




RESEARCH ARTICLE



The impact of tourism on economic growth in ASEAN-5 countries: Evidence from panel data analysis

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ABSTRACT

This study analyzes the influence of the tourism sector on economic growth in five ASEAN countries (ASEAN-5), using panel data from 1995 to 2023. By employing a quantitative approach and panel data regression models, this research finds that the number of foreign tourist arrivals, tourism receipts, and exchange rate significantly influence the economic growth of these countries. The analysis results indicate that an increase in the number of foreign tourist arrivals and tourism receipts positively impacts economic growth, while the exchange rate significantly contributes to its improvement. These findings confirm the importance of the tourism sector as an economic driver and highlight the necessity of supportive policies to foster the development of this sector in order to enhance economic growth in the ASEAN region.

KEYWORDS

Economic growth; tourist arrivals; tourism receipts; exchange rate; ASEAN-5

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1. Introduction

Economic growth is based on Simon Kuznets' theory, which posits that a country's economic growth is one of the key macroeconomic indicators that requires close attention. This reflects a country's increasing ability to raise per capita income as a measure of its economic growth. The tourism sector has the potential to contribute significantly to economic growth. It plays a strategic role in supporting other sectors such as transportation, accommodation, entertainment, services, and various related

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industries. The interaction between these sectors and tourism can influence a country's overall economic growth (Mudrikah et al., 2014).

Tourism has emerged as a rapidly growing economic sector that stimulates economic growth globally (Mardhani et al., 2021; Mardhani et al., 2024). According to the United Nations World Tourism Organization (UNWTO), the number of international tourist arrivals worldwide increased by 6% in 2018, reaching 1.4 billion. This increase was driven by a 10% rise in the Middle East and 7% in Africa, while Asia-Pacific and Europe experienced 6% growth, in line with the global average. Based on current trends, the UNWTO Confidence Index forecasted a global increase in international tourist arrivals of between 3% and 4% for 2019 (UNWTO, 2019).

The tourism sector plays an important role in the economic growth of ASEAN countries, especially the five major ASEAN economies—Indonesia, Malaysia, Thailand, Singapore, and the Philippines. Tourism contributes not only to national income but also serves as a key driver for job creation and poverty reduction. It is a vital sector for many countries around the world (Fasa et al., 2023), significantly contributing to GDP, generating employment opportunities, and having a positive spillover effect on other economic sectors (Prayitno et al., 2023).

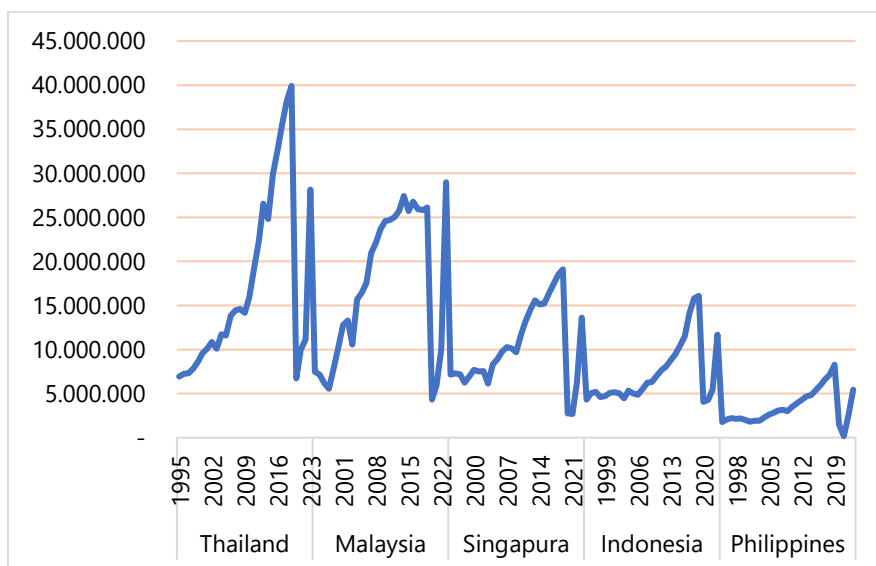


Figure 1. Tourist arrivals in ASEAN-5 countries. Source: World Bank

Figure 1, based on data from the World Bank, shows fluctuations in the number of international tourists visiting ASEAN-5 countries during the period 1995–2023. ASEAN countries experienced a significant increase in tourist arrivals in 2019, followed by a sharp decline in 2020–2021 due to the COVID-19 pandemic, which

severely impacted tourism across the region. However, in the following years, ASEAN countries began to recover their tourism sectors.

The recovery in international tourist arrivals in 2022 and 2023 indicates a positive shift in tourism dynamics within the ASEAN-5 region. A consistent upward trend in tourist numbers can be observed, supported by the geographical advantages and attractiveness of destinations across these countries. Tourism activity stimulates local economic activities, which are recorded as tourism receipts—including expenditures on luggage handling and transportation. These revenues are directly received by economic actors and serve as a stimulus for daily economic activities, supporting local economies. The economic stimulus from tourism can further drive investments in infrastructure, natural resources, and employment creation, thus increasing national income.

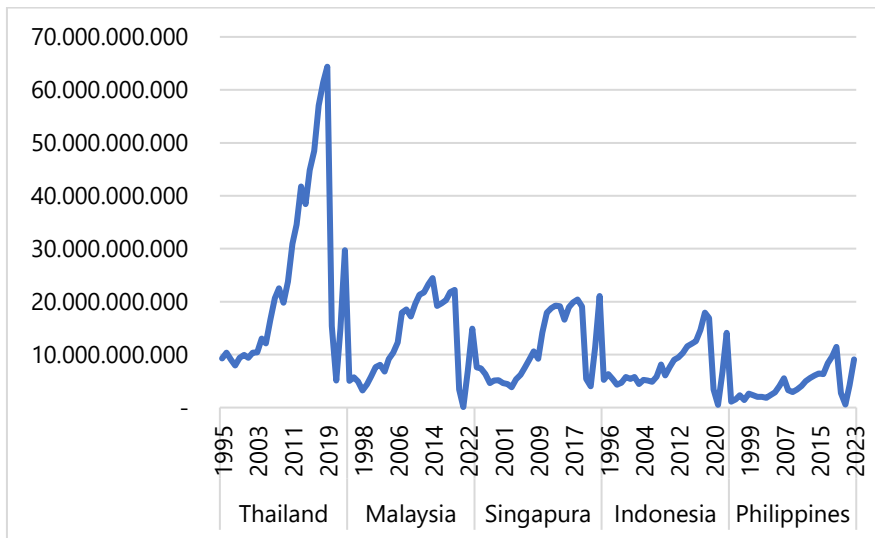


Figure 2. Tourism receipts in ASEAN-5 countries. *Source:* World Bank

Figure 2 illustrates the positive trend in tourism receipts experienced by the ASEAN-5 countries. In 2022, tourism receipts grew significantly, with an average increase of 178.28% across the five countries. This positive trend continued into 2023, albeit at a slower pace, with an average growth rate of 104.88%.

The positive development in tourism receipts promotes economic activities within the tourism sector and holds significant potential. As tourism expands, supporting sectors can also grow rapidly. The development of both tourism and its supporting sectors plays a crucial role in the overall economic growth of a country.

The movement of domestic currencies, whether in the form of appreciation or depreciation, is a major indicator influencing cross-border transactions, including trade and international capital flows. According to international economic theory, a country's openness to trade can offer additional benefits for economic growth. In addition to boosting trade, economic openness can lead to capital accumulation, which in turn enhances the productivity of production factors (Morina et al., 2020).

2. Literature review

The majority of published studies on the relationship between tourism and economic growth can be categorized into several key themes. Tourism in the EU-28 increased between 2012 and 2018. One study analyzed 28 countries to examine whether economic convergence occurred based on three types of tourism revenue. The findings indicate that revenue contributions vary, and convergence progresses slowly, with a positive relationship between tourism and economic growth (Haller et al., 2021).

Although the Paris Agreement and Sustainable Development Goals emphasize the importance of low-carbon economic growth, further research is needed to understand the tourism sector's impact on carbon productivity. A study analyzing data from 1995 to 2020 in Kuwait found that increases in carbon dioxide emissions could reduce tourism activity (Khan et al., 2023).

Turkey, as an advanced economy in the MENA region and a major tourism destination, has experienced increased terrorism threats, particularly following the Syrian civil war. This study examined data on tourism and terrorism to assess their effects on economic growth, with results showing a negative impact of terrorism on GDP (Afonso-Rodríguez, 2017).

Another study investigated the impact of tourism on economic growth in Morocco and Tunisia from 1980 to 2010. The results indicated that the tourism-led growth hypothesis holds only in the short term. Furthermore, strong causality from economic growth to international tourism receipts was found in the long run (Bouzahzah & El Menyari, 2013a). A study focusing on Turkey from 1970 to 2011 showed a positive impact of tourist expenditures on economic growth (Panahi et al., 2015).

Developing countries tend to focus on economic policies aimed at increasing international tourism as a source of growth. One study examined the tourism-

growth relationship using data from 144 countries. The results show a consistent relationship across regions and income categories (Fawaz et al., 2014). Tourism provides financial resources for business activities, stimulates local productivity, and creates new employment opportunities (Nissan et al., 2011).

Research on the impact of tourism on economic growth in Indonesia from 1995 to 2000 revealed a mutual influence between tourism growth and economic growth (Nizar, 2011). Tang & Abosedra (2016) found that tourism Granger-causes economic growth, supporting the hypothesis that tourism drives growth in Morocco and Tunisia.

The existence of a long-run relationship between tourism and economic growth highlights the sector's potential to support economic development, while also emphasizing the importance of industrial diversification (Lorde et al., 2011). Tourism supports economic growth in South Tyrol, but economic growth does not support tourism. Moreover, impulse response analysis shows a sustained positive impact from the number of tourists and relative prices (Brida & Risso, 2010).

Tourism and economic growth also influence energy consumption, with tourism exerting a stronger influence on economic growth (Tang et al., 2016). Granger causality from international tourism receipts to real economic growth indicates both short- and long-run relationships. Public intervention is needed for tourism infrastructure development (Kadir & Karim, 2012).

The impact of tourism on the economic growth of five Pacific island countries—Fiji, Samoa, the Solomon Islands, Tonga, and Vanuatu—was also studied. Tourism development was found to stimulate growth, though remittances and financial development had negative effects (Kumar & Stauvermann, 2023).

Tourism receipts and expenditures have a causal relationship with economic growth. A study investigating this relationship in SAARC countries over a 20-year period found bidirectional causality between economic growth and tourism expenditure. However, tourism receipts positively influenced growth, while tourism expenditures had a negative effect (Mohapatra, 2018).

A study analyzing the relationship between tourism development and economic growth in the top 10 global tourist destinations from 1990 to 2015 found that the strength of the relationship varied over time and across countries. The strongest relationships were found in the UK, Italy, and Mexico, while weaker relationships were observed in Germany, France, and China (Shahbaz et al., 2018; Wu et al., 2018).

The contribution of international tourism to economic growth in Kerala, India, was also examined. The results show a long-term positive relationship, where a 1% increase in foreign tourist arrivals leads to a 0.97% increase in GDP (Kavya Lekshmi & Mallick, 2022).

Another article examined the relationship between tourist arrivals and GDP in Montenegro and Slovenia—two emerging tourist destinations. Using quarterly GDP and monthly tourist arrivals data from 2010 to 2019, the study found that in Montenegro, economic growth was driven by tourism, while in Slovenia, no cointegration was identified (Gričar et al., 2021).

A study explored the impact of tourism on economic growth in the context of CO₂ emissions in Mediterranean countries. A positive long-run equilibrium was found between tourism, CO₂ emissions, and economic growth. Tourism increased CO₂ emissions while contributing to economic growth in Egypt, Italy, and Spain. Bidirectional relationships were also observed in Morocco and Turkey (Balli et al., 2019).

Research in the Asian region (Wu et al., 2022) found a linkage between international tourism receipts and international tourist arrivals in countries such as Cambodia, China, Macau, Malaysia, Singapore, and Thailand, showing low- to high-frequency cycles. These findings suggest the need for governments to enhance and promote tourism demand, and to expand and maintain tourism supply. Additionally, a study in Indonesia also revealed a bidirectional relationship between tourism receipts and economic growth.

H1: Tourism have a positive and significant effect on the economic growth of ASEAN-5 countries.

3. Research methods

3.1. Data and variable

The purpose of this study is to provide a systematic and accurate explanation, in the form of a diagram, regarding the tourism sector and its relationship to economic growth in ASEAN countries. This study uses panel data analysis, combining both cross-sectional data and time-series data from the years 1995 to 2023, focusing on five ASEAN countries.

The dependent variable in this study is economic growth, which refers to the increase in a country's production of goods and services, as well as improvements

in income levels. It is measured by Gross Domestic Product (GDP) in millions of US dollars. The independent variables are international tourist arrivals, tourism receipts, and exchange rate.

3.2. Data analysis

The regression model used in this study is specified as follows:

$$\log(Y) = \beta_0 + \beta_1 \log(X_1) + \beta_2 \log(X_2) + \beta_3 \log(X_3) + e_{it} \quad (1)$$

where Y is economic growth, X_1 is number of international tourist arrivals, X_2 is tourism receipts in millions of US dollars, X_3 is exchange rate, β is intercept, β_1 - β_3 is Regression coefficients, and e_{it} is error term.

The panel data regression model allows estimation using three common approaches: the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). To determine the most appropriate model for this study, the following statistical tests are applied Chow test, Hausman test, and Lagrange multiplier (LM) test. These tests help identify the optimal model for analyzing the panel data, as suggested by Gujarati & Porter (2010).

4. Results discussion

4.1. Model Specification and Selection

4.1.1. Chow test results

Table 1 presents the results of the Chow test. The probability value of the cross-section F statistic is 0.0000, which is lower than the significance level $\alpha = 0.05$. This indicates that the FEM is more appropriate than the CEM. Therefore, the next step is to conduct the Hausman test to determine whether FEM or REM should be selected.

Table 1. Result of Chow test

Effect Test	Statistic	d.f.	Prob.
Cross-section F	4.181061	(4,137)	0.0032
Cross-section Chi-square	16.701021	4	0.0022

4.1.2. Hausman test results

Table 2 shows the results of the Hausman test. The probability value of the random cross-section is 0.0392, which is lower than the 0.05 significance level. Based on this

result, FEM is the preferred model. However, to further validate the model selection, the Lagrange Multiplier (LM) test is also performed.

Table 2. Result of Hausman test

Test-section random	Chi-Sq.Statistic	Chi-Sq.d.f.	Prob.
Cross-section random	8.355153	3	0.0392

4.1.3. Lagrange Multiplier (LM) test results

Table 3 presents the results of the LM test, based on the Breusch–Pagan method. The p-value obtained is 0.4206, which is greater than the significance level of 0.05. Thus, although both the Chow and Hausman tests suggest FEM, the LM test indicates that CEM is the most appropriate model. Considering the results from all three tests, this study adopts CEM as the best model for further analysis.

Table 3. Result of LM test

Breusch Pagan	Cross section	Hypothesis Test Time	Both
	0.648757 (0.4206)	209.6596 (0.0000)	210.3084 (0.0000)

4.2. Static panel regression estimation results

Panel regression analysis was conducted using the three standard estimation models: CEM, FEM, and REM. Based on the results of the model selection tests described earlier, CEM was identified as the most suitable model for this study. The regression output using CEM with a logarithmic transformation is presented in Table 4.

Table 4. Result of panel data regression

Variable	Coefficient	t-Statistic	Prob.
C	20.96476	0.687513	30.49361
LOG(X1)	0.156541	0.064938	2.410605
LOG(X2)	0.106351	0.056134	1.894583
LOG(X3)	0.143114	0.009437	15.16582
The goodness of fit			
Adjust R-square	F-statistic	Prob(F-statistic)	
0.640294	88.44238	0.0000	

Note: Y (economic growth) is the dependent variable

The regression results indicate that the constant term of 20.96476 reflects the estimated baseline of economic growth when all independent variables—namely, foreign tourist arrivals, tourism receipts, and exchange rate—are held at their base logarithmic levels. The coefficient of the number of foreign tourists (X1) is 0.156541, suggesting a positive relationship between tourist arrivals and economic growth. Specifically, a 1% increase in foreign tourist numbers leads to an estimated 0.1565% increase in economic growth, assuming other factors remain constant (*ceteris paribus*). Similarly, the coefficient of tourism receipts (X2) is 0.106351, indicating that a 1% rise in tourism revenue corresponds to a 0.1064% increase in economic growth. Lastly, the exchange rate (X3) has a coefficient of 0.143114, which also denotes a positive effect, where a 1% appreciation in the exchange rate is associated with a 0.1431% rise in economic growth. These findings demonstrate that all three variables—foreign tourist arrivals, tourism receipts, and exchange rate—positively contribute to economic growth in ASEAN-5 countries during the observed period.

5. Discussion

5.1. *Tourist Arrivals and Economic Growth*

The results indicate that foreign tourist arrivals have a positive and statistically significant impact on economic growth in ASEAN-5 countries. This suggests that an increase in the number of international visitors contributes meaningfully to the region's economic performance. These findings support the first hypothesis and are consistent with previous studies (Rediteani & Setiawina, 2018; Chen & Chiou-Wei, 2009), which also observed a robust relationship between tourism flows and economic expansion.

5.2. *Tourism receipts and economic growth*

Although tourism receipts show a positive relationship with economic growth, the effect is not statistically significant. This implies that while tourism income may contribute to economic activity, its partial impact is not strong enough to be confirmed in this model. Consequently, the second hypothesis is rejected. These results differ from earlier research (Balcilar et al., 2014; Bouzahzah & El Menyari, 2013b; Wu et al., 2022; Mohapatra, 2018), which generally found tourism revenues to be a significant driver of economic growth.

5.3. Exchange rate and economic growth

The exchange rate is found to have a positive and statistically significant effect on economic growth in the ASEAN-5 region. This suggests that currency valuation dynamics may play a role in supporting or enhancing economic performance, potentially through their influence on trade and investment flows. These findings align with previous studies (Katusiime et al., 2016; Ashour & Chen Yong, 2018; Mookerjee, 1997), which underscore the exchange rate's impact on broader economic variables, including tourism earnings.

6. Conclusion

This study finds that the tourism sector plays a vital role in driving economic growth across ASEAN-5 countries. The number of international tourist arrivals and tourism receipts are positively associated with GDP growth, while exchange rate dynamics also appear to support economic expansion. These findings underscore the strategic importance of tourism as an engine of post-pandemic recovery. For policymakers, revitalizing tourism infrastructure, improving service quality, and maintaining currency stability may prove effective in promoting sustained economic development in the region. Future research could explore the mediating role of investment, institutional quality, or digital innovation in strengthening the tourism–growth nexus.

Disclosure statement

The authors declare that there are no conflicts of interest regarding this publication.

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