there is no presence of heteroscedasticity it is seen from probability value of the chi-square 31 percent greater than 5 percent.

Autocorrelation test, to detect the presence of autocorrelation is to use the LM test (Serial Correlation Lagrange Multiplier Test).

Table 6 Result of *Lagrange Multiplier* (LM)

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.448818	*Prob. F(2,15)*	0.6467
*Obs*R-squared*	1.298660	*Prob. Chi-Square(2)*	0.5224

Source: data processed

Based on the results of LM tests indicate that there is no presence of autocorrelation is proven from the chi-square probability value by 52 percent where the value is greater than alpha = 5 percent, so it can be concluded that the model does not contain autocorrelation.

Multicollinearity test, which use auxilary regression essentially comparing the value of R^2 in primary model with R^2 in partial model (regression between the independent variables).

Table 7 Result of Multicollinierity Test

Regression Model	R^2
Primary Model	
$dLN\_Y=f(dLN\_X_1,dLN\_X_2,dLN\_X_3,dLN\_X_4)$	0,5698
Partial Model	
$dLN\_X_1=f(dLN\_X_2,dLN\_X_3,dLN\_X_4)$	0,4145
$dLN\_X_2=f(dLN\_X_1,dLN\_X_3,dLN\_X_4)$	0,0596

$dLN\_X_3=f(dLN\_X_1,dLN\_X_2,dLN\_X_4)$	0,0668
$dLN\_X_4=f(dLN\_X_1,dLN\_X_2,dLN\_X_3)$	0,4172

Source: data processed

Partial correlation test showed that there was no multicollinearity it is seen from the value of R^2 at the primary model is larger than R^2 on a partial model.

Normality Test, using the Jarque-Bera Test. The value of Jarque-Bera test results is 0.083928 with a probability value 0.958904 where the value is greater than $\alpha = 0.05$ which means that the residual in the equation are normally distributed.

Statistics Test

T-test used to see the significance of the influence of independent variables on the dependent variable separately. The significance level used for this test was 10 percent the critical value of t-test obtained was 1.714. Value of t-distribution for the investment variable is 3.984 which greater than the t-test value 1.714 means that a separately investment variable has positive and significant to economic growth. Value of t-distribution for inflation variable is 1.077 less than 1.714 means that a separately inflation variable has a small effect on economic growth. Value of t-distribution for the export variable is 1.964 greater than 1.714 means that separately the export variable has positive and significant effect on economic growth. T-distribution for labor variable is 6, 134 greater than 1.714 means that separately the labor variable has a positive and significant effect on economic growth. While the value of t-distribution for ECT is -2.899 greater than t-test, which means that separately the ECT variables has a significant effect on economic growth in the province of Maluku.

F-test to determine the level of significance of the influence independent variables on the dependent variables simultaneously, based on the result of f-distribution is 1.2563 with the probability value 0.0271 means that overall the independent variable that used to influence the dependent variable at a significance level of 5 percent.

Analysis of long-term, long-term relationship can be obtained by estimating the co-integration equation model.

Table 8 Estimation Result of Long-Term

Dependent Variable: PDRB
Method: Least Squares
Sample: 1986 2009
Included observations: 24

	Coefficient	Std. Error	t-Statistic	Prob.
INVESTASI	0.078300	0.000187	2.066021	0.0479
INFLASI	35128.71	18768.72	1.871663	0.0767
EKSPOR	6.733966	3.134305	2.148472	0.0448
TK	488.6163	526.7830	0.927548	0.3653
C	502852.4	442125.6	1.137352	0.2695
R-squared	0.870891	Mean dependent var		3127326.
Adjusted R-squared	0.843710	S.D. dependent var		1665924.
S.E. of regression	658599.4	Akaike info criterion		29.81667
Sum squared resid	8.24E+12	Schwarz criterion		30.06210
Log likelihood	-352.8000	Hannan-Quinn criter.		29.88178
F-statistic	32.04050	Durbin-Watson stat		1.133376
Prob(F-statistic)	0.000000			

Source: data processed

The estimation result of the model used shows that in the long-term investment variable, the inflation variable and export variable significantly influencing economic growth, while the labor variable has no effect in the long-term to economic growth during the observation period.

In the short-term and long-term investment variable have a significant with the positive slope direction this indicates that the investment is a very important instrument in influencing economic growth because in Maluku province plentiful natural resources are very abundant, but still not maximal in its management, based on report of Marine and Fisheries Research Agency in collaboration with the LIPI that utilization of fisheries by 26 percent of maximum sustainable yield, great potential natural resources fishery is not coupled with the availability of funds that is expected to be able to spur investment in the potential utilization of economic resources that exist in order to increase growth economy in the province of Maluku. Ardiarini (2008) research on the analysis of causality between economic growth and government investment in East Java the period from 1975 to 2005 using the estimated VAR, the research found that between economic growth and investment growth in the government have jointly determined the relationship (mutually determine), the policy implications of the reciprocal relationship between the level of investment and the level of income is projected on making an annual investment needs and economic growth. Manuhutu Yerimias (2011) research on the analysis of export and investment in the fisheries sector in Maluku province year 1990-2009 using vector autoregressive approach found that investment variable is a best instrument that can be used by the government to stimulus the economic openness in Maluku and has a reciprocal effect with export variable in dynamic behavior of movement.

Export in the long-term is very significant variable in influencing economic growth this indicates that the long-term export variable is a good instrument in spurring economic growth. Entry of investment in maximizing the economic potential held along with the availability of adequate labor in the long-run exports can affect economic growth, openness of the economy through export will open the lines of the economy in various sectors so that of course will greatly benefit economic growth and regional development in Maluku province . Prastowo (March 2010) based on Indonesia's export trade, the U.S. ranked first which imports of Indonesian fishery products followed by Japan and the European Union related to the joint development of fishery product processing technologies that can meet the standards of food safety in order to support food security. This condition is in line with Bank Indonesia program (April 2010) that would push the banking intermediary function for the SME (Small Medium Enterprise = UKM) fishery and marine sectors so that become the pre-eminent sector in national economy, expected by this sector be able to produce the optimum in driving economic growth.

Labor variable in the short-term have a significant effect on economic growth but in the long-term, these variable is no longer affect economic growth, was matter because the presence of increasingly rapid economic growth and improvement of the technological so the use of labor tend to decreases.

CONCLUSIONS AND RECOMMENDATIONS

The analysis shows an association between macroeconomic variables that included in the model of economic growth. In the short-term investment variable and labor variable affect by 5 percent and exports by 10 percent effect on economic growth. Overall in the long-term investment variable and export variable affect economic growth by 5 percent while the inflation effect by 10 percent while the labor variable has no effect on economic growth.

Suggested that local government of Maluku can make an authorization and management of better regulation in relation to the development of employment absorb because based on the results obtained shows that in the long-term effects of labor tend to decreases, indicating that if the government is wrong in taking a step in the development of regional policy it will result in a lack of employment absorb, resulting in greater levels of unemployment.

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