Analysis of Economic Growth in Asean Countries

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Artikel Info	*Abstrak*
	This studied aims to explained the effect of the variables of inflation, consumption expenditure, capital formation, foreign direct investment, and trade openness on gross domestic product ASEAN countries from 1996 – 2018. This research used a panel regression analyzed method to test the data in getting decisions. The t-statistic test results showed that consumption expenditure, capital formation, foreign direct investment, and trade openness significantly influence the direction of a positive relationship to gross domestic product. However, inflation showed a negative direction and had a significant effect on the gross domestic product so that if there is increased inflation it will reduce gross domestic product. The government can formula a single-digit policy so that there is no decline in the gross domestic product of ASEAN countries.

INTRODUCTION

Increased productivity generally occurs when there is productive efficiency driven by FDI's inflows into the country. Incoming FDI flows occur at the time of international trade. It demonstrates the linkage between international trade and FDI with economic growth. Along with the trade, liberalization facilitates the process of intensification of FDI into the host country. Trade liberalization has implications for showing a relationship to economic growth. However, it takes some great strides focused on openness to become a cross-section for the country (Yanikkaya, 2003).

Since three decades (1960, 1970, and 1980) of trade openness promote convergence which suggests that trading provides benefits for a richer economy with little benefit on developing countries. The trading activity provides dynamic benefits with small contributions gained for increased investment and growth productivity (Dowrick & Golley, 2004). Meanwhile, it comes the debate that gives a new conception, whether the trade openness provides a great benefit to the developing countries, because simply when the trade openness occurs it will make cooperation relationship rise and provide benefits such as national income increase.

This proves that the level of trade openness through MEA activities can integrate the markets in the countries involved, that can adapt because of the fully integrated economy (Suliswanto, 2016). Similar arguments are also reinforced with the results that trade openness influence on economic growth.

Also, trade openness has the main function to drive and promote economic growth, supported by FDI inflows and capital formation (Adhikary, 2010).

The important role of FDI was able to make the government attempt to attract investors to provide incentives. The goal is to increase foreign exchange reserves. However, on the other hand, FDI allows transferring of technology to developing countries, only when the transfer there is a risk of economic deviations such as the trade policy barriers. Nevertheless, FDI has the influence to increase economic growth (Borensztein et al., 1998). The FDI flow will tend to increase when the government has low dependence on taxation. Thus, the FDI flow can increase rapidly in ASEAN countries but should be supported with ease of investing (Habibi & Riyanto, 2017).

Thus, it can be emphasized that FDI has a strong argument to allow technology transfer and increase spillover. FDI is also able to promote exports in the host country to increase the country's activities (Falki, 2009). According to UNCTAD, (2009) in Liargovas & Skandalis, (2014) many developing countries are only able to attract a small stream of foreign direct investment, despite the economic liberalization of integrating domestic and world markets. Moreover, foreign direct investment has been concentrated in some small countries. Foreign investment demand-side directly will drain capital into countries that at large enough to support production capacity through on economies of scale. Developing countries are very concerned about the aspect of foreign direct investment in improving capital formation (Pradhan, 2009). This proves that foreign direct investment is the most effective factor to increase the economic growth of a country.

In addition to supporting FDI and capital formation, the utilization of FDI inflows emphasized through the trading process is expected to affect domestic demand so that national consumption can increase. However, there are other debates about outward orientation strategies that are assessed to increase exports and growth. Although it is not yet a completely obvious or ambiguous relationship between an outward strategy orientation on openness and productivity growth (Greenaway & Nam, 1988).

Several studies of research show that economic growth is influenced by trade openness, FDI, and capital formation. This, demonstrated from the theories brought by Romer, (1986), Barro, RJ, (1995) Rivera-Batiz & Romer, (1991) which explain the neoclassical and endogenous models that trade openness, FDI, and capital formation influence the increasing activity of economic growth. Openness is an important factor that can be used to foster and promote the economic growth of developing countries. Generally, openness provides the ease of the trading process and flowing international capital.

This study is supported also by the research results described by Adhikary, (2010) that trade openness, FDI, and capital formation have a significant influence on economic growth. However, trade openness is negative in that it impacts the decline in economic growth. This, in line with the results of the study of Bibi et al., (2014) that trade openness and inflation are negative in value and lower economic growth. In his research, the variables of trade openness,

export, import, exchange rates, and FDI show the interaction of long-term relationships. Negative impacts due to trade openness variables can be addressed through import activities and creating conditions to increase the surplus. It is shown that trading and FDI is a tool capable of driving growth. According to Fetahi-Vehapi et al., (2015) trade openness has a significant effect on economic growth in SEE countries. This analysis is conducted on the SEE country, by looking at the interaction of the control variables is per capita income, human capital, FDI, and gross fixed capital formation, indicating the results of interactions.

Later on, the study discussing economic growth in ASEAN-4, shows that FDI, trade openness, and gross fixed capital formation is influential on economic growth. The three variables affect both significant and positive impact on economic growth (GDP). However, in the OLS test other results show that in Indonesia, trade openness is influential towards economic growth but negative. Meanwhile, in Malaysia, Thailand, and Filipina showed the opposite result that openness is not significant in economic growth. Then the FDI is not correlated to the ASEAN-4 country (Hussin & Saidin, 2012). In subsequent studies, it showed similar results that financial development and trade openness had a significant effect on economic growth. These results demonstrate the impact of the financial development variable that is supported by economic policies, and trade openness in the influence of any economic growth (Yucel, 2009).

In addition to neoclassical and endogenous theories, the research also uses Keynes theory. This is, done because in the long-term economic growth is generated by increased consumption expenditure activity. Following the Keynes theory described by Machmud, (2016:75) The trend in marginal propensity to consume on goods consumed into a crucial policy, is recommended to influence economic growth and reduce unemployment. This theory arises due to a great depression. Sakib, (2011) Explains that consumption expenditure is the result of economic growth, demonstrated by the long-term relationship between the variables of consumption expenditure and economic growth. It was concluded that his research supported Keynes' theory.

In general, this research has similarities to previous research using neoclassical and endogenous theories in analyzing the influence of FDI, trade openness, capital formation, and inflation. The difference in current research is the presence of variable consumption expenditure, to see the wider benefits of such variables with the characteristics of an open economy. That then needed a Keynesian theory to complement the analysis in looking at economic growth. Keynesian theory functions more to see that economic growth will be easily seen as more diverse.

In the research above, there is intimacy gained, shown in the study explaining that trade openness is significant but negative to economic growth. But on the other hand, it is explained that trade openness turns out to have no significant effect. Nevertheless, this indicates still undecided in assessing trade openness. Therefore, emphasized that there is a suspected, inflation,

consumption expenditure, capital formation, FDI, and trade openness affecting economic growth.

RESEARCH METHODS

The study tested variables including macroeconomic, inflation, consumption expenditure, capital formation, and foreign direct investment as well as the activity economic variable trade openness to gross domestic product. This research was conducted in ASEAN countries namely Indonesia, Singapore, Thailand, Malaysia, Filipina, Vietnam, and Cambodia from 1996 – 2018. This research uses quantitative data types in the form of numbers and data information. The data sources in this study are secondary data obtained from the World Bank. The research method used is a regression panel.

Furthermore, a model determination can be done through three simple approaches. There are three approaches to determining the estimation model that can be done, such as the Common Effect Model, Fixed Effect Model, and Random Effect Model.

The models of regression approaches:

Common Effect Model (CEM)*:*

$$y_{it} = \beta_0 + \beta_{1x_{it}} + \mu_{it} \tag{1}$$

Fixed Effect Model (FEM)*:*

$$y_{it} = \beta_{0i} + \beta_{1x_{it}} + \mu_{it} \tag{2}$$

Random Effect Model (REM):

$$\beta_{0i} = \bar{\beta}_0 + v_i$$
$$y_{it} = \bar{\beta}_0 + \beta_{1x_{it}} + (\mu_{it} + v_i)$$
$$y_{it} = \bar{\beta}_{0i} + \beta_{1x_{it}} + w_{it} \tag{3}$$

The model of regression:

$$\ln GDP_{it} = \beta_0 + \beta_1 INFx_{1it} + \beta_2 TOx_{2it} + \beta_3 \ln PKx_{3it} + \beta_4 \ln PMx_{4it} + \beta_5 LnFDIx_{5it} + \mu \tag{4}$$

Where is : $\ln GDP_{it}$ is *Gross Domestic Product,* β_0 is *Intercept,* $\beta_1 INFx_{1it}$ is *inflation,* $\beta_2 TOx_{2it}$ is *Trade Openness,* $\beta_3 \ln PKx_{3it}$ is *household consumption expenditure,* $\beta_4 \ln PMx_{4it}$ is *Capital Formation,* $\beta_5 \ln FDIx_{5it}$ is *Foreign Direct Investment,* μ *is an error or residual*

Procedure selecting model:

Stage data analysis, conducted model determination by considering the results of the test Chow and Hausman.

The hypothesis that the Chow test builds is:

Ho: CEM model is better suited

H1: FEM model is better suited

Considering the critical value of 0.05 or F < α (0.05) then the FEM model is more appropriate, and so vice versa when the probability value is greater than alpha, then the corresponding CEM model.

Further conducted Hausman testing, with hypotheses that built the Hausman test were:

Ho: REM model is better suited

H1: FEM model is better suited

Considering the critical value of 0.05. The criticism is that Ho is rejected if Prob. Chi-Square is smaller than the critical value of 0.05 or Prob. Chi-Square < α (0.05).

RESULTS AND DISCUSSION

Background of ASEAN Countries

ASEAN (Association of Southeast Asian Nations) is the organization of countries in the Southeast Asia region in the field of economic, political, and social welfare of ASEAN society. ASEAN stood by the provisions of the Bangkok Declaration on 8 August 1967, which formed a similar characteristic such as the EU Union. The objectives of the Organization to promote economic growth through integrating the domestic market of ASEAN region to the world market to increase the national income of each member country. The country was founded by Indonesia, Singapore, Thailand, Malaysia, and Filipina which was formed as a member of ASEAN-5 as well as the founding country of ASEAN at the time. Then there is the membership of CLMV namely Cambodia and Vietnam which is specially taken in this research because it has the main purpose of conducting regional integration in the field of trade with China (Setnas ASEAN, 2019).

Result of analysis data

Chow test

The Chow test is used to determine the model between common effect and fixed effect, about the critical value and probability that Chi-square is smaller than 0.05 to reject Ho. Therefore, to compare these models are tested with the Chow test.

Table 2. Redundant fixed effect-likelihood ratio chow test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	60.070720	(6,149)	0.0000
Cross-section Chi-square	197.922935	6	0.0000

Based on table 2 results Chow Test with Redundant Fixed Effect-Likelihood Ratio Test obtained the probability value of Chi-square amounting to 0.0000 smaller than the critical value of 0.05 so it can be decided to reject the Ho and the best model used in the study is a Fixed Effect model. This, indicating that the intercepts for all models of the same cross-section unit do not apply, it can be concluded that consumption expenditure, capital formation, foreign direct investment, inflation, trade openness to the proper ASEAN countries the gross domestic product is a fixed-effect model.

Hausman test

The Hausman test is used to determine the model between the random effect and the fixed effect, about the critical value and probability of Chi-square greater than 0.05 to receive Ho.

Table 3. Hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.881453	5	0.3179

Based on table 3 of the Hausman test, the probability value of Chi-square with a random cross-section of 0.3179 is greater than the critical value of 0.05 so it can be decided to accept Ho and the best model chosen is a random effect. This Model can eliminate and reduce the presence of symptoms of heteroscedasticity in the data so that the parameters will be more efficient. At the Hausman test obtained the results that the random effect model is the best, then it can be obtained the implications that this study uses the best model of the random effect model.

Model interpretation

The following is a coefficient of the equation obtained from a random effect model, for each ASEAN country that is Indonesia, Singapore, Thailand, Malaysia, Filipina, Vietnam, Cambodia, which is shown in table 3 model of ASEAN equation of state.

$$\text{LnGDP} = 0.245537600631 - 0.00183066741228 \, (INF) + 0.000879597475629 \, (TO) + 0.810418817887 \, (LnPK) + 0.190399338077 \, (LnPM) + 0.0138395999811 \, (LnFDI) \qquad (5)$$

Intercept results can be obtained as follows:

0 = 0.2455 means that if the variable rises by 1 percent then the domestic product will increase by 0.2455 percent, assuming the other variables are fixed or constant.

1 = -0.0018 means that inflation increases by 1 percent, then the gross domestic product will decrease by -0.0018 percent, assuming the other variables are fixed or constant.

2 = 0,0008 means that if the trade openness increases by 1 percent, the gross domestic product will increase by 0,0008 percent, assuming the other variables are constant or constant.

3 = 0.8104 means that if the consumption expenditure increases by 1 percent, the gross domestic product will increase by 0.8104 percent, assuming the other variables are fixed or constant.

4 = 0.1903 means that the capital formation increases by 1 percent, then the gross domestic product will increase by 0.1903 percent, assuming the other variables are fixed or constant.

5 = 0.0138 means that if the FDI increases by 1 percent, the gross domestic product will increase by 0.0138 percent, assuming the other variables are fixed or constant.

Based on model regression, is indicated in the model that only inflation is of negative value and lowers GDP. This confirms that the rate of inflation in ASEAN countries can lower economic conditions in various fields, let alone inflation is a variable related to the stability of the country's capabilities. As for consumption expenditure, capital formation, foreign direct investment, and trade openness is positive and increases the GDP. This indicates that these four variables can potentially maximize economic growth and increase the GDP of the ASEAN country.

Results of Significance Test
Partial test (T-Test)
Partial trials are used to know the independent variables affect the dependent variables significantly and to prove the hypothesis created in the study, about the probability and T-tables obtained from (n = 161, k = 6, 161 – 6 = 155), with DF of 1.97539 and a critical value of α (0.05). The following describes the influence of variable inflation, trade openness, consumption expenditure, capital formation, foreign direct investment, against the gross domestic product as follows:

Table 4. Result of the t-statistic test

Variable	Coefficient	t-Statistic	Prob.
Inflation	-0.001831	-2.446276	0.0156
Consumption Expenditure	0.810419	35.30932	0.0000
Capital Formation	0.190399	8.997133	0.0000
Foreign Direct Investment	0.013840	2.333717	0.0209
Trade Openness	0.000880	5.908889	0.0000

Based on table 4 results of t-Statistic, can be explained the influence of independent variables namely inflation, consumption expenditure, capital formation, foreign direct investment, and trade openness against the dependent variable of the gross domestic product as follows:

The Influence of inflation on GDP

Results showed inflation had a probability value of 0.0156 with a T-statistic value of-2.446276 and a T-table value of 1.95739. It can then be concluded that the value of T-statistic-2.446276 < t-table 1.95739 and probability 0.00156 < 0.05, so it can be decided to reject Ho and receive H1. Thus, it can be concluded that the inflation variable significantly affects the direction of the negative relationship to gross domestic product.

The influence of consumption expenditure on GDP

Results show consumption expenditure has a probability value of 0.0000 with a T-statistic value of 35.30932 and a T-table value of 1.95739. It can be concluded that the value of T-Statistic 35.30932 > T-table 1.95739 and the probability of 0.0000 < 0.05, so that it can be decided to reject Ho and receive the H1. Thus, it can be concluded that the consumption expenditure has a significant effect on the direction of positive relationship to gross domestic product.

The influence of capital formation on GDP

Results show that capital formation has a probability value of 0.0000 with a T-statistic value of 8.997133 and a T-table value of 1.95739. It can be concluded that the value of T-Statistic 8.997133 > T-table 1.95739 and probability 0.0000 < 0.05 so that it was decided to reject Ho and receive H1. Thus, it can be concluded that capital formation has a significant effect on the direction of positive relationship to gross domestic product.

The influence of Foreign Direct Investment (FDI) on GDP

Results show that foreign direct investment has a probability value of 0.0209 with a T-statistic value of 2.333717 and a T-table value of 1.95739. It can be concluded that the value of T-Statistic 2.333717 > T-table 1.95739 and probability 0.0209 < 0.05, so it can be decided to reject Ho and receive H1. Thus, it can be concluded that foreign direct investment has a significant effect on the direction of positive relationship to gross domestic product.

The influence of Trade Openness on GDP

Results indicate that the trade Openness has a probability value of 0.0000 with a T-statistic value of 5.908889 and a T-table value of it can then be concluded that the value of T-Statistic 5.908889 > T-table 1.95739 and probability 0.0000 < 0.05 so that it can be decided to reject Ho and receive H1. Thus, it can be concluded that the trade openness variable has significantly affected the direction of positive relationship to gross domestic product.

Simultaneous test (F-statistic test)

The simultaneous test is used to know the entire independent variable simultaneously affects the dependent variable by paying attention to the critical values of α (0.05) and df obtained from DF1 = 5, DF2 = 161 – 5 – 1 = 155, then F-table amounting to 2.27.

Table 5. Simultaneous test (F-statistic)

Simultaneous test	Probability
F-statistic	5581.653
Prob(F-statistic)	0.000000

Based on table 5 results can be obtained a probability value of 0.000000 with an F-statistic value of 5,581,653, and a value of F-table of 2.27. It can be concluded that the F-statistic value of 5,581,653 > F-table amounted to 2.27 and a probability of 0.000000 < α (0.05), then it can be decided to reject Ho and receive H1. Thus, it can be concluded that the variable inflation, consumption expenditure, capital formation, foreign direct investment, and trade openness have a significant effect on gross domestic product.

Coefficient of determination (R^2)

The coefficient of determination (R2) is used to determine whether the model indicates the goodness of fit criterion, which is indicated by the value of the coefficient of determination (R^2) by noting that the closer to number 1, then has a very strong influence in explaining the response variables. In this test, the result is obtained coefficient of determination value in the random effect model as follows:

Table 6. Coefficient of determination regression random effect

Coefficient of Determination	Results R^2
Adjusted R-squared	0.994299
R-squared	0.994477

Based on a regression analysis of the Data Panel on table 6 of the F-statistic test obtained an ADJ Square R^2 value of 0.994291 or 99.42% showed a very strong influence between dependent variable GDP can be explained by independent variable inflation, consumption expenditure, capital formation, FDI, and trade openness the remainder 0.58% described by other variables outside the model.

Discussion of Research Results

Results show that the entire variables partial test and the simultaneous test has a significant effect on economic growth. These results are also supported by neoclassical theory, endogenous, Keynes, and past studies. Shown in the results that only inflation has a negative influence on economic growth. This, however, has been in common with the research results of Bibi et al., (2014) That inflation has a significant effect but hurts economic growth.

While in Adhikary, (2010), Bibi et al., (2014), Hussin & Saidin, (2012) trade openness significantly influential but negative value and lower economic growth. The results are quite different from current research because trade openness precisely influences significant and positive towards economic growth. So every time an increase occurs, economic growth will also increase.

As for output results on FDI, capital formation, and consumption expenditure in the simultaneous and partial test is a significant effect, on economic growth. The results showed that international capital flows in FDI and capital formation effectively influenced economic growth (Adhikary, 2010). Then for consumption expenditure affects economic growth, because the long-term consumption of expenditure activity affects economic growth, such as the results of the explained research of Sakib, (2011).

Thus, this study shows trade openness, FDI, and capital formation can contribute to economic growth because there is economic openness that supports the growth of ASEAN countries. However, consumption expenditure is a special concern because it can increase economic growth, so it is necessary to support consumption expenditure. This is because consumption spending also has a significant effect on economic growth. As for inflation, domestic policy is required to maintain the stability of inflation so that economic growth can stabilize.

CONCLUSION

Results show that variable inflation, expenditure, consumption, capital formation, FDI, and trade openness has a significant effect on economic growth. This suggests that the entire variable provides synergy for more positive economic growth activities and increases productivity. The results are made clear through the partial and simultaneous test results that have been done before.

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