


The influence of the number of tourists, total tourism revenue and renewable energy consumption on economic growth

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Article Info	ABSTRACT
<p>Keywords: Economic growth, Tourism, Renewable Energy Consumption, Southeast Asia</p>	<p>The tourism sector is one of the potentials that supports economic growth in ASEAN countries. At the same time, the tourism sector is spearheading the realization of sustainable development by utilizing environmentally friendly energy. The reorientation of development towards green growth is triggering a transformation in all state development policies. This makes it possible to attract more tourists. The aim of this research is to analyze the relationship between economic growth, tourism and renewable energy in maritime countries in ASEAN. The data used is 2013-2020 using the panel data analysis method. The research results show that tourism, which is proxied in the number of foreign tourists and the number of foreign tourist receipts, has a positive and significant effect on economic growth. The same thing was also found in the influence of renewable energy consumption on economic growth. The suggestions that can be conveyed are that the leaders of ASEAN countries continue to strive to increase existing tourism potential and increase investment cooperation for both tourism development and renewable energy.</p>
<p>This is an open access article under the CC BY-NC license</p> 	<p>Corresponding Author: Eliya Dwi Wahyuningsih Universitas Muhammadiyah Surakarta elijadwiwahyuningsih@gmail.com</p>

INTRODUCTION

Several years earlier the government had made the tourism sector the core of the country's economy. The tourism sector is an important part of the economic sector. This is in accordance with research (Lee & Brahmastrane, 2013), that tourism has a positive and significant effect on economic growth. Tourism is defined as a travel activity carried out by a person or group of people, such as visiting a certain place for recreation, personal development, or learning about the uniqueness of the tourist attraction visited within a temporary period (Andriyani & Salam, 2022). This sector is believed to be able to generate the country's largest foreign exchange. Not only that, this sector also contributes to the formation of Gross Domestic Product (GDP) through visits by domestic and foreign tourists, providing employment opportunities and superior places for Micro, Small and Medium Enterprises (MSMEs). As in research (Ompusunggu & Munthe, 2022), it is stated that the tourism sector is able to increase the absorption of investment and labor as well as develop businesses that spread to various regions in Indonesia. The tourism industry needs to be encouraged by other sectors that are directly related to the tourism sector. Important sectors that have the opportunity to support increasing the capacity of the tourism sector

include the hotel and trade sectors as providers of accommodation and necessities during visits (Nugroho et al., 2018). The natural beauty and local wisdom of Indonesia are the core of promising tourism. In press release number HM.4.6/301/SET.M.EKON.3/09/2021 of the Indonesian Coordinating Ministry for Economic Affairs, there is support for National Economic Recovery (PEN), Government Assistance for Tourism Businesses (BPUP), as well as the Government Incentive Assistance Program (BIP) is one of the policies taken by the government in implementing the tourism sector as a core sector of the country's economy. Through this policy, there is assistance/funding from the government to develop the tourism sector. As a result of this policy, the tourism sector is able to encourage national economic growth. The government also issued the Cleanliness, Health, Safety, and Environmental Sustainability (CHSE) program which is part of the Indonesia Care/I Do Care program. This program was released to prepare the capabilities of the tourism and creative economy sectors to apply the principles of cleanliness, health, safety and environmental sustainability in every aspect of their activities.

One of the results of the G-20 conference stated that the reorientation of global development towards green development triggered a transformation in all state development policies. This is an opportunity for the tourism sector to further develop natural tourism potential. ASEAN countries have various high natural potentials, especially maritime countries. Following from (Brida & Pulina, 2010) that tourists are more interested in tourist locations that have high uniqueness and quality natural resource conditions. One of the efforts made is the use of environmentally friendly renewable energy. The creation of a high quality environment supported by attractive natural resources, both directly and indirectly, will make a country more established in terms of GDP (Nikensari et al., 2019). The existence of abundant natural resources that soothe the eyes and accompanied by amazing tours, makes tourists interested in visiting to enjoy existing tours. Because of this, a country's income increases. The tourism sector itself is one of the sectors that makes a country's economy experience a rapid increase.

In the Tourism-Led Growth Hypothesis (TLGH) it is explained that a non-standard form of export is international tourism. According to (Bouzahzah & Menyari, n.d.) TLGH makes tourism the main determinant of long-term economic growth. TLGH is described as a direct derivative of the Export Led Growth Hypothesis (ELGH) theory which describes that a country's economic growth can be achieved not only by increasing capital and labor, but also by increasing the amount of exports (Brida & Pulina, 2010). Within the same framework, international tourism will contribute to increased income in at least two additional ways as indicated by the export-led growth hypothesis. First, increasing efficiency by encouraging competition between international companies and tourist destinations and second, by facilitating the exploitation of economies of scale in local companies (Bouzahzah & Menyari, n.d.). In detail, the impact of international tourism on long-term economic growth can be seen from a) the contribution to capital goods that are useful in the production process through foreign exchange b) the role of tourism in developing infrastructure investment, the quality of human resources and market competition. c) multiplier effect for related industries either directly or indirectly d) Tourism

supports the large number of job vacancies to increase income in the form of a multiplier effect which can finance the local business cycle. e) Tourism is the cause of positive economies of scale (Soputan et al., 2022).

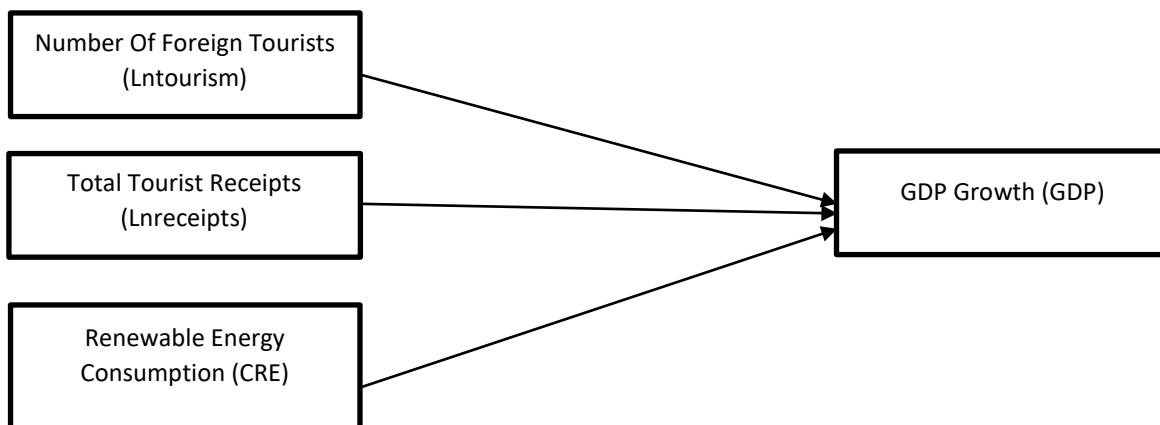
In the Tourism-Led Growth Hypothesis, the condition of natural resources is one of the main things in tourism development. Natural resources that are rich in cultural heritage, have high uniqueness and prioritize the environment are an attraction for tourists. This influx of tourism can advance the activation and development of various services and infrastructure, so one of the factors that supports tourism development is an organized tourism offering system (Brida & Pulina, 2010). The interaction of various elements in tourism such as communication channels, breadth of participation, tolerance, further maintenance, as well as community development and community welfare can realize tourism-based sustainable development (David Matarrita-Cascante, 2010). Southeast Asia is also trying to spur the tourism sector to increase economic growth. This is done by increasing regional tourism marketing in ASEAN countries through the ASEAN National Tourism Organizations (NTOs) which is carried out creatively, innovatively, collaboratively and responsibly (Wardhana et al., 2019).

Research on the relationship between tourism and economic growth has been carried out in Morocco (Bouzahzah & Menyari, n.d.) and Tunisia for the period 1980-2010 using the cointegration test and causality test. There are two research results. Firstly, TLGH only applies in the short term in these two countries. Second, in the long term there is a strong unidirectional causality from economic growth to international tourism receipts. In research, Soputan et al., (2022) tested the influence of the tourism sector on economic growth in ASEAN countries using panel data regression analysis for the 1998-2018 period. The results show that the tourism sector has a positive influence on economic growth through proxies for the number of foreign tourists and tourism receipts. Similar results were also found in Yakup's (2019) research which analyzed the influence of tourism on economic growth in Indonesia for the 1975-2017 period using two stage least squares.

Kuznets theory plays a basic role in this research theory. This theory describes the relationship between economic growth and environmental damage which forms an inverted U curve. According to this theory, economic growth will be followed by environmental damage, but until the turning point the damage will decrease. This theoretical hypothesis states that environmental damage will increase as income levels continue to increase. At a certain point (turning point) in achieving a certain level of economic growth, environmental damage will decrease as humans begin to think forward to find environmentally friendly energy solutions. Energy grows along with the development and dynamics of a country to support national development needs (Effendy, 2021). Energy is needed to carry out economic activities, such as consumption needs and production activities in various economic sectors. Energy is a natural resource that must be utilized optimally for the prosperity of society and must be managed based on the principles of sustainable development. Based on the supply aspect, the nature of energy resources is divided into two, namely renewable and non-renewable (Elinur, 2010).

(Nikensari et al., 2019) concluded that making a country with good environmental quality is one way for a country to become rich which is reflected in GDP.

In research (Razzaq et al., 2021), which aims to evaluate the impact of tourism on economic growth and carbon dioxide emissions in 10 countries with the highest GDP for the period 1995 – 2018. The development of international tourism facilitates economic growth, increasing carbon dioxide emissions asymmetrically at various levels economic growth and carbon dioxide emissions. Economic growth is a determinant of the success of development in an economy. Economic growth can provide superior economic welfare for the population of the country concerned (Setyowati et al., 2008). Specifically, economic growth impacts are relatively large for comparatively more developed countries while adverse environmental impacts are relatively greater for relatively less polluted countries; thus, the tourism-led economic growth hypothesis is verified. On the other hand, green technological innovations are found to facilitate economic growth and reduce carbon dioxide emissions, especially in the context of relatively more advanced and polluted economies.



Research Hypothesis

Based on the problem formulation and conceptual framework above, the research hypothesis put forward by the researcher is as follows:

1. Shopping attribute *online* has a positive and significant influence on loyalty.
2. Shopping experience *online* has a positive and significant influence on loyalty.
3. Shopping attribute *online* has a positive and significant influence on satisfaction.
4. Shopping experience *online* has a positive and significant influence on satisfaction.
5. Satisfaction has a positive and significant effect on loyalty.
6. Shopping attribute *online* has a positive and significant influence on loyalty through satisfaction.
7. Shopping experience *online* has a positive and significant influence on loyalty through satisfaction.

METHOD

Types of research

This research was conducted using a quantitative approach, which are numbers or facts which are the results of measurements that have units and an absolute zero value (Algifari, 2015)

Location and Time of Research

Some of the data sources used come from the world bank. The data used in this research is based on four maritime countries in ASEAN, namely Indonesia, Malaysia, the Philippines and Vietnam using the period 2013 to 2020. The analytical method used is panel data regression analysis which means a combination of cross section data and data time series to determine the effect of the independent variable on the dependent variable.

Sampling technique

In this research, the model specifications use the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The regression model that will be used in this research is:

$$GDP_{it} = C + \ln_{tourism}_{it} + \ln_{receipts}_{it} + CRE_{it} + \epsilon_{it}$$

C : constant (intersection)

GDP : GDP growth (%)

ln_{tourism} : number of foreign tourists (%)

ln_{receipts} : total tourist receipts (%)

CRE : renewable energy consumption (%)

ln : natural logarithm

Types of Research Data

Testing the regression model through the Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM) to determine the most appropriate model then obtained the result that the most appropriate model to use was the Fixed Effect Model (FEM). This model has gone through the Chow test and Hausman test. The regression results that have been tested are in Table 1 below:

Variabel	CEM		FEM		REM	
	Koef.	Prob.	Koef.	Prob.	Koef.	Prob.
C	-70.417	0.0000	-89.535	0.0000*	-70.418	0.0000
ln _{tourism}	3.887	0.0000	5.295	0.0000*	3.887	0.0000
ln _{receipt}	3.316	0.0001	2.269	0.0575**	3.316	0.0000
CRE	0.220	0.0000	0.147	0.0000*	0.220	0.0000
R-Square	0.751		0.902		0.750	
F. Statistic	28.115		38.269		28.115	
Prob. F	0.000		0.000		0.000	

*: Sig. 0,05, **: sig. 0,1 Source: Data processing results

Measurement Scale

The next step is a chow test to determine the best model between the CEM and FEM models. The chow test results are presented in Table 4.2 below:

Table 2 Chow Test Results

Effect Test	Statistic	Prob.
Cross section F	12.819	0.0000

Source: Data processing results

Based on the table above, there is a cross section probability value of 0.0000, which means the value is smaller than 0.05 or ($0.0000 < 0.05$). Based on theory, if the p-value < 0.05 then H1 is accepted, meaning the fixed effect model is better than the common effect model. So, the best model chosen is the fixed effect model (FEM). Because of this, further testing was carried out, namely the Hausman test, to determine the best model. Following are the results of the Hausman test:

Table 3 Hausman Test Results

Effect Test	Statistic	Prob.
Cross section F	38.458	0.0000

Source: Data processing results

Based on the table attached above, there is a probability value of 0.0005, which means the value is smaller than 0.05 or ($0.0000 < 0.05$). Based on theory, if the p-value < 0.05 then H1 is accepted, meaning the fixed effect model is better than the common effect model. So, the best model chosen is the fixed effect model (FEM). Based on the regression results using the Fixed Effect model (FEM) table 1, the model equation can be formed as follows:

$$GDP_{it} = -89.535 + 5.295 \ln \text{tourism}_{it} + 2.269 \ln \text{receipts}_{it} + 0.147 \text{CRE}_{it} + e_{it}$$

Data Analysis Techniques

Data analysis was carried out by the method quantitative approach use *Eviews software version 10*.

Hypothesis test

This formulation can be interpreted as follows:

- a) The regression coefficient value for the variable number of international tourist visits is 5.295, meaning that every 1% increase in the number of international tourist visits by 1% causes GDP to increase by 5.295% assuming the other independent variables remain constant.

- b) The regression coefficient value for the variable number of tourism receipts is 2.269, meaning that every 1% increase in the number of tourism receipts will cause GDP to increase by 2.269% assuming the other independent variables remain constant.
- c) The regression coefficient value for the variable renewable energy consumption is 0.147, meaning that every 1% increase in renewable energy consumption will cause GDP to increase by 0.147% assuming the other independent variables remain constant.
- d) An R-square value of 0.902 means that the model can explain 90.2% of the facts, while the remaining 9.8% is explained by other variables outside the model.

RESULT AND DISCUSSION

Tourism and the economy are two interrelated things. The two have a long-term relationship (Muhtaseb & Daoud, 2016). In this research it was found that the number of foreign tourist visits had a significant positive impact on the economic growth of the four maritime countries in ASEAN. It cannot be denied that the beauty of the sea and beaches that these countries have is an attraction for foreign tourists compared to countries that do not have them. international tourism will contribute to increased income in at least two additional ways as indicated by the export-led growth hypothesis. First, increasing efficiency by encouraging competition between international companies and tourist destinations and second, by facilitating the exploitation of economies of scale in local companies (Bouzahzah & Menyari, n.d.). In detail, the impact of international tourism on long-term economic growth can be seen from a) the contribution to capital goods used in the production process through foreign exchange b) the role of tourism in developing infrastructure investment, the quality of human resources, and market competition. c) multiplier effect for related industries both directly and indirectly d) Tourism provides many job vacancies to increase income in the form of a multiplier effect which can finance the local business cycle. e) Tourism creates positive economies of scale (Soputan et al., 2022).

The influence of the tourism industry is not only economic but also political and social. Godara, Fetrat, & Nazari (2020) in their research revealed that accepting foreign tourists has a positive effect on the economy. High tourist receipts have a big opportunity to create employment opportunities which in turn increase people's income. The results of this research are in accordance with Wardhana, Kharisma, & G.H, (2019) which shows that there is a positive influence of foreign tourist reception on GDP in ASEAN countries. In research, Soputan et al., (2022) examined the influence of the tourism sector on economic growth in ASEAN countries using panel data regression analysis for the 1998-2018 period. The results show that the tourism sector has a positive influence on economic growth through proxies for the number of foreign tourists and tourism receipts. Similar results were also found in research (Yakup, 2019) which examined the influence of tourism on economic growth in Indonesia for the 1975-2017 period using two stage least squares.

The research results state that renewable energy consumption has a positive influence on GDP. This is in accordance with Kuznet's theory. According to this theory, economic growth will be accompanied by environmental damage, but until the turning

point, environmental damage will decrease. The hypothesis of this theory states that environmental damage will continue along with increasing income levels. At a certain point (turning point) in the level of economic growth achieved, it is certain that environmental damage will decrease as humans begin to think forward to find environmentally friendly energy solutions. Nikensari, Destilawati, & Nurjanah (2019) concluded that making a country with good environmental quality is one way for a country to become rich which is reflected in GDP. The results of this research are in line with Ula & Affandi (2019) which proves that there is a positive contribution from renewable energy consumption to GDP in Southeast Asia, although the influence is relatively small. Renewable energy consumption is a form of reducing dependence on the use of fossil fuels. Increasing consumption of renewable energy has had a broad impact on increasing GDP by 2.5% in 2020, alleviating poverty, creating new jobs, creating gender equality for women in the use of energy for regional development, increasing education and skills of communities in the ASEAN region (Yana et al. al., 2021). The small influence of renewable energy consumption on economic growth can be caused by countries in ASEAN not yet maximizing the realization of the use of renewable energy as an environmentally friendly energy alternative. This needs to be taken into account because economic activities in ASEAN countries tend to use energy that is not environmentally friendly, which will have a significant negative impact on the environment. Other factors that will result from environmental damage include public health factors, natural disasters and so on. Therefore, the community and leaders in ASEAN need to increase cooperation to develop and increase investment in the field of renewable energy, in order to realize its maximum use and have a positive impact on economic growth and a sustainable environment (Ula & Affandi, 2019).

CONCLUSION

The Tourism-Led Growth Hypothesis (TLGH) was proven in this research. Tourism exports, which are proxied in the variables of the number of foreign tourists and the number of foreign tourist receipts, are proven to have a positive effect on economic progress which is reflected in economic growth. Kuznet's theory which states the relationship between economic growth and environmental damage that forms an inverted U curve is also proven in this research. Even though the influence of the renewable energy consumption variable is relatively small, it has a positive and significant impact on economic growth in the ASEAN region. The suggestions that can be conveyed are that the leaders of ASEAN countries continue to strive to increase existing tourism potential and increase investment cooperation for both tourism development and renewable energy.

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