

Analysis of Labor, Tourism, and GDP Growth: Case Study of ASEAN Countries

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Abstract—The ASEAN Economic Community was formed with the aim of achieving the perfection of economic integration in the ASEAN region which is believed to provide tangible benefits for all elements of society. On the other hand, the use of technology in the company will also affect how much work is needed. Technological sophistication alone does not necessarily result in a decrease in the number of workers. Technological progress will lead to better production results. This study uses a quantitative method with panel data secondary to the 2011-2015 period by combining 10 ASEAN countries (Indonesia, Malaysia, Singapore, Thailand, Philippines, Vietnam, Myanmar, Brunei, Laos, Cambodia). Labor and tourism influences on GDP are already good, but there are some countries that have to be improved again such as Myanmar, Laos and Cambodia. The policies of these three countries in the use of digital technology are expected to improve the welfare of the workforce. If digital technology has been implemented properly, all countries in ASEAN will get the same welfare.

Keywords—component; labor; tourism; GDP, ASEAN

I. INTRODUCTION

The ASEAN Economic Community (AEC) was formed with the aim of achieving the perfect economic integration in the ASEAN region which is believed to provide tangible benefits for all elements of society. According to [1] explains there are at least 4 (four) things that become the focus of the implementation of the AEC, first, countries in the market unity and production base. Second, AEC will be used as a region with a very high level of competition. Third, the AEC will be used as a joint with equitable economic development. Fourth, the AEC will be integrated into equitable economic development among the entire ASEAN region.

In the case of Labor, Increasing the wage rate will result in an increase in production costs, so that it will increase the perunit price of the product produced. If the perunit price of the product being sold is increased, the reaction that usually arises is to reduce the purchase or no longer buy the product. So that there will be a change in the production scale called the effect of production scale (scale effect) where a condition that forces producers to reduce the number of products produced, which in

turn can also reduce the company's workforce. An increase in wages assuming the price of other capital goods remains, the entrepreneur has a tendency to replace labor with machinery. The decrease in the number of workers due to the replacement with a machine is called substitution effect.

Tourism industry has become an important concern for ASEAN countries, because it is one of the industries that can generate foreign exchange. Labor and tourism are so important that this study analyzes the influence of labor and tourism on GDP growth.

[2] labor has a significant partial impact on Indonesia's Gross Domestic Product (GDP), Malaysia, Singapore and Thailand. The results of this study indicate that labor acts as a factor that can partially explain changes in Gross Domestic Product (GDP) from Indonesia, Malaysia, Singapore and Thailand. Meanwhile [3] variable domestic tourist expenditure has a significant effect on the APEC country's GDP tourism model.

II. LITERATURE REVIEW

A. Labor

According to [4] explains Labor is defined as a population in the working-age population. Whereas the definition of labor is contained in Law No. 25 of 1997 concerning Manpower, namely every man or woman who is in and / or will do work, both inside and outside the employment relationship to produce goods or services to fulfill community needs. According to [5] labor is a population that has an age within the working age limit. The purpose of choosing the age limit is so that the definition given is as possible as describing the actual reality. Each country chooses a different age limit because the situation of labor in each country is also different, so that the working age limit between countries is not the same. In Indonesia, the minimum age limit for labor is 15 years without maximum limits.

According to [6] the variable Labor has a positive influence on GRDP in North Sumatra. Meanwhile, according to [7] the Tomohon City GRDP has increased from year to year in every sector in Tomohon, which has caused labor to be absorbed from

year to year to increase as it is followed by an increase in the number of GRDP.

B. Tourism

[8] Tourism is one of the basic human needs. According to [9] tourists arriving in a foreign country, both individually and in groups, whatever their travel destination, will spend their money while staying in the destination to pay for services or tourist goods and buy services or goods that are not related to travel. The total amount of money spent is the amount of state revenue from the tourism sector and a pattern of consumption of tourists in the country. The more consumption of tourists, the more tourism services produced in Trade, Hotels and Restaurants.

According to [8], the longer tourists stay in a tourist destination, the more money spent in the tourist destination, at least for food, drink and lodging during their stay in the area. Various types of tourist needs during the tour will cause consumptive symptoms for products in tourist destinations. With the consumptive activities of both foreign and domestic tourists, it will increase revenue from the tourism sector of a region.

According to [8] foreign tourists are every person who visits a country, other than the country usually occupied for a period of approximately 24 hours. Foreign tourists are suppliers of foreign exchange reserves for the area they visit. The entry of foreign tourists will increase foreign exchange, which means that it will strengthen the balance of payments and trade.

According to [10] tourism contribution to GDP at present the biggest sector getting GDP added value from tourism is hotels which reached 95.13 percent, followed by rail transport, namely 71.63 percent and air transportation at 36.75 percent. While according to [11] the variable number of foreign tourists and hotel investment partially has a significant contribution to the GDP of the tourism sector in East Java Province.

C. Gross Domestic Product (GDP)

A successful development program in developing countries is often assessed based on the high and low or speed of the level of output growth and national income generated. However, the main concern of development through accelerating the growth of national income or economic growth, on the other hand there is a spread of income growth which is still very limited in scope, the strength between regions / regions in developing countries is not balanced, thus tends to widen the gap or inequality between regions / rich regions and poor regions / regions.

Economic growth is the development of activities in the economy that causes goods and services produced in society to increase so that it will increase the prosperity of the community (Sukirno, 1994) in [12]. Still in [12] that economic growth is a process of increasing output per capita in the long run.

III. METHOD

The population that became the object in this study came from secondary data obtained from the company Knoema, one of the digital economic data provider companies. The sampling method uses purposive sampling method, namely the determination of samples with certain considerations. In this study the sample was used using panel data obtained by time series data for 5 years and cross section data of 10 ASEAN countries namely Indonesia, Malaysia, Singapore, Philippines, Thailand, Vietnam, Myanmar, Laos, Brunei, Cambodia.

A. Variable Identification

Research variables are independent and dependent. for the independent variables that exist in this study are Labor (X1), Tourism (X2) while the dependent variable GDP (Y).

B. Data Analysis

The analytical method used in this study is a quantitative technique that uses mathematical and statistical models that are classified in certain categories to facilitate analysis using the Eviews program. While the analysis technique used is multiple linear regression analysis techniques to see the relationship between the independent variable and the dependent variable. The data used is the panel data there are three kinds of data panel estimation techniques, namely pooled least square, fixed effect model, and random effect model. Test the suitability of the model to determine the most appropriate model is to use the Chow test. After that, the classic assumption test is normality test and also hypothesis testing, namely partial t test, simultaneous F test, test of the coefficient of determination.

C. Econometry Model

The analysis technique in this study is panel data regression analysis, while the regression model in the form of logs can be written as follows:

$$\ln Y_{it} = \beta_0 + \beta_1 \ln X1_{it} + \beta_2 \ln X2_{it} + e_{it}$$

Where:

Y = GDP; X1 = Labor; X2 = Tourism, i = Country; and t = time.

IV. RESULT

There are three estimations of panel data regression, namely common effects (OLS), fixed effect models (FEM) or Random Effect (REM) models. Determining the panel model that will be used in this study, several tests must be carried out. Chow Test that can be used to determine whether the panel data model can be regressed with common effect models (OLS), fixed effect models (FEM) or Random Effect (REM) models. Chow test is used to determine whether the panel data model is regressed with the Common Effect model or with the Fixed Effect model. From chow test, we choose fixed effect model.

Dependent Variable: GDP
 Method: Panel Least Squares
 Date: 16/11/18 Time: 22:41
 Sample: 2011 2015
 Periods included: 5
 Cross-sections included: 10
 Total panel (balanced) observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOURISM	3.56E-06	1.61E-06	2.208372	0.0333
LABOR	5.11E-07	1.87E-06	0.273875	0.7857
C	192.7712	75.07107	2.567850	0.0143

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.997105	Mean dependent var	244.4450
Adjusted R-squared	0.996267	S.D. dependent var	258.8520
S.E. of regression	15.81563	Akaike info criterion	8.565437
Sum squared resid	9505.094	Schwarz criterion	9.024323
Log likelihood	-202.1359	Hannan-Quinn criter.	8.740183
F-statistic	1189.801	Durbin-Watson stat	1.112408
Prob(F-statistic)	0.000000		

Fig. 1. Fixed Effect Model

From the results of panel data regression with the selected model is the Fixed Effect model, the regression model equation is obtained as follows:

$$GDP = 3.56 (\text{Tourism}) + 5.11 (\text{Labor}) + e$$

A. T test (Partial)

Based on the results above as follows:

Effect of Labor on GDP

The t-statistical probability value obtained is 0.0489, then the statistical probability $\alpha = 5\%$ is $0.7857 > 0.05$, So it can be concluded that the labor variable partially does not affect but the significance of the GDP variable.

Effect of tourism on GDP

The obtained t-statistical probability value is 0.0007. Then the statistical probability $\alpha = 5\%$ is $0.033 < 0.05$. So it can be concluded that the tourism variable partially influences the positive significance of the GDP variable.

B. F test (Simultaneous)

From the calculation of F value, it is known that $F_{\text{arithmetic}} > F_{\text{table}}$ ($1189.801 > 3.18$) then H_0 is accepted and H_1 is rejected ($F_{\text{arithmetic}}$ is in H_1 reception area). Then also the probability (prob.) Of the table above is equal to $0.000 < 0.05$, then H_0 is accepted and H_1 is rejected. So that simultaneously or together the independent variables have a significant effect on the dependent variable.

Coefficient Determination

Based on the table above, the Adjusted R-Square value is 0.9971. This shows that the model is able to explain 99.71% of the dependent variable, while the remaining 0.29% is influenced by other factors outside the regression model.

C. Discussion

TABLE I. GROWTH OF LABOR

growth Labor	Indonesia	Malaysia	Singapura	Thailand	Philippnes	Vietnam	Myanmar	Laos	Brunei	Kamboja
2012	2,58	3,43	3,42	(0,23)	1,00	1,75	0,73	1,29	0,48	(2,17)
2013	1,11	3,89	0,86	(1,64)	1,16	1,47	0,78	1,24	(0,64)	0,05
2014	1,23	2,08	1,15	(0,17)	1,98	1,34	0,80	1,26	(0,37)	1,65
2015	1,19	1,64	1,97	(0,08)	2,12	1,08	0,66	1,60	1,42	1,74

Effect labor, tourism to GDP is good enough, but must be increased in labor. In Table I it can be explained that Singapore has good labor, it looks good labor growth. Whereas for the country of Thailand has decreased, this means that labor factors are very problematic in this country. Whereas other countries, seen the growth of labor has been good even though growth from year to year often changes, sometimes increases, sometimes decreases. Government policy to provide training so that labor becomes quality and has high productivity. Mastery of digital technology for labor is needed so that labor can work effectively and efficiently.

V. CONCLUSION

This study aims to analyze the relationship between Labor, tourism towards ASEAN countries GDP in the period 2011-2015 using panel data regression analysis techniques. Based on the results of statistical tests, the following conclusions can be drawn:

- From T test (Partial) based on the results above as follows, Effect of Labor on GDP, The t-statistical probability value obtained is 0.0489, then the statistical probability $\alpha = 5\%$ is $0.7857 > 0.05$, So it can be concluded that the labor variable partially does not affect but the significance of the GDP variable. Effect of tourism on GDP The obtained t-statistical probability value is 0.0007. Then the statistical probability $\alpha = 5\%$ is $0.033 < 0.05$. So it can be concluded that the tourism variable partially influences the positive significance of the GDP variable.
- From F Test (Simultaneous), the calculation of F value, it is known that $F_{\text{arithmetic}} > F_{\text{table}}$ ($1189.801 > 3.18$) then H_0 is accepted and H_1 is rejected ($F_{\text{arithmetic}}$ is in H_1 reception area). Then also the probability (prob.) Of the table above is equal to $0.000 < 0.05$, then H_0 is accepted and H_1 is rejected. So that simultaneously or together the independent variables have a significant effect on the dependent variable.the Adjusted R-Square value is 0.9971. This shows that the model is able to explain 99.71% of the

dependent variable, while the remaining 0.29% is influenced by other factors outside the regression model.

- The results of this study show that ASEAN countries are already good in labor and tourism but still need to be further improved. This study only analyzes the influence of labor, tourism on GDP for ASEAN countries for the years 2011-2015, so that the results will be different if it is outside the year or even use other independent variables.

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