Does Trade Openness and Human Resources Affect the Economic Growth of ASEAN Countries

Fakhruddin(✉), Fitriyani, and Cut Zakia Rizki

Department of Development Economics, Faculty of Economics and Business, Universitas Syiah Kuala, Aceh, Indonesia
{fakhruddin,fitriyani,zakia_rizki}@unsyiah.ac.id

Abstract. The AEC aims to make ASEAN as a single market and production base, where the flow of goods, services, investment, and skilled labor, as well as the flow of capital, can move freely. The purpose is to ensure all countries can get benefit from free trade with equitable economic development, reduced poverty, and socio-economic diversity. However, it is hard to believe that this goal could have to be achieved without equality in the quality of human resources, investment, price stability, and each ASEAN country's openness. This paper examines the relationship between the quality of human resources and economic openness as a factor of ASEAN's economic growth. The model used is the panel data between 2004 and 2018 in 5 ASEAN countries. The results of the fixed effect model show that both human development and FDI are positively significant in explaining the economic growth while inflation and trade openness are not significant. Therefore, it is necessary for the ASEAN countries to enhance the skill of human resources and gain more investment on human capital to prosper the countries.

1 Introduction

ASEAN (Association of Southeast Asian Nations) as a regional combination of Southeast Asian countries has several advantages which prove that ASEAN has the ability to become a large region in the world, including: [1] ASEAN has a large population as a destination for human resource development and markets. The total population of ASEAN reaches 628.9 million, or around 8.7% of the world's total population. If converted based on the ranking between countries, ASEAN ranks third in the largest population after China and India. (2) ASEAN has a fairly large gross domestic product (GDP) capacity and is ranked the sixth largest in the world. Total ASEAN GDP in 2015 reached USD2.43 trillion and only lost to the United States (US), China, Japan, Germany and the United Kingdom. The contribution of ASEAN GDP to total world GDP currently reaches 3.3%.(1) (3) trade capacity in ASEAN is the fourth highest in the world, the ASEAN Secretariat (2016) noted that the total trade transactions in ASEAN reached USD 2.27 trillion and only lost to China, the US and Germany. The contribution of ASEAN trade to total world trade is in the range of 7.6%. (4) ASEAN has succeeded in absorbing incoming capital in the form of foreign direct investment (FDI) of up to

S. Februanti et al. (Eds.): MICon 2021, ASSEHR 708, pp. 557–565, 2023.
https://doi.org/10.2991/978-2-38476-022-0_59

USD120 billion. This acquisition is the fourth largest in the world after the US, Hong Kong and China. Its FDI contribution reaches 6.8% of total world FDI [2].

Subsequently the Asian Financial Crisis, ASEAN was home to two key aspects of economic growth. One, a proliferation of bilateral and multilateral Free Trade Agreements (FTAs), and second, possessing a unique and sophisticated production network comprising both big firms and SMEs. Soon after the financial crisis, as the need for interdependence grew in the region, ASEAN initiated to explore and conclude FTAs with other neighbouring economies, first with China and Korea and then with Japan, India, Australia, and New Zealand.

ASEAN is a space for countries in the Southeast Asia Region to cooperatively make changes towards a positive direction both politically, economically, and culturally, so three pillars are formed, namely: (1) Politics: to create an area that is peaceful, safe, and free from nuclear weapons and other weapons of destruction; (2) Economy: cooperation in trade, investment, employment, eradicating poverty and reducing inequality; (3) Culture: oriented to strengthening democracy, human rights, and consuming drugs. Based on the three fundamental pillars of ASEAN's formation and the era of globalization, each ASEAN country's governments agreed to form the ASEAN Economic Community (AEC).

At the 12th ASEAN Conference in January 2007, the Leaders confirmed their strong commitment to accelerate the establishment of an ASEAN Community by 2015 as planned in the ASEAN Vision 2020 and the ASEAN Concord II. They signed the Cebu Declaration on the Acceleration of the Establishment of an ASEAN Community by 2015. In particular, the Leaders agreed to hasten the establishment of the ASEAN Economic Community by 2015 and to transform ASEAN into a region with free movement of goods, services, investment, skilled employment, and freer flow of capital [3]. The participation of all parties in ASEAN countries is a very big driver for achieving the formation of the AEC. ASEAN intends to act according to the principles of an open, outward-looking, inclusive, and market-driven economy consistent with multilateral rules and devotion to rules-based systems for effective compliance and implementation of economic commitments.

The formal establishment of the ASEAN Economic Community (AEC), as part of the ASEAN Community, on 31 December 2015, marks an important milestone in ASEAN economic integration agenda. This was led by the implementation of measures in the first AEC Blueprint (2008–2015), with the following key achievements: more open market, with intra-regional tariffs virtually eliminated and formal restrictions in services sector gradually removed, decrease trade costs through simplification of cross-border trading processes, including on customs procedures and original rules, synchronization of technical regulations and mutual recognition arrangements, more attractive investment era, and a more business-friendly and supportive innovation environment through the adoption of common frameworks, standards and mutual cooperation in various areas, and better connectivity in transportation and other infrastructure networks [4].

Economic growth is one of the main forces of driving the economy in ASEAN countries. Studying about the factors determining the growth has been extensively studied. One of those factors are trade openness and human capital. There have been several

researches about the importance of trade openness and Human Capital on economic growth separately.

[5–7] believed that there is a significantly positive relationship between GDP and human capital. People with higher education accumulate human capital faster than less educated which then accumulated to the output growth. In addition [7, 8] noted that investment in human capital is one of the determinants in achieving higher productivity and earning. Higher human capital rate will increase the rate of investment and later explain the increase in rate of income growth.

Additionally, trade openness is also important in explaining the economic growth. [9] stated that inflows of FDI, trade openness, and inflation contributed to export performance. While trade openness and FDI have a positive effect, the inflation negatively influences the export. Similarly, research in South East European Countries by [10] concludes that countries with higher levels of income and FDI are more advantageous with more open countries. This is explaining that trade openness is positively influencing the growth. Moreover, studies in ASEAN countries also conclude the same conclusion where free-trade policies should have been promoted to enhance the trade openness which will stimulate growth. This implies that more open policies are helpful to achieve higher growth [11–15].

However, [16] found that human capital, trade and FDI significantly improve the total factor productivity in China, but the differences in technological level of provinces also play an important role. In more technologically advanced provinces, all three variables are significant, while in less advanced technological provinces, only human capital and FDI affect TFP. Nonetheless, [17] suggest that the impact of human capital on TFP is relatively weaker than the impact of openness on TFP for the South Asian countries. [18] also said that human capital, without improvements in institutional quality, is not significant in generating growth.

Using Ordinary least squares, [19] found that in 3 ASEAN countries which are Malaysia, Thailand and Philippines, there is no relationship between openness and growth, while using the panel regression, the result showed that variables including openness and FDI positively influence the GDP. Likewise, [20] indicate that trade openness does not affect both indicators of economic growth and environmental quality in the short-term. However, in the long-term, trade openness has a significant negative and positive impact on economic growth depending on the proxy of openness used in the model.

On the contrary, [21] said that both trade openness and human capital has adversely affected economic growth in the Asian region. This finding is similar to other findings which implied that both higher openness and human capital generally benefits to total factor productivity [22–26].

Although a number of papers on factors determining economic growth have been numerously studies, to the best of author knowledge, there have not been many studies dealing with the importance of both trade openness and human development index on growth. Therefore, it is remarkable to address this issue as it analyses which of these two is more beneficial for growth in 5 ASEAN countries. The uniqueness in openness of each ASEAN country may contribute to the difference in the results. The remaining of this paper is structured as follows. In Sect. 2, we provided the data and methodology used

to analyse the relationship between these variables. Section 3 will describe the finding and discussion. Lastly, concluding remarks and implications are presented.

2 Data and Methodology

This research uses annual data from 2004 to 2018, consisting of Gross Domestic Product (GDP), Foreign Direct Investment (FDI), Human Development Index (HDI), inflation, and trade openness. The research scope covers 5 (five) ASEAN countries, namely Indonesia, Malaysia, Thailand, Philippines, and Singapore. The data is obtained from world bank publications on the World development indicators page. Both GDP and FDI are transformed in logarithmic form.

3 Model Analysis

This study uses a panel data model to examine the relationship between trade openness, human resources (HDI) and economic growth. The use of the panel data model aims to use more considerable data coverage with smaller collinearity than cross sectional data or time series data. The model can also identify undetected impacts in cross sectional or time series. This study focuses on trade openness, human resources and economic growth. Two variables were used as two control variables, namely inflation and foreign direct investment (FDI).

The panel data model equation used in this study is as follows:

$$\text{Log (GDP)}\rrbracket\_it = \alpha + \beta\_1 \log(\text{FDI})\_it + \beta\_2 \text{HDI\_it} + \beta\_3 \text{inflation\_it} + \beta\_4 \text{TO\_it} + \eta i + \mu\_it \quad (1)$$

where GDP is the gross domestic product (in Log form as a proxy for Economic Growth); FDI is net foreign direct investment; HDI is the Human development index; inflation is calculated from the consumer price index; Trade Openness reflects the level of economic openness; ηi is a country-specific effect; μ_it is a stochastic residual which is assumed to be identical with mean = 0 and variance.

The basic model of Eq. (1) will be estimated using a static data panel, namely the common effect model (CEM), fixed effect model (FEM), and the random effect model REM). Selection of the best model is made using the Chow test, Hausmann test, and Lagrangian multiplier (LM) test. The Chow test is performed to select the best model between the common effect and the fixed effect models. The hypothesis used is:

$H0$: $\alpha 1 = \alpha 2 = \ldots = \alpha K = \alpha$ (CEM)
$H1$: there is at least one intercept $\alpha i \neq \alpha$ (FEM); I = 1, 2, ….,K

If H0 is rejected, indicating that CEM is not suitable, it will be followed by the Hausman test to choose between FEM and REM. Both FEM and REM assume that each country has its intercept. If the Hausman statistical value (W) is greater than the Chi-square value at a specific α significance (X(α,j).

The Hausman test hypothesis is:
$H0$: corr(Xit, εit) = 0 (REM)
$H1$: corr(Xit, εit) ≠ 0 (REM) (FEM); I = 1, 2, ….,K; t = 1, 2, …, T

4 Results and Discussion

Descriptive statistics of all variables are shown in the Table 1. The maximum GDP is US $ 1,146,853.73 million, and the minimum GDP is US $ 155,777.02 million with an average GDP of US $ 385,500.29 million. During the research period, Indonesia was the country with the largest GDP, while the Philippines was the country with the smallest GDP in 2004, and Singapore becomes the country with the smallest GDP in 2018. According to the [27], in the last decade, trade openness worldwide has increased by 8 percent, where the fifty countries in the lowest level group can approach the top fifty countries at 5 percent. Trade openness levels differ significantly among the five countries. Indonesia and the Philippines have a low level of economic openness because of the ratio of total trade to GDP < 100, while Malaysia, Thailand, and Singapore have a high level of trade openness because of the ratio of total trade to GDP > 100. Singapore is the country with the highest HDI, while Indonesia is the country with the lowest level of HDI. However, during the study period, Indonesia was able to increase HDI more than Malaysia and the Philippines.

In panel data, it is necessary to determine the best model used in this study. Selection of the best model is made using the Chow test, Hausmann test, and Lagrangian multiplier (LM) test. The chow test result in Table 2, show that the probability F value is less than 0.05 (0.0000 <0.05), which means that the model fitted to be used is the Fixed Effect Model.

Table 1. Descriptive Statistic

Variables	HDI	FDI (USD Million)	Inflation	Trade Openness	GDP (USD Million)
Average	0.75	17,568.95	3.39	152.88	385,500.29
Min	0.63	114.66	(0.90)	40.16	155,777.02
max	0.94	97,766.50	13.11	395.67	1,146,853.73
median	0.73	9,071.37	3.03	128.04	299,267.13
SD	0.09	21,519.05	2.62	116.37	241,955.90
Skewness	0.83	2.13	1.08	1.11	1.71
kurtosis	(0.43)	4.04	2.11	(0.22)	2.06

Table 2. Chow Test Estimation Approach

Effects Test	Statistic	d.f.	Prob.
Cross-section F	674.048974	(4,66)	0.0000
Cross-section Chi-square	280.059489	4	0.0000

Table 3. Hausman Test Estimation Approach

Effects Test	Statistic	d.f.	Prob.
Cross-section Random	2696.195892	4	0.0000

Table 4. Fixed Effect Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(FDI)	0.033874	0.008778	3.859139	0.0003
HDI	7.760366	0.313466	24.75668	0.0000
INFLATION	-0.003053	0.003314	-0.921076	0.3604
TO	0.000320	0.000698	0.458589	0.6480
C	19.88759	0.254528	78.13525	0.0000
R-squared	0.990957	Mean dependent var		26.53241
Adjusted R-squared	0.989861	S.D. dependent var		0.509821
S.E. of regression	0.051336	Akaike info criterion		-2.988666
Sum squared resid	0.173938	Schwarz criterion		-2.710568
Log likelihood	121.0750	Hannan-Quinn criter.		-2.877625
F-statistic	904.0270	Durbin-Watson stat		0.659245
Prob(F-statistic)	0.000000			

After we estimate the Chow test, we analyse the Hausman test. The hausman test is significant to determine whether the fixed effect or the hausman effect is the best appropriate in this study [28].

The result in Table 3 shows that since the probability is lower than 0.05 ($0.1556 > 0.05$) then we reject the null hypothesis and further strengthen that the fixed effect model is more appropriate.

From Table 4, it can be explained that in general, all variables used in this model is significant in explaining the economic growth, where the p-value of F-Statistic is lower than 0.05 ($0.0000 < 0.05$). Both of FDI and HDI have a positive and significant effect on economic growth, while trade openness also has a positive effect on economic growth, but not significant. Nevertheless, inflation has a negative but not significant effect on economic growth.

The coefficient of FDI and HDI are respectively 0.03 percent and 7.76 percent, which means that an increase in FDI and HDI by 1 percent will increase the growth by 0.03 and 7.76 percent respectively. The change in economic growth due to changes in FDI is lower than due to changes in HDI, which explained that human capital is significant in explaining the economic growth. This study is in line with studies [5, 16, 21–23] which concluded that human development is positively significant on growth. Therefore, efforts

to improve the quality of human resources must become the main focus to achieve higher growth rates in ASEAN countries.

Meanwhile, trade openness is positive but not significant in explaining the growth rate by 0.000320. Thus, the openness of ASEAN country does not have an effect on growth. This research is similar with [20] which found that in short-term, the trade openness does not affect the growth.

5 Conclusion

The formation of the ASEAN Economic Community (AEC) is the best step taken by ASEAN. AEC further strengthen resilience and provide benefits between countries in Southeast Asia, both from a political, economic, and cultural perspective. This study aims to analyse the effect of both trade openness and human capital on economic growth in 5 ASEAN countries. The results of this study show that human capital and FDI is significant in determining the economic growth. Higher human capital and FDI will contribute to higher economic growth. On the other hand, economic growth cannot respond directly to changes in inflation and trade openness. Human capital is believed to be one of the most prosperous investment in the economy. Therefore, it is recommended for these 5 ASEAN countries, namely Malaysia, Singapore, Thailand, Indonesia, and the Philippines that the best option to pay attention to the growth is to seek human resource development through improving the quality of education, health, and per capita expenditure.

Acknowledgments. We are sending our greetings and thankful for people who participated in the accomplishment of this research, both in terms of providing motivation and important input related to research problems. Firstly, for Allah, who guided us. Furthermore, we would like to thank the families who support morally, and also grateful to our colleagues Dr. Putri Bintusy Syathi and Dr. Abd. Jamal.

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