

12-1-2017

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Recommended Citation

Ardra, Umara and Martawardaya, Berly (2017) "Tourism and Economic Development in ASEAN 1998-2013," *Economics and Finance in Indonesia*: Vol. 63: No. 2, Article 2.

DOI: 10.47291/efi.v63i2.571

Available at: <https://scholarhub.ui.ac.id/efi/vol63/iss2/2>

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Tourism and Economic Development in ASEAN 1998–2013

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Abstract

Many countries support government policies to encourage tourism sector, including ASEAN countries, due to an assumption that tourism contributes positively to GDP and poverty reduction. This study investigates that assumption, as well as the correlation between tourism and HDI, by applying panel data regression to eight ASEAN countries (Brunei Darussalam, Indonesia, Laos Singapore, Malaysia, Thailand, the Philippines, and Vietnam,) during 1998–2013. We found that the number of international tourist arrivals as a proxy variable for tourism have a significant and positive correlation with poverty reduction. Tourism is also proven to increase GDP per capita (albeit in a smaller magnitude) and increase HDI (in an even smaller scale). These findings confirmed our hypothesis on the positive effects of tourism. It is recommended that the tourist promotion is continued while studying the best practices to strategically develop the tourism sector in order to strengthen the positive correlation.

Keywords: tourism; economic development; ASEAN

Abstrak

Banyak negara menerapkan kebijakan pemerintah yang mendorong sektor turisme termasuk negara-negara ASEAN, dengan berlandaskan asumsi bahwa turisme berkontribusi positif efeknya terhadap PDB dan pengentasan kemiskinan adalah positif. Studi ini menyelidiki asumsi tersebut dan juga menguji korelasi antara turisme dengan variable Indeks Pembangunan Manusia (IPM) di delapan negara ASEAN (Brunei, Filipina, Indonesia, Laos, Malaysia, Singapura, dan Thailand) selama 1998–2013. Kami menemukan bahwa kedatangan turis internasional sebagai variabel proksi dari turisme berkorelasi signifikan dan positif dengan pengentasan kemiskinan. Turisme juga terbukti meningkatkan PDB per kapita (walaupun dengan efek yang lebih kecil) dan Indeks Pembangunan Manusia (dalam efek yang lebih kecil lagi). Temuan-temuan ini menunjukkan bahwa hipotesa adanya dampak-dampak positif dari turisme terbukti. Direkomendasikan untuk meneruskan aktivitas turisme sambil menelaah kebijakan untuk dapat memperkuat korelasi positif dari turisme.

Kata kunci: pariwisata; ekonomi pembangunan; ASEAN

JEL classifications: C33; I30; O53; Z32

1. Introduction

Tourism all around the world has grown rapidly throughout the years. This can be observed from

the rising number of tourists from 529 million tourists in 1995 to 1.133 million tourists in 2015 (UNWTO 2015a). During 2015, Asia had the second highest tourist arrivals of 263 million tourists or about 23 percent of the whole world's tourist arrivals during 2015. This figure was less than 582 million tourist arrivals in Europe (51%), but more than 181 million tourist arrivals in the Americas (16%), 56 million tourist arrivals in Africa (5%), and 51 million tourist arrivals in the Middle East

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(5%). The total of tourism receipts during 2015 was US\$1,245 billion for the whole world, which consisted of US\$509 billion from Europe (41%), US\$377 billion from Asia (30%), US\$274 billion from the Americas (22%), US\$49 billion from the Middle East (4%), and US\$36 billion from Africa (3%).

Over the past 15 years, South East Asian Countries (ASEAN Countries) have experienced a rise in tourist arrivals from around the world. Tourism in the Asia Pacific region has increased From 2014 to 2015 between 4% to 5%, which resulted in a total of 263 million international tourists that traveled to the Asia Pacific region by the end of 2015 (UNWTO 2015a). The previous literature that examined the effects of tourism in African and European countries stated that tourism growth had a positive correlation towards a country's economic and social development. However, there has been no empirical research that shows the same result for the ASEAN countries.

2. Literature Review

Numerous studies found that, in general, when a country's tourism grows, there would be more development in the social and economic conditions in that certain country (Fayissa, Nsiah & Tadasse 2007, 2009; Gökovali & Bahar, 2006). This phenomenon occurs when there is a rapid growth of tourism. In this period of a tourism boom, a lot of domestic and international tourists would spend their money in the tourism sites, which subsequently contribute both directly and indirectly to the social and economic development, specifically around the tourist site or the local area. This phenomenon happens due to the fact that there is more circulation of money in the local area, as well as more job openings and business opportunities which benefit the local people as well as the host country in boosting

its economic growth. However, there are also contrary arguments where the previous literature such as the study that was conducted by Çağlayan, Şak & Karymshakov (2012) found that South Asian and Central Asian countries did not have any significant and positive causal relationship between tourism development and economic growth. To complete the existing literature, this study aims to investigate and evaluate the relationship between the tourism and the economic growth in ASEAN countries.

Figure 3 shows the total tourism arrivals in the period of 1998 to 2013 for the ASEAN countries. Based on this figure, Thailand, Malaysia, and Singapore were the leading countries for tourism in the ASEAN region, while Indonesia only came out in fourth place. This figure shows that Thailand, Malaysia, and Singapore were the most successful in expanding and promoting their tourism potentials to the world among all the ASEAN countries. It can also be observed that over the years, the tourist arrivals in Vietnam has grown significantly. This might imply that the government of Vietnam has developed a good strategy for the tourism sector in Vietnam. On the other hand, the position of Laos based on the number of tourist arrivals has not shown a good improvement.

From Figure 4, it can be observed that for Laos, Thailand, Malaysia, and the Philippines, a relatively large portion of their total export share came from the tourism sector. Therefore, it can be said that from 2005 to 2013, the tourism sector was one of the mainstay sources of export revenue for those four countries. It also can be concluded from the previous two graphs that Indonesia might not have taken a serious approach in developing the tourism sector in a period of 1998 to 2003, despite the potentials of Indonesia as one of the countries with the most extensive tourism resources consisting of a combination of cultural tourism attractions and natural resource attractions.

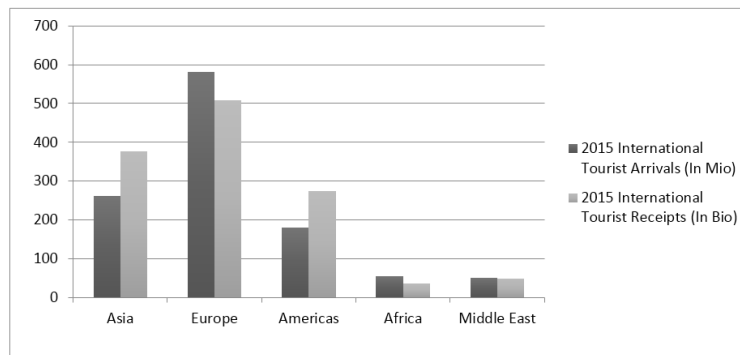


Figure 1: Tourist Arrivals & Tourism Receipts in Several Regions (2015)
Source: UNWTO Tourism Highlight 2015

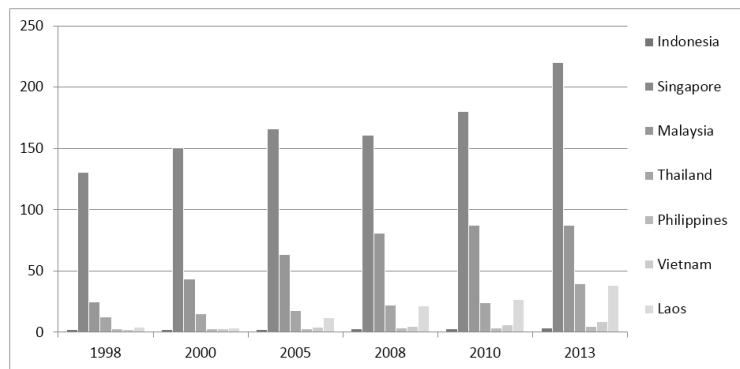


Figure 2: International Tourist Arrivals (% of Total Population of Host Country) in ASEAN Countries (1998–2013)
Source: World Bank Database

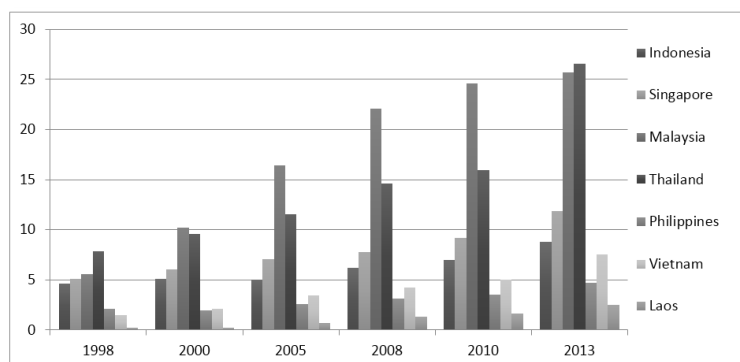


Figure 3: Total Tourist Arrivals in ASEAN Countries (1998–2013) (In Millions)
Source: World Bank Database

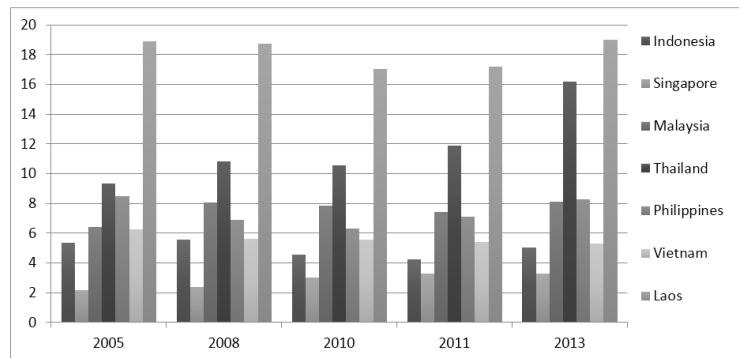


Figure 4: International Tourism Receipts of ASEAN Countries (% of Total Exports) (2005–2013)

Source: World Bank Database

Through the advertisement and promotion using each country's tourism branding, currently, each ASEAN countries has campaigned across North America, Europe, Asia, Middle East, as well as Australia and Oceania. These ASEAN countries have professional teams for branding and promoting their tourism sectors (*ASEAN Tourism Strategic Plan 2016–2025* 2015; Cecep Rukendi [Ministry of Tourism Republic of Indonesia 2016]). In order to support this campaign, the total accumulation of tourism promotion budget for all ASEAN countries for 2016 was approximated to be US\$1.878 billion. ASEAN countries hope to be a quality tourism destination that can offer a unique and diverse ASEAN experience while being committed to a responsible, sustainable, inclusive and balanced tourism development in order to contribute significantly to the socio-economic well-being of ASEAN people (*ASEAN Tourism Strategic Plan 2016–2025* 2015). This shows how ASEAN countries have moved their goals in developing the tourism sector, from only targetting economic growth to improving the overall welfare of their people.

In the previous research, Suriya (2012) tried to measure the impact of tourism growth towards the reduction of poverty rates in Thailand. He found that tourism had helped to reduce the absolute poverty rate in Thailand. Tourism growth was also found to be significant in improving nutrition and

healthcare indicators which were representing non-income poverty. Based on his study, Suriya found that there were more people who could access cleaner, safer and better quality of food and drinking water as well as better healthcare services and household sanitation with the increase of tourism growth. The use of the concept of production villages for tourism has led the local people to care more about the environment. The concept of production villages that produce local crafts and food for tourists has become the main strategy to reduce poverty rates in Thailand through tourism sector. However, it was also proven in his study that absolute poverty eradication in the poorest province of Thailand was impossible to be done by relying on only tourism.

Another research by Biagi, Ladu & Royuela (2017) measured tourism growth's impact towards the Human Development Index (HDI) from 1996 to 2008 through a panel data regression approach with annual HDI data as the dependent variable. It was found that tourism, in general, was positively correlated with human development but in small and developed countries there was a tendency for a negative relationship which implied that there were negative externalities after certain thresholds in tourism development. Moreover, they also found that investment in tourism sector played a significant role in improving economic growth as well as in human

development in the destination countries, especially in the aspect of local education. In this study, it was also stated that temporary population such as foreign visitors with a high level of education, high income, and an open-minded attitude may trigger changes in residents' aspirations and perspective on life. These findings emphasized the needs for further research on the role of tourism in human development beyond the pure economic growth effects. These findings are also applicable in ASEAN countries and are aligned with what this study has found, especially in Malaysia, the Philippines, and Laos.

3. Method

This study uses annual socio-economic data in the period of 1998–2013 for 8 (eight) ASEAN countries. The eight ASEAN countries that are being observed in this study are Indonesia, Singapore, Malaysia, Thailand, the Philippines, Vietnam, Brunei Darussalam, and Laos. The other two ASEAN countries (Myanmar and Cambodia) are not included in this study due to the lack of the required socio-economic data available for these two countries. This study includes a causality analysis in which the panel causality method is applied. The panel causal relationship of the number of tourist arrivals and the total tourism receipt would be tested using a two-stage Panel Granger data analysis in three different panel data regression models with other socio-economic variables. These variables include population growth, gross primary enrollment, gross secondary enrollment, gross tertiary enrollment, and foreign direct investment towards GDP per capita, poverty level, and human development index. We propose to use a two-stage process which would show the focus of the correlation between the variables. In the first stage, the panel data are to be log normalized to make all the data linear, then we con-

duct the Durbin-Wu-Hausman test on each of the three-panel data regression models to investigate whether the variables in the models fit more with the random effect or fixed effect model. Based on the result of Durbin-Wu-Hausman test, each of the three regression models would be analyzed using either fixed effect or random effect regression according to its suitability. If the panel data regression model fits the fixed effect model, the regression would be done through the Generalized Least Squares (GLS) regression, however, if the panel data regression model is suitable for random effect model, the regression will be done through the Hausman-Taylor estimation. The models for the regression test used in this study are as follows:

Equation 1. Regression Model 1a, 2a, & 3a (with T_EX, 2005–2013)

$$\begin{aligned} \text{Dependent Variables} = & \beta_0 + \beta_1 \text{LnT_EX} \\ & + \beta_2 \text{LnPOPG} + \beta_3 \text{LnT_AR} \\ & + \beta_4 \text{LnPRIM_ER} \\ & + \beta_5 \text{LnSEC_ER} \\ & + \beta_6 \text{LnTERT_ER} \\ & + \beta_7 \text{LnFDI} + \beta_8 \text{LnHDI} + \varepsilon \end{aligned} \quad (1)$$

Equation 2. Regression Model 1b, 2b & 3b (without T_EX, 1998–2013)

$$\begin{aligned} \text{Dependent Variables} = & \beta_0 + \beta_1 \text{LnPOPG} \\ & + \beta_2 \text{LnT_AR} \\ & + \beta_3 \text{LnPRIM_ER} \\ & + \beta_4 \text{LnSEC_ER} \\ & + \beta_5 \text{LnTERT_ER} \\ & + \beta_6 \text{LnFDI} + \beta_7 \text{LnHDI} + \varepsilon \end{aligned} \quad (2)$$

where:

T_EX: Annual International Tourism Receipt Percentage of Host Country's Total Exports (taken from World Bank Database)

POPG: Annual Population Growth (taken from World Bank Database)

T_AR: Annual International Tourism Arrivals Percentage of Host Country's Total Population (taken from World Bank Database)

PRIM_ER: Annual Gross Enrolment of Primary Education Percentage of Total Population (taken from World Bank Database & Each of The Countries' Statistical Board)

SEC_ER: Annual Gross Enrolment of Secondary Education Percentage of Total Population (taken from World Bank Database & Each of The Countries' Statistical Board)

TER_ER: Annual Gross Enrolment of Tertiary Education Percentage of Total Population (taken from World Bank Database & Each of The Countries' Statistical Board)

FDI: Annual Foreign Direct Investments (taken from World Bank Database)

HDI: Annual Human Development Index (taken from United Nations Development Programme)

In both regression models of 1a and 1b, the variable GDPcapita (Annual GDP per Capita) (taken from Penn World Table 8.0) is examined as the dependent variable of the model. With the regression model 1a, we would like to examine the panel data model with a shorter time span (2005–2013) due to the availability of the required data for conducting this panel data test. With the regression model 1b, the panel data model over a longer time span (1998–2013) would be analyzed. In regression model 2a and 2b, the variable Poverty (Annual Poverty Rates) (taken from World Bank Database) would be used as the dependent variable. For these models, the regression model 2a would have the same independent variables as the regression model 1a, and the regression model 2b would have the same independent variables as the regression model 1b. As

for the regression model 3a and 3b, HDI (Annual Human Development Index) (taken from United Nations Development Programme data) shall be used as the dependent variable. The regression model 3a would be formulated using the same independent variables as regression model 1a and 2a with the exclusion of HDI as an independent variable, and regression model 3b would be using the same independent variables as regression model 1b and 2b excluding HDI as an independent variable.

4. Results and Analysis

We use the Durbin-Wu-Hausman panel data test (hereafter DWH) to determine the suitable effect for each panel regression model between fixed effect or random effect in a two-stage Panel Granger Causality Analysis. After undergoing DWH test, the model that is more suited to the assumptions of a fixed effect shall be regressed using GLS regression method, and the model that fits the assumptions of a random effect shall be regressed using The Hausman-Taylor Estimation method. Table 1 presents the results of the DWH panel data test.

The results indicate that regression model 1a and 2a (the variable of Tourism Receipt percentage of Total Exports of the Host Country included, with a shorter time span) are fixed effect panel data. Meanwhile, the effect for the regression model 3a could not be determined. As for the regression model 1b, 2b, and 3b (the variable of Tourism Receipt percentage of Total Exports of Host Country excluded, with a longer time span) are all categorized as random effect panel data. Hence, the regression model 1a and the regression model 2a would be processed using the GLS regression method, while the regression model 1b, the regression model 2b, and the regression model 3b would be processed with the Hausman-Taylor estimation method. The results of the panel data GLS regression test and

Table 1: Results of DWH Panel Data Test

Regression Model	DWH Result	Panel Data Effect
Regression Model 1a	Prob>chi2 = 0.0000	Fixed Effect
Regression Model 1b	Prob>chi2 = 0.4894	Random Effect
Regression Model 2a	Prob>chi2 = 0.0000	Fixed Effect
Regression Model 2b	Prob>chi2 = 0.7155	Random Effect
Regression Model 3a	= -534.90 chi2<0	Could Not Be Determined
Regression Model 3b	Prob>chi2 = 0.7597	Random Effect

Source: Data Processing on STATA 13

the Hausman-Taylor Estimation method test are presented in Table 2.

As shown in Table 2, both of the regression results with GDP per Capita as the dependent variable have a very good result for the goodness-of-fit based on the R-square (0.9851 (98.51%)) in the regression model 1a and Wald Chi-square of regression model 1b (35071.94) which far exceeds 2000. These two figures indicate that the independent data variables in both models can explain the dependent data variable really well.

The result in regression model 1a shows that total tourism receipt, population growth, and FDI have a significant negative correlation with the GDP per Capita. While the number of tourist arrivals, gross primary enrollment, and HDI have a significant positive correlation with the GDP per Capita. The result in regression model 1b shows that both gross secondary enrollment and HDI variables have a significant positive correlation with the GDP per Capita. As for the additional dependent variable, the second lag of the number of tourist arrivals, it is proven to have a significant positive correlation towards GDP per Capita. Based on the regression and the statistics result, model 1b is considered the stronger one between the two models. The results also show that HDI has the strongest correlation to GDP per capita, followed by gross secondary enrollment (far weaker) and lag of arrival. Each country in the ASEAN region has a significantly different correlation to GDP per capita growth. Based on the result, Brunei has a significantly higher correlation to GDP per capita growth than the average.

As we can see from Table 3 above, that shows both of the regression results with Poverty rates as the dependent variable have a very good data goodness-of-fit, this is shown in the R-square (0.9808 (98.08%)) of the regression model 2a and the Wald Chi-square (9357.69) of the regression model 2b, which is way above 2000. These two figures indicate that the independent data variables in these models can explain the dependent variable very well.

The result in regression model 2a shows that Pop Grow, T_Arrivals, Secondary Enrol, and HDI have a significant negative correlation towards Poverty. This means that any increase in population growth, the number of tourist arrivals, gross secondary enrollment, or HDI would induce a decrease in the poverty rate. On the other side, T_Expense, Primary Enrol and Tertiary Enrol have a significant positive correlation towards Poverty. This result has proven that an increase in the total tourism receipt, gross primary enrollment or gross tertiary enrollment would create an increase in the poverty rate. Meanwhile, the result in regression model 2b shows that only the gross tertiary enrollment that has a significant negative correlation towards the poverty rate. This means that an increase in this variable will reduce the poverty rate. In this model, the population growth has a significant positive correlation towards the poverty rate, which makes an increase in this variable contributes towards the increase of the poverty rate. Due to the regression and the statistics result, model 2a is relatively stronger compared to the other model. It also shows that HDI has the

**Table 2: Model 1a & 1b Panel Regression Results
(Dependent Variable: GDP per Capita)**

	GDP per Capita	
	Regression Model 1a (Short) GLS Regression	Regression Model 1b (Long) Hausman-Taylor Estimator
T_Expense	-0.4010***	
Pop Grow	-0.1349**	
T_Arrivals	0.2736***	0.0282
Primary Enrol	1.5896**	0.0474
Secondary Enrol	-0.1542	0.0978*
Tertiary Enrol	-0.0911	0.0301
FDI	-0.0428*	-0.0050
HDI	5.1924***	1.0602*
lag1T_Expense	-0.0761	
lag1T_Arrivals	-0.0239	0.0085
lag2T_Expense	-0.0337	
lag2T_Arrivals		0.0623***
T_AR_ID		0.1913
TRI_ENROL_ID		0.3088
FDI_ID		-0.0110
HDI_ID		-19.937
D_Indonesia		46.196
D_Malaysia		-0.9449***
D_Thailand		-1.2846***
D_Philippines		-1.7810***
D_Vietnam		-2.1450***
D_Brunei		0.2887***
D_Lao		-2.2002***
_cons	-189.675	44.947
Adjusted R2	0.9851	
Wald Chi2	3052.54	35071.94
sigma_u	0	0
sigma_e	0.0361	0.0638
Rho	0	0

Notes: ***) P-value 0–0.01, **) P-value 0.01–0.05, *) P-value 0.05–0.1 .

Source: Data Processing on STATA 13

**Table 3: Model 2a & 2b Panel Regression Results
(Dependent Variable: Poverty)**

	Poverty	
	Regression Model 2a (Short) GLS Regression	Regression Model 2b (Long) Hausman-Taylor Estimator
T_Expense	0.1489*	
Pop Grow	-0.3650***	0.1746***
T_Arrivals	-0.5822***	0.1633
Primary Enrol	1.5997**	0.2624
Secondary Enrol	-0.7489***	0.2793
Tertiary Enrol	0.6674***	-0.2604***
FDI	-0.0189	-0.0073
HDI	-4.4038***	-0.6619
lag1T_Expense	0.0225	
lag1T_Arrivals	0.0183	0.0323
lag2T_Expense	0.0256	
lag2T_Arrivals	0.0572	0.0314
T_AR_ID		-0.3701
PRI_ENROL_ID		-79.263
SEC_ENROL_ID		12.442
TRI_ENROL_ID		-0.8215
FDI_ID		0.0325
HDI_ID		25.505
D_Indonesia		275.201
D_Malaysia		1.4312***
D_Thailand		3.6238***
D_Philippines		3.7873***
D_Vietnam		3.1875***
D_Brunei		-0.1203
D_Lao		3.2909***
_cons	1.561.564	0.6494
Adjusted R2	0.9808	
Wald Chi2	3006.54	9357.69
sigma_u	0	0
sigma_e	0.1655	0.1377
Rho	0	0

Notes: ***) P-value 0–0.01, **) P-value 0.01–0.05, *) P-value 0.05–0.1 .

Source: Data Processing on STATA 13

strongest correlation to the poverty rate, followed far behind by the gross primary enrollment and gross secondary enrollment. Each country in the ASEAN region has significantly lower than the average correlation to the poverty rate except Indonesia and Brunei where no significant correlations are found.

As shown in Table 4, the regression results with Human Development Index as the dependent variable indicate a very good goodness of fit. This is shown in Wald Chi-square (47064.45) of the regression model 3b, which far exceeds 2000. This figure indicates that the independent data variables in this models can explain the dependent data variable well. The result in regression model 3b shows that only population growth that has a significant negative correlation towards Human Development Index. While the other independent variables, such as gross primary enrollment, gross secondary enrollment, and gross tertiary enrollment have a significant positive correlation towards Human Development Index. As for the additional dependent variable, the first lag of the number of tourist arrivals is proven to have a significant positive correlation towards Human Development Index. This means that a change of the number of tourist arrivals will have a significant effect towards the positive change of HDI a year after there is a change of the number of tourist arrivals. Due to the regression and statistics result, model 3b is significantly stronger among the two. It shows that the gross primary enrollment has the strongest correlation to HDI, followed far by the gross secondary enrollment and gross tertiary enrollment. Each country in the ASEAN region has a significantly varied correlation to GDP growth. Based on the model, only Brunei has a significantly higher than average correlation compared to the other countries.

Based on the aggregate result from the three-panel data model regression above, we can conclude that an increase in tourism receipts would result in the decrease of GDP per capita, as well as the increase

of the poverty rate. This means that tourism receipts have a significant and negative correlation towards GDP per capita and a positive correlation towards poverty rate. The results of tourism receipts regression using the panel data regression show contradictory evidence to all of the previous literature where there is a significant and positive effect of tourism receipts on GDP per capita, poverty rate, as well as HDI (Fayissa, Nsiah & Tadasse, 2007, 2009; Gökovali & Bahar 2006; Jaforulloh 2015; Suriya 2012; Biagi, Ladu & Royuela 2017).

Based on the aggregate result from the three-panel data model regression above, it can also be observed that the first lag of tourist arrivals has a positive and significant correlation towards HDI as a dependent variable. This means that if tourist arrivals of any ASEAN country increase, it would result in the increase of the HDI level in the host ASEAN country a year after the increase of tourist arrivals occurred. Therefore, this finding has strengthened the findings in the previous literature (Fayissa, Nsiah & Tadasse, 2007, 2009; Biagi, Ladu & Royuela, 2017). HDI as an independent variable has a positive and significant correlation towards GDP per capita and also a negative and significant correlation towards the poverty rate. This means that the increase of HDI would result in the increase of GDP per capita and also the decrease of the poverty rate in the ASEAN countries. The number of tourist arrivals also has a positive significant correlation towards GDP per capita and a negative significant correlation towards the poverty rate, which means that the increase of tourist arrivals would likely increase the GDP per capita and reduce the poverty rate in the ASEAN countries.

5. Conclusions

Based on the panel data model regression results in this study, we found that the tourism receipts do

**Table 4: Model 3a & 3b Panel Regression Results
(Dependent Variable: Human Development Index)**

	Human Development Index	
	Regression Model 3a (Short) GLS Regression	Regression Model 3b (Long) Hausman-Taylor Estimator
Pop Grow		-0.0053*
T_Arrivals		0.0104
Primary Enrol		0.2455***
Secondary Enrol		0.0898***
Tertiary Enrol		0.0392***
FDI		-0.0014
lag1T_Arrivals		0.0031**
lag2T_Arrivals		0.0012
SEC_ENROL_ID		0.1427
TRI_ENROL_ID		-0.0941
D_Indonesia		19.544
D_Malaysia		-0.0696***
D_Thailand		-0.1560***
D_Philippines		-0.2136***
D_Vietnam		-0.2528***
D_Brunei		0.0242*
D_Lao		-0.3554***
_cons		26.763
Wald Chi2		47064.45
sigma_u		0
sigma_e		0.0048
Rho		0

Notes: ***) P-value 0–0.01, **) P-value 0.01–0.05, *) P-value 0.05–0.1 .
Source: Data Processing on STATA 13

not correlate positively with the GDP growth. Furthermore, we found that one percent increase in the number of tourist arrival correlates significantly with 0.236% increase of GDP per capita. The number of tourist arrival is significantly linked with the poverty reduction as one percent increase in tourist arrival is correlated with the 0.5822% reduction of the poverty rate. The first lag of tourist arrivals has a positive and significant correlation towards HDI as a dependent variable. This means that if tourist arrivals of an ASEAN country increase by ten percent, the country is likely to experience 0.031% increase of the HDI one year later.

The findings of this study show that tourism correlates significantly with the poverty reduction, an increase of GDP (albeit in smaller magnitude), and an increase of HDI (in even smaller scale). This confirms the hypothesis on the positive effect of tourism. Thus, it is recommended that the tourism agency of each country's government continue their

effort in attracting international tourists.

The follow-up study for this study may address the question regarding the type of policies able to increase the positive effects of the tourism. It is also interesting to measure the subnational effect in all ASEAN countries except for Singapore of which tourist destinations are more concentrated in few areas. Another interesting topic for a follow-up study is about the disparities between the development of tourism area and the rest of the country and the impact of tourism for each area. However, these studies require more data, such as the type of activities, list of the area visited and length of stay which have not been accessible to the authors during the period of this study.

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