


## IMPACT OF EXCHANGE RATE ON FOREIGN TOURIST DEMAND: EVIDENCE FROM DEVELOPING COUNTRIES

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**Abstract:** The tourism sector plays a critical role in many countries worldwide. The purpose of this study is to explore the impact of the exchange rate on foreign tourist demand in 47 developing countries from 2005 to 2020. Unlike previous studies, our empirical data only includes low-income and low-middle-income countries for the quantitative research process. The Driscoll-Kraay standard errors method has been applied for the estimation. The result confirms that an increase in exchange rate leads to a higher number of international tourism arrivals in these countries. Therefore, if policymakers in these countries depreciate the value of their domestic currency, it will create a boosting effect on the number of foreign tourists. In addition, the result identified that the pollution, denoted by the carbon dioxide emissions, affected foreign tourist demand like an inverted U-shaped Kuznets curve. It implies that environmental pollution in developing countries has increased gradually which negatively influenced the demand of international travelers as well as the growth of the tourism sector. However, the quality of institutions and infrastructure in the host countries can have positive effects on the demand for international tourists. Finally, some policy implications are included for enhancing the tourist industry in developing countries.

**Key words:** Exchange rate, foreign tourist demand, tourism revenue, environmental pollution, Kuznets curve

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### INTRODUCTION

The tourism industry is one of the most important socio-economic activities and has a great potential effect on global development in the future (Lin et al., 2019; Akadiri and Akadiri, 2021; Tung, 2021; Singh and Kumar, 2022). Tourism has been found to have a critical role in supporting economic growth (Jalil et al., 2013; Asongu et al., 2019; Bhuiyan et al., 2021), increasing per capita income (Brida et al., 2020), reducing poverty (Tung, 2019a), and improving business opportunities (Tang, 2018). Tourism also helps to create international integration and build bridges between different cultures by connecting cultural exchange between communities (Orgaz-Agüera et al., 2022). Furthermore, the tourism sector provides great resources in increasing export revenue and foreign income to the economy and is considered an important factor in economic development (Tang and Tan, 2013). Travel is a robustly growing industry worldwide and is considered a potential driver of economic development in many countries (Fernandes et al., 2019; Sharma and Pal, 2020; Bhuiyan et al., 2021; Tung, 2021). Because tourists spend for many reasons during their trips, the exchange rate can affect the tourists' decisions (Tung, 2019b; Chaudhry et al., 2022). The demand for foreign tourists can be influenced by the exchange rate in the host country. Thereby, the studies on this topic could provide empirical evidence for policymakers in enhancing the efficiency of the policies in practice (Lin et al., 2019). Tourism plays a critical role in many low-income countries; therefore, the exact accreditation of the exchange rate policy is not only helpful in the academic field but also necessary for public administrations in practice for supporting the tourism activities of developing countries (Meo et al., 2018; Dogru et al., 2019; Akadiri and Akadiri, 2021). On the other hand, some other factors, which affect foreign tourist demand, should be identified for a better policy-making process (Lin et al., 2019).

This study aims to explore the impact of the exchange rate on the demand of international tourists with a sample of developing countries. In overall, this paper provides two main contributions to the current literature. First, the result delivers new empirical evidence by clarifying the impact of exchange rates on the demand of foreign tourists with a quite large sample including 47 low-income and low-middle-income countries worldwide. Second, the data may be in the most up-to-date format in the period from 2005-2020. Then the findings are the newest evidence compared to previous studies. Third, this study also considers the relationships between the demand of foreign tourists and other elements, such as pollution, infrastructure, and institutional quality, and it provides some useful implications for policymakers enhancing the tourism sector in these countries in the future. The paper is structured into five sections. Section 2 presents relevant previous studies and Section 3 shows the methodologies and a description of the data. The result and discussion are in Section 4. A conclusion and policy implications are included in Section 5.

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## LITERATURE REVIEW

Tourism is a service industry that is likely to be affected by the exchange rate fluctuation (Irاندوست, 2019; Athari et al., 2021; Chaudhry et al., 2022). The exchange rate can influence the choice of international tourist destination, as tourists tend to choose countries with more favorable exchange rates (Webber, 2001; Sharma and Pal, 2020). When the monetary value of a destination depreciates, international tourists have more money to spend, and they are therefore able to prolong their trips and increase their spending in local destinations (Crouch, 1993). Besides, the devaluation of the local currency leads to a reduction in the overall cost of travel for ex-pats with strong currencies.

A depreciated exchange rate is positively related to tourism demand (Sharma and Pal, 2020), as travel becomes less expensive when visiting a devalued country. As a result, the number of foreign tourists increased rapidly (De Vita and Kyaw, 2013). Some previous studies showed that the exchange rate could be a key factor in determining tourism demand (Balaguer and Cantavella- Jordá, 2002; Oh, 2005). There were some empirical results related to the current study topic but most of them were done in high-income countries (for example, Ongan and Gozgor, 2018; Işik et al., 2019). Ongan et al. (2017) analyzed the effect of real exchange rate and income on tourist demand from Germany, France, the UK, Netherlands, Italy, Spain, and Sweden to the United States in the period 1996-2005. The methodology was the Common-Correlated Effects (CCE) approach. The dependent variable was the number of tourists, and the independent variables were real GDP per capita and real exchange rate. The results showed that tourists were more sensitive to changes in the real exchange rate than to changes in GDP per capita.

Meo et al. (2018) investigated the impact of oil price, exchange rate, and inflation on tourism demand in Pakistan using the Autoregressive Distributed Lag (ARDL) model. Pakistan's annual data was taken from the period 1980-2015. The results confirmed that an increase in the exchange rate could lead to a devaluation of the host country's currency and this status had a positive association with tourism demand. However, poor institutional quality, high levels of inflation related to higher spending, higher cost of living and travel, and reduced the number of domestic and foreign tourists.

The study of Irاندوست (2019) focused on the relationship between exchange rates and tourism demand in ten European countries between 1995 and 2016. The study used a hidden cointegration analysis. The results identified that the exchange rate had both positive and negative impacts on the number of arrivals. The direction of the relationship between the two variables depended on the monetary policy of each country.

The magnitude of the coefficients was much different from country to country, and they appeared to be smaller in Eastern European countries than in Nordic countries and Switzerland.

Dogru et al. (2019) used the ARDL technique with linear and non-linear models. The empirical evidence showed that a higher or a lower exchange rate had relationships with the balance of tourism trade, especially, for bilateral relations between the United States, Canada, Mexico, and the United Kingdom. The study concluded that a stronger US dollar harmed the US bilateral travel trade balance with Canada and the UK, but it did not create a relationship with Mexico in the long run. Işik et al. (2019) estimated the impact of the exchange rate on the tourism trade balance in Turkey and Spain by a non-linear ARDL cointegration approach. The study found that a depreciation of the euro currency had a significant positive effect on the tourism trade balance of Turkey. On the other hand, the appreciation of the euro did not significantly affect Spain's tourism trade balance. Tung (2019b) analyzed the relationship between the exchange rate and the number of foreign tourists in Vietnam from 2006-2018. The empirical evidence confirmed that a reduction in the value of the domestic currency could provide a positive effect on the demand of foreign travelers.

Table 1. The relationship between exchange rate and foreign tourist demand in previous studies (Source: Authors)

| Authors and Publication year | Regions and Periods                         | Method                 | Results  |
|------------------------------|---|------------------------|--|
| Ongan et al. (2017)          | 8 developed countries, 1996–2015            | CCE                    | Tourists visiting are more sensitive to changes in the real exchange rate than to changes in GDP. While French tourists are highly responsive to GDP, British tourists are highly reactive to exchange rates                   |
| Meo et al. (2018)            | Pakistan, 1980-2015                         | NARDL                  | An increase in the exchange rate (known as the depreciation in the currency of the host country) has a positive association with tourism demand.   |
| Irاندوست (2019)              | 10 European countries, 1995-2016            | ECM, VAR               | Empirical results showed that the exchange rate had both positive and negative impacts on the number of arrivals in these countries.   |
| Dogru et al. (2019)          | 4 developed countries, 1996–2017            | ARDL                   | An appreciation in the U.S. dollar could worsen the U.S. bilateral travel trade balance with Canada and the UK, but it had not got a significant effect on Mexico in the long run.   |
| Işik et al. (2019)           | Spain and Turkey, 1996-2016                 | ARDL                   | The evidence indicated that the depreciation of the euro currency should promote tourist arrivals to Turkey, on the other hand, this effect was negligible for Spain's tourism balance.  |
| Tung (2019b)                 | Vietnam, 2006-2018                          | OLS, Granger causality | A higher exchange rate leads to a higher demand for foreign tourists. The domestic currency devaluation was good for the tourism sector. A one-way Granger causality from the exchange rate to the number of foreign tourists. |
| Athari et al. (2021)         | 76 countries, 1995–2017                     | OLS, GMM               | Lower levels in domestic exchange rates of countries are estimated to stimulate higher tourist capital flows.  |
| Akadiri and Akadiri (2021)   | 16 island countries, 1995–2016              | CSD                    | Whether the actual exchange rate was higher or lower would influence the international tourists' decisions   |
| Chaudhry et al. (2022)       | East Asia and the Pacific region, 1991-2018 | DCCE                   | Exchange rates have a positive and significant relationship with tourism revenue   |

Akadiri and Akadiri (2021) examined the causal relationship between tourism, exchange rate, and economic growth in 16 selected island countries. The aim of the study was predictive the contribution to tourism on economic growth by incorporating the real exchange rate as an independent variable from 1995–2016. The results suggested that the real exchange rate could be employed as a good predictor of tourism demand. A higher or lower real exchange rate would influence the decision-making process of international tourists. Athari et al. (2021) investigated the role of political risk, exchange rate, and inflation rate on international tourist arrivals in a group of 76 countries during 1995–2017. Using the pooled OLS and GMM, the estimated results identified that political risk was a significant impediment to the growth of total tourist arrivals in these countries. The low domestic exchange rates of the countries played a stimulative role in attracting foreign tourists. Tourists from out-sites much excited to travel to a destination where they can buy more goods and services. Chaudhry et al. (2022) explored the relationship among environmental quality, real exchange rate, institutional efficiency, and tourism revenue in East Asia and the Pacific region. The Dynamic Common Correlated Effects (DCCE) method was applied. The empirical estimation concluded that the real exchange rate is related to the fluctuation of tourism receipts in this region. A brief review of relevant previous studies has been done and shown in Table 1.

## METHODOLOGY AND DATA

### Econometric model

Based on the previous studies (Meo et al., 2018; Athari et al., 2021; Chaudhry et al., 2022), some macroeconomic indicators were selected for representing the dependent and independent variables. We propose two research models with two different dependent variables including international tourist number (Tourist) and revenue from international tourists (Revenue). The purpose of this paper is to create multiple perspectives when considering the impact of the exchange rate on the demand for foreign tourists. Followed the empirical results (Meo et al., 2018; Athari et al., 2021; Chaudhry et al., 2022), the econometric models have been built with the following structures:

$$\text{Tourist}_{i,t} = \beta_0 + \beta_1 * \text{Tourist}_{i,t-1} + \beta_2 * \text{Exchange\_rate}_{i,t} + \beta_3 * \text{Pollution}_{i,t} + \beta_4 * \text{Pollution}_{i,t}^2 + \beta_5 * \text{Institutional}_{i,t} + \beta_6 * \text{Infrastructure}_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$\text{Revenue}_{i,t} = \varphi_0 + \varphi_1 * \text{Revenue}_{i,t-1} + \varphi_2 * \text{Exchange\_rate}_{i,t} + \varphi_3 * \text{Pollution}_{i,t} + \varphi_4 * \text{Pollution}_{i,t}^2 + \varphi_5 * \text{Institutional}_{i,t} + \varphi_6 * \text{Infrastructure}_{i,t} + \varepsilon_{i,t} \quad (2)$$

The dependent variables in the proposed models are the number of foreign tourists (denoted by Tourist) in thousands of people and the revenue from international tourists (Revenue) in millions of USD. Independent variables are the exchange rate (Exchange rate) is measured by the official exchange rate (LCU per US dollar, period average), Environmental pollution variable (Pollution) is calculated by CO<sub>2</sub> emissions (thousand tons) and Pollution<sup>2</sup> is the square of CO<sub>2</sub> emissions, the institutional quality (Institutional) is measured as the average of CPIA organizations and public sector managers (10 = low to 60 = high). The lagged variables (Tourist<sub>(t-1)</sub> and Revenue<sub>(t-1)</sub>) are added as independent variables for examination of potential effecting from the demand of foreign tourists of the previous year.

Finally, infrastructure quality in destinations (Infrastructure) is included in the proposed models.  $\varepsilon_{i,t}$  and  $\varepsilon_{i,t}$  are the error terms, besides,  $i$  has denoted the cross-sectional units in the sample, and  $t$  is the period. The measurements of the variables in the research models are summarized in Table 2.

Table 2. The measure of variables (Source: World Bank, 2022)

| Variable       | Definition   | Source  |
|----------------|--|---|
| Tourist        | International tourism (number of foreign arrivals, thousand people/year) | World Development Indicators (World Bank, 2022) |
| Revenue        | International tourism, receipts (million, current US\$)                  |   |
| Exchange rate  | Official exchange rate (LCU per US\$, period average)                    |   |
| Pollution      | CO <sub>2</sub> emissions (thousand tons)                                |   |
| Institutional  | CPIA quality of public administration rating (10=low to 60=high)         |   |
| Infrastructure | Fixed broadband subscriptions (per 10000 people)                         |   |

### Methodology

To determine the impact of the exchange rate on foreign tourist demand in developing countries, several quantitative methods will be applied in the analysis of the proposed models. First, the Pearson correlation analysis method is employed to explore the linear relationships between the variables in the research models. Then, a quantitative analysis was conducted with a sample including 47 low-income and low-middle-income countries from 2005 to 2020.

The regression estimation methods of the fixed effect model (FEM) and random effects model (REM) are used and the Hausman test helps to select the better result. Furthermore, to solve the defects of the econometric models, we also perform the estimations with the Driscoll-Kraay standard errors method for the fixed effect model to have the most reliable result. The “xtsc” regression command, developed by Hoechle (2007), produces the standard errors of Driscoll and Kraay (1998) for the linear panel models. The “xtsc” command runs well with both balanced and unbalanced tables, it can handle missing values (Hoechle, 2007).

### Data

This study uses an annual dataset of 47 developing economies around the world for the period of 2005-2020 including

Albani, Armenia, Azerbaijan, Bangladesh, Dominica, Burkina Faso, Burundi, Bosnia and Herzegovina, Cambodia, Cameroon, Chad, Congo Dem Rep, Congo Rep, Cote d’Ivoire, Gambia, Ghana, Ethiopia, Guinea-Bissau, Guyana, Georgia, Haiti, Fiji, Grenada, Kenya, Laos, Marshall islands, Malawi, Mali, Mozambique, Namibia, Nicaragua, Niger, Nigeria, Papua New Guinea, Paraguay, Sri Lanka, St. Vincent and the Grenadines, St Lucia, Sudan, Tajikistan, Tanzania, Togo, Tonga, Tuvalu, Uzbekistan, Uganda, and Vietnam. Statistics of all variables were downloaded from the World Development Indicators database of the World Bank (2022). The descriptive statistics of the research variables are presented in Table 3.

**RESULT AND DISCUSSION**

First, the correlations between variables in the study models are checked by the Pearson Correlation matrix (Table 4). The coefficients not only show the degree level of correlations among variables but also help detect the multicollinearity problem that can make a great bias in the estimated results.

The correlation coefficients between exchange rate and foreign tourist demand are 0.6579 (with tourist variable) and 0.6738 (with revenue variable), which present positive relationships between exchange rate and foreign tourist demand. If the exchange rate increases, it is expected to raise the demand for foreign tourists and vice versa. The correlation coefficients between pollution and foreign tourist demand are 0.6210 (tourist) and 0.6493 (revenue) and they conclude positive relationships between CO<sub>2</sub> emissions and the demand of foreign tourists. It means when CO<sub>2</sub> emissions increase, it also creates an upward development of the economies of developing countries (through the expansion of production), which can attract foreign tourists. The correlation values between institutional and foreign tourist demand are 0.1155 (tourist) and 0.1477 (revenue), which suggests that the demand for foreign tourists is expected to increase when the quality of institutions is improved. On the other hand, the demand for foreign tourists can decrease

when the quality of institutions reduces. The correlation coefficients between infrastructure and tourists are 0.1997 (tourist) and 0.2417 (revenue), therefore, a better infrastructure system leads to a higher demand for international tourists. Because the independent variables have VIF values < 2 and the mean values of VIFs are 1.47 and 1.43, the variables in the research model do not have multicollinearity between the independent variables (Table 5). In addition to showing the correlation relationship between the dependent variable and the independent variables, indicating the possibility of multicollinearity, looking at this correlation coefficient between the independent variables in the model is quite low, so it is unlikely. multicollinearity condition. However, regression results and tests are needed to accurately assess the impact with different significance levels. The following part of the regression analysis will give actual results.

For panel data regression, we apply FEM, REM, and Hausman tests to estimate the research model. The Breusch-Pagan for the phenomenon of heteroskedasticity problem and the Wooldridge test for the serial-correlation problem. The test results show that there has been heteroskedasticity and autocorrelation for the FEM model. The Hausman test results give Prob = 0.000, which indicates that the selected model is the fixed effects model. However, the model is autocorrelation and heteroskedasticity problems (Shown in Table 6 by the Wooldridge test and Breusch-Pagan test).

Table 3. The descriptive statistics of the variables (Source: Calculated from the study data)

| Variable       | Max     | Min    | Mean    | Std. Dev. | Obs |
|----------------|---------|--------|---------|-----------|-----|
| Tourist        | 18009   | 1.1    | 1192.87 | 1775.02   | 685 |
| Revenue        | 11830   | 0.1    | 773.178 | 1290.37   | 607 |
| Exchange rate  | 23208.3 | 0.7843 | 1071.49 | 3201.02   | 719 |
| Pollution      | 257.86  | 0.21   | 14.0587 | 32.4874   | 646 |
| Institutional  | 40      | 20     | 29.3189 | 4.62659   | 624 |
| Infrastructure | 2843.8  | 0.0079 | 345.934 | 587.295   | 658 |

Table 4. Correlation coefficient matrixes (Source: Calculated from the study data) Note: \*significant at 5%

| Variables      | Tourist | Exchange rate | Pollution | Institutional | Infrastructure |
|----------------|---------|---------------|-----------|---------------|----------------|
| Tourist        | 1.000   |               |           |               |                |
| Exchange rate  | 0.6549* | 1.000         |           |               |                |
| Pollution      | 0.6210* | 0.6819*       | 1.0000    |               |                |
| Institutional  | 0.1155* | 0.0720        | 0.0392    | 1.0000        |                |
| Infrastructure | 0.1997* | 0.0494        | 0.0609    | 0.3946*       | 1.0000         |
| Variables      | Revenue | Exchange rate | Pollution | Institutional | Infrastructure |
| Revenue        | 1.000   |               |           |               |                |
| Exchange rate  | 0.6738* | 1.000         |           |               |                |
| Pollution      | 0.6493* | 0.6819*       | 1.0000    |               |                |
| Institutional  | 0.1477* | 0.0720        | 0.0392    | 1.0000        |                |
| Infrastructure | 0.2417* | 0.0494        | 0.0609    | 0.3946*       | 1.0000         |

Table 5. Multicollinear values (VIFs) (Source: Calculated from the study data)

| Dependent variable: Tourist |      |          | Dependent variable: Revenue |      |          |
|-----------------------------|------|----------|-----------------------------|------|----------|
| Variable                    | VIF  | 1/VIF    | Variable                    | VIF  | 1/VIF    |
| Exchange rate               | 1.75 | 0.572459 | Exchange rate               | 1.69 | 0.593255 |
| Pollution                   | 1.74 | 0.574928 | Pollution                   | 1.68 | 0.595567 |
| Institutional               | 1.19 | 0.837075 | Institutional               | 1.19 | 0.842502 |
| Infrastructure              | 1.19 | 0.840039 | Infrastructure              | 1.18 | 0.848238 |
| Mean VIFs                   | 1.47 |          | Mean VIFs                   | 1.43 |          |

Table 6. Results of diagnostic tests for heteroskedasticity and serial correlation problems (Source: Authors)

| Dependent variable: Tourist |                    |                      |              | Dependent variable: Revenue |                    |                      |              |
|-----------------------------|--------------------|----------------------|--------------|-----------------------------|--------------------|----------------------|--------------|
| Test                        | Error Process      |                      |              | Test                        | Error Process      |                      |              |
| Modified Wald ( $\chi^2$ )  | Heteroscedasticity | $\chi^2(43)=6.1e+09$ | Prob (0.000) | Modified Wald ( $\chi^2$ )  | Heteroscedasticity | $\chi^2(40)=2.0e+37$ | Prob (0.000) |
| WooldridgeTest (F-test)     | Serial correlation | F (1,41) = 6.799     | Prob (0.012) | Wooldridge Test (F-test)    | Serial correlation | F (1,35) = 12.304    | Prob (0.000) |

After fully overcoming the defects of the models through the regression process with the Driscoll-Kraay standard errors method and the fixed effects model. The first model is estimated with the dependent variable as tourist and tourism revenue for the second model. The results after fixing the above errors are shown in Table 7.

Table 7. Estimated results (Source: Authors)

| Variables              | Driscoll-Kraay standard errors estimation |                                   |
|------------------------|---|-----------------------------------|
|                        | Tourist is the dependent variable         | Revenue is the dependent variable |
| Tourist (-1)           | 0.875*** [20.22]                          |                                   |
| Revenue (-1)           |   | 0.933*** [15.03]                  |
| Exchange rate          | 0.325*** [5.46]                           | 0.132** [2.48]                    |
| Pollution              | 13.10* [1.79]                             | 14.61* [2.15]                     |
| Pollution <sup>2</sup> | -0.092** [-2.90]                          | -0.078*** [-4.62]                 |
| Institutional          | 18.30*** [3.89]                           | -0.141 [-0.05]                    |
| Infrastructure         | 0.120** [2.36]                            | 0.077** [2.60]                    |
| Constant               | -800.2*** [-5.65]                         | -178.1** [-2.95]                  |
| Observations           | 416                                       | 416                               |
| Number of countries    | 43  | 43                                |

Note: \*, \*\*, \*\*\* significant at 10%, 5%, 1%. The t statistical values are in parentheses below the coefficients.

First, the exchange rate is the main independent variable in the proposed models. The estimated results show that the coefficients of the exchange rate are positive and statistically significant for all models. In detail, the coefficients of this variable have positive values (0.325 and 0.132) at 1% of significance. The evidence implies that an increase in the exchange rate can lead to a higher number of foreign tourists. The results also confirm that a depreciation policy of domestic currencies has positive impacts on international tourist demand in developing economies. This finding is supported and consistent with some previous studies, when the devaluation of the domestic currency will promote the tourist demand of international tourists (Tang et al., 2014; Ongan et al., 2017; Meo et al., 2018; Irandoust, 2019; Chaudhry et al., 2022).

Second, the estimated results indicated that environmental pollution could harm foreign tourist demand. It is necessary to consider environmental pollution as a critical determinant factor affecting tourists' decisions. The coefficients are positive (13.1 and 14.61) and the significance is at 10%. Therefore, when the amount of CO<sub>2</sub> increases, the demand for tourists also increases. This finding is completely contrary to previous studies (Berritella et al., 2006; Meo et al., 2018). However, the coefficients of the pollution-squared variables received negative values and were significant. There is a new finding from this study when an inverted U-shaped Kuznets curve was found on the relationship between environmental pollution and foreign tourist demand. According to the common tastes of many foreign tourists, they are always attracted to discovering lands in developing countries with unspoiled and natural landscapes. A lot of developing countries face a pollution problem. However, when pollution is high, it will lose its attractiveness to international tourists. This conclusion is based on the coefficient of the Pollution<sup>2</sup> variable (-0.092 and -0.078). This evidence represents a decrease in foreign arrivals when emissions increase following an inverted U-shape.

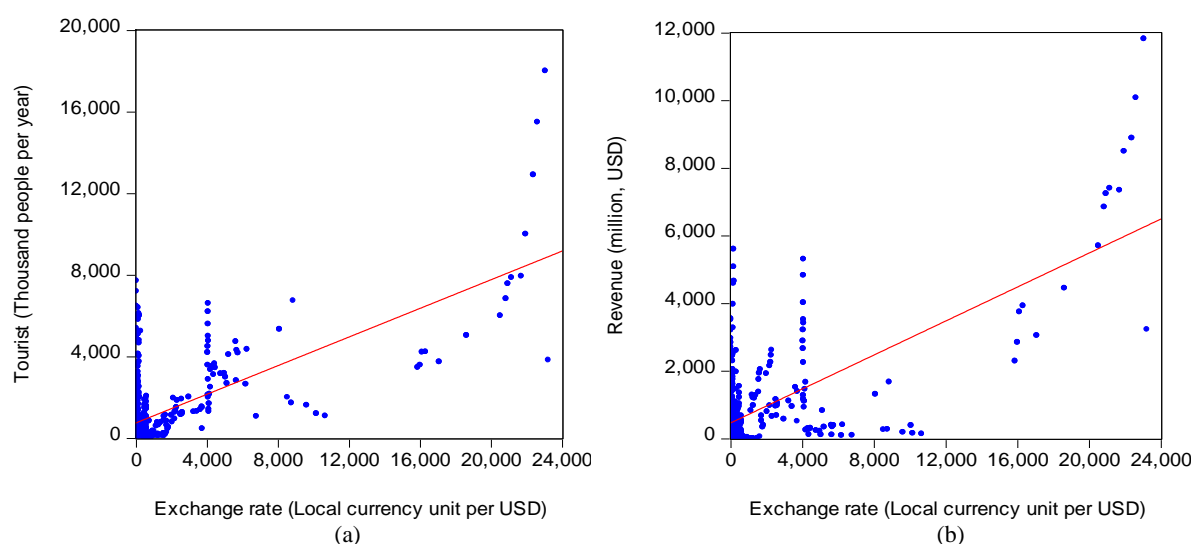


Figure 1. The relationship between exchange rate and foreign tourists (a) and exchange rate and tourism revenue (b) (Source: Calculated from the study data)

Third, the lag variables of tourism demand are a strong factor influencing the current demands with coefficients of 0.875 and 0.933 and a statistical significance of 1%. This result shows that when international tourists want to visit a certain place, they tend to find information about the number of visitors and the rating of tourists who visited these destinations in previous years (Kim and Scott, 2018). Fourth, institutional quality is found to have a significant positive effect on foreign tourist demand. However, this effect only appears when the number of foreign tourists is used as the proxy

of demand. Then the higher institutional quality could provide a higher volume of foreign tourist demand. Political stability, an advantageous investment environment, and transparency policies create a huge attraction for international tourists (Alleyne and Boxill, 2003). On the other hand, a political instability phenomenon and a weak public administration system will deliver bad outcomes for the tourism industry. This finding in-lines with previous studies (Alleyne and Boxill, 2003; Meo et al., 2018; Tang, 2018; Kim and Scott, 2018).

The coefficients of the infrastructure variable received positive signs and statistical significance at 5%. The evidence suggests that investment in infrastructure can support the development of tourist demand. It can be explained that the high quality of infrastructure gradually improves the satisfaction level of foreign tourists, thereby helping to attract a larger number of international visitors. This result is consistent with the previous result of Khadaroo and Seetanah (2007).

To further analyze the relationship between exchange rate and international tourist demand in developing countries. The Scatter plot graph technique as employed with the vertical axis is the exchange rate, the horizontal axis is the number of tourists, and the revenue from the tourism sector, respectively. The sample includes 47 low-income and low-middle-income countries during the period 2005-2020.

Through the graphs, we see a clear illustration of the positive relationship between the exchange rate and the demand of foreign tourists, which is shown through the dependent variables in the proposed models (Figure 1). The graphs have supplemented the quantitative results of the correlation matrix and regression analysis in the previous sections. These results help to suggest policy implications in the next section of the study.

## CONCLUSIONS AND POLICY IMPLICATIONS

This paper aims to determine the impact of exchange rates on foreign tourist demand in 47 developing countries with a panel database for the period 2005- 2020. Unlike previous studies, there are only low-income and low-middle-income countries are collected for the quantitative research process. Using the fixed effects model with the Driscoll-Kraay standard errors method, the empirical result concludes a positive and significant effect of the exchange rate on the demand for international tourists. Based on the results, the study suggests some policy implications for enhancing tourism development in these developing countries.

First, an exchange rate policy is suitable maybe have a positive effect on the demand for international arrivals. The currency factor has forced tourists to make a destination selection before a trip. In this context, a country that has a depreciation in domestic currency will attract international tourists, and vice versa, an appreciation trend of domestic currency can hurt visiting this country. Therefore, policymakers should consider the exchange rate policy as an effective tool for driving the demand of foreign tourists.

Second, national institutional improvement should be a priority (as an important factor in attracting international tourists). Governments need to reform the administrative systems in compact and efficient ways. Promulgates progressive policies, ensuring a stable macroeconomic environment, and reputable laws. Builds better images of the countries in the perception of international friends. On the other hand, transparent rules are a critical point in the policies to raise public criticism and ensure a stable and secure society.

Finally, developing countries need to promote green technology in production and cut down pollution sources in the production process. The CO<sub>2</sub> emissions should be reduced to enhance environmental quality and support sustainable economic development. Governments need to improve their infrastructure systems. It is also an important policy to attract foreign tourists through expanding the development of smart information technology networks and transport systems which also create favorable conditions for visitors. The supporting policies from governments are very important for the sustainable development of the tourism sector in the future.

## REFERENCES

- Akadiri, S.S., & Akadiri, A.C. (2021). Examining the Causal Relationship between Tourism, Exchange Rate, and Economic Growth in Tourism Island States: Evidence from Second-Generation Panel. *International Journal of Hospitality & Tourism Administration*, 22(3), 235-250. <https://doi.org/10.1080/15256480.2019.1598912>
- Alleyne, D., & Boxill, I. (2003). The impact of crime on tourist arrivals in Jamaica. *International Journal of Tourism Research*, 5(5), 381–391. <https://doi.org/10.1002/jtr.444>
- Asongu, S.A., Uduji, J.I., & Okolo-Obasi, E.N. (2019). Tourism and insecurity in the world. *International Review of Economics*, 66, 453–472, 1–20. <https://doi.org/10.1007/s12232-019-00330-z>
- Athari, S.A., Alola, U.V., Ghasemi, M., & Alola, A.A. (2021). The (Un)sticky role of exchange and inflation rate in tourism development: insight from the low and high political risk destinations. *Current Issues in Tourism*, 24(12), 1670-1685. <https://doi.org/10.1080/13683500.2020.1798893>
- Balaguer, J., & Cantavella-Jordá, M. (2002). Tourism as a long-run economic growth factor: the Spanish case. *Applied Economics*, 34(7), 877–884. <https://doi.org/10.1080/00036840110058923>
- Berritella, M., Bigano, A., Roson, R., & Tol, R.S.J. (2006). A general equilibrium analysis of climate change impacts on tourism. *Tourism Management*, 27(5), 913–924. <https://doi.org/10.1016/j.tourman.2005.05.002>
- Bhuiyan, M.B., Islam, M.A., Haque, M.Z., & Hassan, M.K. (2021). Dynamics and causality among economic growth, financial development and budgetary allocation to the tourism sector of Bangladesh. *GeoJournal of Tourism and Geosites*, 35(2), 419–427. <https://doi.org/10.30892/gtg.35221-668>
- Brida, J.G., Gomez, D.M., & Segarra, V. (2020). On the empirical relationship between tourism and economic growth. *Tourism Management*, 81, 104131. <https://doi.org/10.1016/j.tourman.2020.104131>
- Chaudhry, S.I., Nazar, R., Ali, S., Meo, M.S., & Faheem, M. (2022). Impact of environmental quality, real exchange rate and institutional performance on tourism receipts in East-Asia and Pacific region. *Current Issues in Tourism*, 25(4), 611-631. <https://doi.org/10.1080/13683500.2021.1894101>

- Crouch, G.I. (1993). Currency exchange rates and the demand for international tourism. *Journal of Tourism Studies*, 4(2), 45–53. <https://doi.org/10.3316/ielapa.940706548>
- De Vita, G., & Kyaw, K.S. (2013). Role of the exchange rate in tourism demand. *Annals of Tourism Research*, 43, 624–627. <https://doi.org/10.1016/j.annals.2013.07.011>
- Dogru, T., Isik, C., & Sirakaya-Turk, E. (2019). The balance of trade and exchange rates: Theory and contemporary evidence from tourism. *Tourism Management*, 74, 12–23. <https://doi.org/10.1016/j.tourman.2019.01.014>
- Driscoll, J., & Kraay, A. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of Economics and Statistics*, 80(4), 549–560. <https://www.jstor.org/stable/2646837>
- Fernandes, E., Pacheco, R.R., & Fernandes, V.A. (2019). Tourism openness, trade openness, and currency-purchasing power in Brazil: A causality analysis. *International Journal of Tourism Research*, 21(2), 197–205. <https://doi.org/10.1002/jtr.2254>
- Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *The Stata journal*, 7(3), 281–312. <https://doi.org/10.1177/1536867X0700700301>
- Irاندoust, M. (2019). On the relation between exchange rates and tourism demand: A nonlinear and asymmetric analysis. *The Journal of Economic Asymmetries*, 20, e00123. <https://doi.org/10.1016/j.jeca.2019.e00123>
- Işık, C., Radulescu, M., & Fedajev, A. (2019). The effects of exchange rate depreciations and appreciations on the tourism trade balance: the case of Spain. *Eastern Journal of European Studies*, 10, 221–237. <https://RePEc:jes:journl:y:2019:v:10:p:221-237>
- Jalil, A., Mahmood, T., & Idrees, M. (2013). Tourism-growth nexus in Pakistan: Evidence from ARDL bounds tests. *Economic Modelling*, 35, 185–191. <https://doi.org/10.1016/j.econmod.2013.06.034>
- Kim, Y.R., & Scott, N. (2018). Network dynamics of tourism development in South Korea. *Current Issues in Tourism*, 21(11), 1239–1259. <https://doi.org/10.1080/13683500.2017.1318837>
- Khadaroo, J., & Seetanah, B. (2007). Transport infrastructure and tourism development. *Annals of Tourism Research*, 34(4), 1021–1032. <https://doi.org/10.1016/j.annals.2007.05.010>
- Lin, V.S., Yang, Y., & Li, G. (2019). Where can tourism-led growth and economy-driven tourism growth occur?. *Journal of Travel Research*, 58(5), 760–773. <https://doi.org/10.1177/0047287518773919>
- Meo, M.S., Chowdhury, M.A.F., Shaikh, G.M., Ali, M., & Sheikh, S.M. (2018). Asymmetric impact of oil prices, exchange rate, and inflation on tourism demand in Pakistan: New evidence from nonlinear ARDL. *Asia Pacific Journal of Tourism Research*, 23(4), 408–422. <https://doi.org/10.1080/10941665.2018.1445652>
- Oh, C.O. (2005). The contribution of tourism development to economic growth in the Korean economy. *Tourism Management*, 26(1), 39–44. <https://doi.org/10.1016/j.tourman.2003.09.014>
- Ongan, S., & Gozgor, G. (2018). Tourism demand analysis: The impact of the economic policy uncertainty on the arrival of Japanese tourists to the USA. *International Journal of Tourism Research*, 20(3), 308–316. <https://doi.org/10.1002/jtr.2182>
- Ongan, S., Işık, C., & Özdemir, D. (2017). The Effects of Real Exchange Rates and Income on International Tourism Demand for the USA from Some European Union Countries. *Economies*, 5(4), 51. <https://doi.org/10.3390/economies5040051>
- Orgaz-Agüera, F., Castellanos-Verdugo, M., Acosta Guzman, J.A., Cobena, M., & Oviedo-García, M.D.L.Á. (2022). The mediating effects of community support for sustainable tourism, community attachment, involvement, and environmental attitudes. *Journal of Hospitality & Tourism Research*, 46(7), 1298–1321. <https://doi.org/10.1177/1096348020980126>
- Sharma, C., & Pal, D. (2020). Exchange rate volatility and tourism demand in India: Unraveling the asymmetric relationship. *Journal of Travel Research*, 59(7), 1282–1297. <https://doi.org/10.1177/0047287519878516>
- Singh, R.B., & Kumar, A. (2022). Cultural Tourism-Based Regional Development in Rajasthan, India. *Practising Cultural Geographies*, 453–466, Springer, Singapore.
- Tang, C.F. (2018). The impacts of governance and institutions on inbound tourism demand: evidence from a dynamic panel data study. *Asia Pacific Journal of Tourism Research*, 23(10), 1000–1007. <https://doi.org/10.1080/10941665.2018.1513052>
- Tang, C.F., & Tan, E.C. (2013). How stable is the tourism-led growth hypothesis in Malaysia? A view from disaggregated tourism markets. *Tourism Management*, 37, 52–57. <https://doi.org/10.1016/j.tourman.2012.12.014>
- Tang, J., Sriboonchitta, S., Ramos, V., & Wong, W.K. (2014). Modelling dependence between tourism demand and exchange rate using the copula-based GARCH model. *Current Issues in Tourism*, 19(9), 876–894. <https://doi.org/10.1080/13683500.2014.932336>
- Tung, L.T. (2019a). Impact of Tourism on Poverty Reduction: Evidence from an Emerging Tourism Market. *Montenegrin Journal of Economics*, 16(3), 45–55. <https://doi.org/10.14254/1800-5845/2020.16-3.4>
- Tung, L.T. (2019b). Does exchange rate affect the foreign tourist arrivals? Evidence in an emerging tourist market. *Management Science Letters*, 9(1), 1141–1152. <https://doi.org/10.5267/j.msl.2019.5.001>
- Tung, L.T. (2021). The tourism-led growth hypothesis in transition economies? Empirical evidence from a panel analysis. *GeoJournal of Tourism and Geosites*, 38(4), 1076–1082. <https://doi.org/10.30892/gtg.38412-746>
- Webber, A.G. (2001). Exchange Rate Volatility and Cointegration in Tourism Demand. *Journal of Travel Research*, 39(4), 398–405. <https://doi.org/10.1177/004728750103900406>