

Indonesian Tourism Demand by ASEAN Tourists: A Panel Data Analysis

Yulvira Rizka Putri Nugraha^{1*}, Maal Naylah²

^{1,2}Universitas Diponegoro, Indonesia

E-mail: ¹yulvirarpn@students.undip.ac.id, ²maalnaylah@lecturer.undip.ac.id

*Corresponding author

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Abstract

Indonesia recorded the lowest average foreign tourist arrivals compared to ASEAN central countries, thus proving that Indonesia has yet to be thoroughly used as the primary destination for foreign tourists. Market forces influence the low number of foreign tourist arrivals in Indonesia. This study analyzes the impact of determining factors of ASEAN tourism demand in Indonesia. Panel data analysis with the Fixed Effect Model selection model explored Indonesia's tourism demand from five ASEAN countries from 2001 to 2020. The results showed that tourist expenditure, CPI, terrorism, and COVID-19 significantly negatively affect the number of Indonesian tourist visits. In contrast, the exchange rate and GDP per capita significantly positively impact the number of Indonesian tourist visits. Indonesia needs to improve the quality of tourism products and services to increase foreign tourist arrivals and implement international cooperation to create promotions for domestic tourism.

Keywords:

Indonesia tourism; ASEAN; panel data; tourism demand

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INTRODUCTION

Tourism is a sector that contributes to supporting the Indonesian economy, including as a foreign exchange earner, developing business opportunities, employment, and regional development (Aisah & Diky, 2021). Quality and competitive tourism development need to be oriented toward aspects of tourism demand (Mukaffi, 2022). The development of national tourism, when accompanied by the purchasing power of tourists, can trigger an increase in the number of tourist visits, including foreign residents who will travel to countries outside their residences. Two factors influence global tourism growth, according to Pratomo (2009). First, external factors, namely factors that are not directly related to the tourism industry but affect tourism demand. Second, market power factors, namely factors that influence economic conditions, including demand, supply, and distribution of tourism products and services. From the demand side, economic conditions can be analyzed through two influences or effects. First, the effect of substitution (substitution effect), namely the occurrence of price changes with income, is considered unchanged. Second, the income effect, namely the difference in the number of goods demanded if there is a change in real income with prices thought unchanged.

The determinants of tourism demand can be seen from the price approach. Price is an essential factor in determining tourism demand. The price of tourism activities tourists need to spend can be described through tourist spending. Pratomo (2009) said cheaper tourism expenses would follow a decrease in tourism prices. More reasonable travel costs increase tourist visits. Research conducted by Kadir & Karim (2009) found that the tourism prices that tourists need to pay significantly have a negative effect on the number of tourist arrivals. The higher the price, the lower the intention of foreign tourists to visit, so a country must be able to maintain price competition. These results are inconsistent with the findings of Choyakh (2009), which states that prices cannot increase tourist arrivals. This study suggests that destinations or competing countries influence the arrival of foreign tourists.

The price of tourism activities can also be measured through the cost of foreign currency against the domestic currency, or called the exchange rate. The exchange rate indicator is an essential factor for foreign tourists to pay attention to because the exchange rate can be used for transactions between countries and is used to see foreign exchange conditions. Demand for foreign exchange more significant than the supply will be followed by an increase in the price of the foreign currency itself so that foreign currency becomes more expensive and a country's exchange rate weakens. There is a negative and significant effect between the exchange rate and the number of tourist visits shown in the research of Abbas & Ibrahim (2011); Hanafiah & Harun (2010). An increase in foreign currency against the destination country's currency will indicate a weakening of the destination country's currency so that more tourists will want to travel because the required cost of living tends to be cheaper. Different findings are explained in the research by Vanegas & Croes (2000), which states that the exchange rate has a positive and insignificant relationship to the number of tourist visits. The

study explains that most tourists need to adjust their travel plans, or in other words, tourism demand is inelastic to exchange rates.

Tourism prices refer to the costs of goods and services consumed by tourists at their destination, where the calculation can be based on the Consumer Price Index (CPI). The CPI is also used to measure the inflation rate's effect on the tourism industry. More minor price changes indicate that the purchasing power of consumers from the country of origin is greater than that of consumers from the destination country, followed by an increase in tourist visits. The influence between the CPI and the number of tourist visits is shown through research conducted by Abbas & Ibrahim (2011); Hanafiah & Harun (2010) stated that relative prices proxies through the CPI significantly negatively affect the number of tourist arrivals. An increase in tourism prices, in general, can reduce tourist visits. These findings contradict the research of Leitão (2015), which states that the CPI positively affects tourism demand. This study assumes that a higher price of tourism indicates a quality tourism product so that tourist demand increases.

Tourism demand is not only influenced by the price factor but also by income levels. Classical economic theory explains that the determinants influencing tourism demand are based on per capita income indicators (Hermawan & Wardhana, 2016). An increase in per capita income will accompany an increase in tourist visits because tourism is considered a non-luxury good (Habibi & Abbasinejad, 2011). Other findings suggest different results where an increase in per capita income causes a decrease in the number of tourist visits in the short term. These conditions indicate that tourist income is not only allocated for tourism interests but is used to meet other needs (Fahmi & Lafani, 2021).

Indonesia, as a developing country, has the opportunity to attract more tourists from the tourism market segment because Indonesia has a variety of natural and cultural wealth. For this reason, studies related to tourism demand are needed to analyze the factors that influence the number of tourist visits and input material in determining policies to improve the quality of domestic tourism. Several previous studies have analyzed tourism demand through the approach of external factors such as the occurrence of terrorism or war, as well as market power factors from the demand side, both through price effects and income effects that occur in several countries in the world with different influences (Abbas & Ibrahim, 2011; Choyakh, 2009; Habibi & Abbasinejad, 2011; Hanafiah & Harun, 2010; Kadir & Karim, 2009). However, this study added the COVID-19 variable to see the effect of the latest disease outbreaks that have spread to almost all corners of the world on Indonesian tourism. Therefore, this research is considered important as a complement and renewal of research that has been done before, especially after the spread of the COVID-19 outbreak globally.

It is observed many studies in the world analyze the factors that influence tourism demand. Most previous studies only examined the impact of market power or external factors. This study adds the COVID-19 factor to see the significant impact of the

recent outbreak on the tourism industry, which is also a novelty for this research. As a contribution, the results of this research are expected to be the basis or material for consideration in formulating policies to increase tourist visits to Indonesia, such as establishing international cooperation and tourism promotion. This study aims to analyze whether tourist expenditure, exchange rates, GDP per capita, CPI, terrorism, and COVID-19 can significantly affect the number of tourist visits from five ASEAN countries, namely Malaysia, Singapore, Thailand, Philippines, and Brunei Darussalam to Indonesia.

METHODS

The type of data used in this study is secondary data, namely research data sources obtained indirectly by intermediaries or other parties. This study uses panel data (pooled data) covering five ASEAN countries, Malaysia, Singapore, Thailand, Philippines, and Brunei Darussalam to Indonesia from 2001 to 2020. The data in this study were obtained through the ASEAN Statistics and UNCTAD Statistics websites. Secondary data collection techniques in this study used document materials, namely research that utilized data generated by other parties and did not directly collect their data in the field.

The analysis technique used in this study was panel data regression analysis. Panel data is a combination of cross-sectional data and time series data. There are three approaches to the estimation analysis of panel data regression models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The econometric model in this study is systematically derived in Equation (1).

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 D_{1it} + \beta_6 D_{2it} + \varepsilon \quad (1)$$

$$\ln Y_{it} = \alpha + \beta_1 \ln X_{1it} + \beta_2 \ln X_{2it} + \beta_3 \ln X_{3it} + \beta_4 X_{4it} + \beta_5 D_{1it} + \beta_6 D_{2it} + \varepsilon \quad (2)$$

Where:

\ln = natural logarithm

Y = number of tourist visits

X_1 = expenditure of tourists from ASEAN countries

X_2 = ASEAN countries' currency exchange rates against the rupiah

X_3 = GDP per capita of ASEAN countries

X_4 = CPI of ASEAN countries

D_1 = dummy terrorism

D_2 = dummy COVID-19

i = country in ASEAN

t = year

ε = error term

The independent variables and the dependent variable used in this study have different units, so efforts are needed to change the scale of measurement of the original data into other forms in order to be able to fulfill the underlying assumptions through data transformation. The form of data transformation used in this study is the natural logarithmic transformation according to Equation (2) previously. The CPI variable is not put in logarithmic form because the CPI contains a percent element (%) which, if entered into the logarithm will cause a loss of meaning. The terrorism dummy and COVID-19 dummy variables are also not included in the logarithm because the dummy contains a nominal value of zero (0) where the numerical basis cannot be logarithmic (the numeric must be greater than zero).

RESULT AND DISCUSSION

Estimating the panel data regression in this study was carried out using two approaches, namely the Common Effect Model (CEM) and the Fixed Effect Model (FEM). This study did not test using the Random Effect Model (REM) approach because the number of coefficients between the estimators is greater than the number of cross-sections used. Based on the results of the Chow test calculations, the probability value of 0.0000 is lower than the 5% significance level. The Fixed Effect Model is better than the Common Effect Model.

Table 1. Regression Result

No.	Variable	CEM	FEM
1.	Constant	30.07013 (0.0000)	11.73039 (0.0000)
2.	LNTE	-1.663383 (0.0000)	-0.464358 (0.0006)
3.	LNER	-0.563464 (0.0057)	0.339842 (0.0013)
4.	LNGDP	0.323201 (0.1281)	0.303266 (0.0122)
5.	CPI	0.006536 (0.9353)	-0.063643 (0.0259)
6.	D1	-0.494247 (0.1098)	-0.326508 (0.0021)
7.	D2	-0.173523 (0.7769)	-1501514 (0.0000)

The model in this study uses an Ordinary Least Square (OLS) basis, so it is necessary to test the classical assumptions. Based on the normality test, the probability value of Jarque-Bera is 0.368242, which is greater than the 5% significance level ($0.368242 > 0.05$), so the residual values are normally distributed. Utilizing the multicollinearity test carries out tests carried out to determine whether or not there is a relationship between the independent variables used in the study. The following table presents the output of the multicollinearity test.

Table 2. Multicollinearity Test Results

	LNTE	LNER	LNGDP	CPI	D1	D2
LNTE	1.0000	0.1023	-0.3570	0.0359	0.1014	-0.0299
LNER	0.1023	1.0000	-0.0313	0.0900	0.1944	-0.1754
LNGDP	-0.3570	-0.0313	1.0000	-0.4612	0.0188	-0.0323
CPI	0.0359	0.0900	-0.4612	1.0000	-0.1741	-0.1790
D1	-0.0299	-0.1754	-0.0323	-0.1790	-0.1409	1.0000
D2	0.1014	0.1944	0.0189	-0.1741	1.0000	-0.1409

Based on Table 2, the correlation of each independent variable is less than 0.85, so it can be concluded that there is no multicollinearity between the independent variables in the regression model. The circumstances of the emergence of variable variant inequalities in the residual variable regression model from one observation to another require heteroscedasticity testing. The following describes the results of the heteroscedasticity test that has been obtained.

Table 3. Heteroscedasticity Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.088032	1.774198	0.049618	0.9605
LNTE	0.095073	0.176407	0.538943	0.5914
LNER	0.009705	0.114142	0.085024	0.9324
LNGDP	0.206949	0.125354	1.650915	0.1025
CPI	-0.004799	0.036537	-0.131348	0.8958
D1	-0.149595	0.135158	-1.106815	0.2715
D2	0.266467	0.276943	0.962173	0.3387

Based on the results of the heteroscedasticity test in Table 3, the overall probability value generated by each independent variable is greater than the significance level of 0.05, so it can be concluded that there is no heteroscedasticity problem in panel data regression. Based on the R² results from the regression model, an Adjusted R-squared value of 0.945323. The study results show that the percentage contribution to the influence of the independent variables, namely tourist expenditure, exchange rates, GDP per capita, CPI, terrorism, and COVID-19 on the dependent variable, namely the number of tourist visits is 94.53%. In the same condition, the remaining 5.47% is explained by other variables not included in the model.

Table 4. Hypothesis Test Results

Variable	Notation	t-Statistic	Prob.	Description
Tourist expenditure	LNTE	-3.550450	0.0006	Significant
Exchange rate	LNER	3.327849	0.0013	Significant
GDP per capita	LNGDP	2.557796	0.0122	Significant
CPI	CPI	-2.265785	0.0259	Significant
Terrorism	D1	-3.176194	0.0021	Significant
COVID-19	D2	-7.224738	0.0000	Significant

Based on Table 4, can explain that all independent variables have a significant effect on the number of visits by Indonesian tourists from 2001-2020. Meanwhile, the education variable has no significant impact on the number of poor people. Tourist expenditure from five ASEAN countries significantly negatively affects the number of visits by Indonesian tourists. Suppose there is a 1 percent increase in ASEAN tourist expenditure. In that case, it will be followed by a decrease in Indonesian tourist visits by 0.464358 percent, assuming other variables are constant. This study's estimation results align with the theory stated by Sinclair & Stabler (2002), where there is a negative effect between the prices represented by tourist expenditure from the five ASEAN countries and the number of visits by Indonesian tourists from 2001 to 2020. This finding is supported by research by Martins et al. (2017), which states that the relative decline in domestic prices helps increase world tourism demand because consumers pay close attention to price comparisons when they choose a destination and buy goods or services at that destination. Sianipar et al. (2016) also supported this finding, stating that Australian tourism prices negatively affect the amount of Australian tourism demand in the short-term relationship.

One of the ways ASEAN tourists respond to changes in tourism prices is by changing the amount they spend on their trips. Tourist expenditure shows that most of the five ASEAN countries visiting Indonesia have a downward trend from 2001 to 2020. This

indicates a decline in tourism prices and decreased spending per visit. An increase will follow the decline in tourism prices in demand for ASEAN tourists because the prices offered are relatively lower.

The exchange rates of the five ASEAN countries significantly positively affect the number of visits by Indonesian tourists. Suppose there is an increase of 1 percent in the ASEAN exchange rate. In that case, it will be followed by the rise in the number of visits by Indonesian tourists by 0.339842 percent, assuming other variables are constant. The positive relationship between price and tourism demand indicates that price elasticity is inelastic. The number of goods demanded is less sensitive to price changes, so a price increase will only slightly reduce tourism demand. This finding is supported by the results of Agesti (2017), which argues that the exchange rates of six Asia Pacific countries have a significant positive relationship with the demand for tourism in Indonesia. Tung (2019) also supported this finding, which stated that the exchange rate positively impacted the demand of foreign tourists. It indicated that the domestic currency devaluation also positively affected the number of foreign tourists to Vietnam.

The strengthening of the five ASEAN countries' exchange rates against the rupiah shows an increase in the number of tourists visiting Indonesia. Strengthening the currencies of the five ASEAN countries will be followed by a decrease in costs to be spent so that tourist visits to Indonesia will increase. ASEAN tourists will benefit because travel and accommodation costs are relatively cheap, so tourists will sell their currency to get the rupiah. This can also help Indonesia achieve the target of foreign tourist arrivals yearly.

The GDP per capita of the five ASEAN countries has a significantly positive effect on the number of visits by Indonesian tourists. Suppose there is an increase of 1 percent of ASEAN GDP per capita. In that case, it will be followed by the rise in the number of visits by Indonesian tourists by 0.303266 percent, assuming other variables are constant. The estimation results in this study align with the theory stated by Sinclair & Stabler (2002), where there is a positive influence between income represented through GDP per capita of ASEAN and the number of visits by Indonesian tourists from 2001 to 2020. These results are supported by findings from Akter et al. (2017), which argue that there is a positive relationship between the increase in GDP per capita in the origin country and arrivals in the destination land. Martins et al. (2017) also supported this finding, which stated that an increase in the World GDP per capita does help to boost the number of arrivals because the wealth and size of the economy might influence the tourism demand functions.

The five ASEAN countries that visited Indonesia generally had income levels that had increased over the last 20 years. This shows that Malaysia, Singapore, Thailand, the Philippines, and Brunei Darussalam have high purchasing power, so an increase can follow an increase in tourist income in demand for tourism in Indonesia. Or it can be interpreted that with increasing revenue, the purchasing power of tourists for tourism

prices also increases because tourists can set aside their money for tourism needs. An increase in revenue followed by the rise in tourism consumption shows that tourism in Indonesia is a normal good.

The CPI of the five ASEAN countries significantly negatively affects the number of visits by Indonesian tourists. If there is an increase of 1 percent in the ASEAN CPI, it will be followed by a decrease in the number of visits by Indonesian tourists by 0.063643 percent, assuming other variables are constant. This study's estimation results align with the theory stated by Sinclair & Stabler (2002), where there is a negative effect between prices represented through the CPI of the five ASEAN countries and the number of visits by Indonesian tourists from 2001 to 2020. These results are supported by findings from Abbas & Ibrahim (2011), which stated that the CPI of the country of origin of tourists had a significantly negatively affected on the number of Egyptian tourist arrivals. Akter et al. (2017) also supported this finding, which argue that there is a negative relationship between the CPI of Bangladesh and tourist arrival.

The CPI proves that the five ASEAN countries visiting Indonesia from 2001 to 2020 generally experienced a downward trend. This means that the price of goods and services to the tourism industry has fallen, which has led to a decrease in the CPI. The decline in the CPI will be accompanied by a reduction in prices relative to ASEAN, which will reduce the number of ASEAN tourist visits to Indonesia.

Terrorism that occurred in Indonesia significantly negatively affects the number of tourists visiting. The coefficient value of -0.326508 indicates a negative direction between terrorism that occurs in Indonesia and the number of Indonesian tourist visits, which means that the number of tourist visits when terrorism occurs decreases by 0.326508 percent. These results are consistent with the theory of tourism demand, where war or terrorism can affect tourism demand (Fletcher et al., 2018). This finding is in line with the research from Samitas et al. (2018), which stated that terrorism has a decisive negative impact on tourism demand in Greece. Buigut et al. (2022) also supported this finding, which said that terrorism events within Malaysia consistently show a negative and significant impact on international arrivals. The possibility of terrorist attacks in tourist destination countries can cause discomfort for tourists because tourism security factors can be threatened it can reduce the number of tourists nationally (Karjaya et al., 2018).

COVID-19 has significantly negatively affected the number of visits by Indonesian tourists. A coefficient value of -1.501514 indicates a negative direction between COVID-19 and the number of Indonesian tourist visits, which means that the number of tourist visits after COVID-19 has decreased by 1.501514 percent. These results are consistent with the theory of tourism demand, where the emergence of epidemics and outbreaks can affect tourism demand (Fletcher et al., 2018). This finding is in line with research by Tran et al. (2020), which stated that COVID-19 had a significant negative effect on the number of tourist visits from APEC countries. This study explains that the health status of the destination country strongly influences tourism. The emergence of COVID-19

can cause fear and anxiety (fear of travel) for potential tourists who will travel and leave their residence because there is a possibility of being infected with the virus when visiting a country with a high number of active cases (Zenker et al., 2021). Schmude et al. (2021) also supported this finding, which argue that COVID-19 has been able to trigger changes in tourism demand, such as reduced tourist areas and major events due to reduced foreign tourists.

CONCLUSION

The results of the study show that tourist expenditure, CPI, terrorism, and COVID-19 have a significant negative effect on the number of visits by Indonesian tourists. In contrast, the exchange rate and GDP per capita significantly positively affect the number of visits by Indonesian tourists. Based on these six significant variables, the occurrence of terrorism had the greatest influence on the number of tourist visits to Indonesia from 2001-2020. Indonesia needs to improve the quality of tourism products and services to boost spending by foreign tourists. Accelerating the development of aspects of tourism products in priority destinations in Indonesia and improving market strategies through tourism promotion to several countries with high per capita GDP levels so that they have the potential to make visits to Indonesia can do this. Publicizing domestic tourism travel can also increase cooperation with foreign policymakers to attract tourists. In addition, Indonesia needs to keep tourism prices competitive by maintaining currency exchange rate stability.

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