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# Determinants of International Tourist Arrivals in Nigeria: Dynamic Panel Data Regression Analysis

## Abstract

This paper examines the effect of economic and non-economic factors on international tourist arrival in Nigeria. Annual data on tourist arrival from 53 countries and explanatory variables from 2010-2016 were analyzed using the dynamic panel data regression technique. Results suggest that travel cost, internet use, political stability and number of hotel rooms are the main determinants of tourist flows. The income of tourist-origin countries outside Africa negatively and significantly affects tourist arrival. Travel cost has a robust negative effect on tourists from within and outside Africa. The number of hotel rooms and urbanization rate positively influence tourist arrival, indicating the importance of tourism infrastructure. Government and policymakers must provide an enabling business environment, infrastructure, and policies to improve the country's global competitiveness.

**Keywords:** tourist arrivals, non-economic factors, dynamic panel, infrastructure, Nigeria

## 1. Introduction

Tourism is one of the largest and fastest-growing economic sectors globally. Due to the rise in consumer spending, the growth rate of the tourism sector was higher than the growth rate of the global GDP between 2011 and 2019. According to the United Nations World Tourism Organization (UNWTO, 2023), before the COVID-19 pandemic, international tourist arrivals (ITA) increased from 956.7 million in 2010 to 1,466.1 million in 2019. Although Africa's share of ITA (5%) and tourism receipts (5%) in 2019 was the lowest worldwide, tourist arrivals increased from 50.5 million in 2010 to 68.1 million in 2019 (UNWTO, 2023).

There is marked variation in tourism development across African countries. Although the tourism development index of Nigeria is low compared to South Africa, Seychelles and Egypt, the country's rank of 110 in global rankings in 2021 indicates improvement in tourism development compared to the rank of 129 in 2019 (Uppink Calderwood & Soshkin, 2019, 2022). Furthermore, ITA increased from 1.03 million in 1995 to 5.3 million in 2019. Tourism receipts rose from USD 0.6 billion in 2010 to USD 2.5 billion in 2017. The development of tourist attractions in Nigeria, including the beaches, historical monuments, wildlife, hills, and waterfalls, has increased the role of tourism in the country. Before the COVID-19 pandemic, the tourism sector contributed 4.5% to the national GDP (USD 19.542 million), 10.3% of total exports (USD 1,597.3 million) and 4.8% of all jobs (3.36 million people employed) in 2019. Travel restrictions during the pandemic in 2020 resulted in the decline of the tourism sector's contribution to GDP, jobs, and exports. After travel restrictions were lifted in some countries in 2021, the tourism sector's contribution to the economy and employment increased by 35.1% (USD 4.162 million) and 11.3% (2.43 million jobs) respectively (World Travel and Tourism Council [WTTC], 2022). Hence, the tourism industry is essential to the Nigerian economy and understanding its drivers is important.

A review of studies on determinants of tourist arrivals by Song and Li (2008) indicates that the majority of the studies focus on developed and emerging countries with high tourist arrivals, such as the USA, UK, and

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France, but very few studies have focused on African countries (Saayman & Saayman, 2008; Wamboye et al., 2020; Montes-Rojas & Barroso, 2020). The lack of empirical studies on tourism in African countries (Rogerson, 2017) limits policy guidance on increasing the sector's economic contribution. Ajani et al. (2018) and Bankole and Babatunde (2010) examined factors influencing ITA in the Nigerian context. Still, they did not consider the characteristics of the countries of origin of tourists and non-economic factors in the destination country. While economic variables influence the total demand for tourism in an origin country, non-economic factors influence the selection of destinations and types of tourism (Crouch, 1994). Analysis of determinants of tourist arrivals in African countries, including Nigeria, by Naude and Saayman (2005) and Adeola et al. (2018) was based on a continental scale with limited planning and national policy relevance.

This paper examines the determinants of ITA in Nigeria using a dynamic demand analysis approach. Understanding the factors driving the growth of tourism demand will guide government and policymakers in developing policies that will nurture the development of the tourism industry. This study contributes to the literature in several ways.: it empirically analyzes country-specific determinants of ITA to Nigeria using data from both the country of origin of tourists and the destination; the influence of economic and non-economic factors on inbound tourism; and how the determinants of tourism demand influence tourists from countries within Africa and outside Africa. The rest of the paper is organized into five sections. Section 2 presents a review of previous literature. Material and methods are discussed in section 3. Empirical results are reported in section 4, and concluding remarks in section 5.

## 2. Literature review

A review of empirical studies indicates that various measures of tourism demand, explanatory variables and analytical techniques have been used to examine the determinants of ITA (Song et al., 2010). Song and Li (2008) revealed that the number of tourist arrivals measures tourism demand used in most studies.

In terms of explanatory variables, findings from the reviews of empirical studies on tourist demand indicate that models are based on economic theory, which captures the effects of macroeconomic factors and other variables that influence the interaction between the countries of origin and destination. Tourist income, relative prices (prices of goods and services in a destination close to those in the tourist country of origin), and substitute prices (price of tourism in competing destinations) have been identified as the main determinants of inbound tourism (Song & Li, 2008). Results obtained from Sao Tome and Principe indicate that GDP exports of the destination, flight connectivity, real exchange rates depreciation, and attitude towards lesbian, gay, bisexual, and transgender people influence tourist arrival (Montes-Rojas & Barroso, 2020). Nguyen and Nguyen (2021) found that private investment, exchange rates, and infrastructure (percentage of the population using the Internet) increased tourism demand in 10 ASEAN countries.

Seetaram (2012) indicated that habit persistence, income, price of substitutes and immigration positively influence tourist arrivals, while prices, airfare and financial crisis in Australia affect tourist flows negatively. Bi-directional causality exists between travel by Australia's major trading partners and actual total trade (Kulendran & Wilson, 2000). Using fixed and random effects models to analyze determinants of ITAs in China, Yang et al. (2010) found that relative income, population of country of origin, cost of travel, tourism infrastructure, and World Heritage Sites influenced the number of tourist arrivals. Tourists from Europe/America and Asia are sensitive to infrastructural provision (number of rooms) on Mauritius Island (Seetanah et al., 2011). High income and total trip price elasticities influence tourism demand by Chinese visitors to Australia (Pham et al., 2017).

For the African context, Saayman and Saayman (2008) indicate that income, relative prices, and travel costs determine tourists' arrival in South Africa. Lagged real GDP per capita, prices, effective exchange rate, and trade openness influence tourism flows to Egypt (Ibrahim, 2011). Muchapondwa and Pimhidzai (2011) noted

that taste formation, transport costs, changes in global income and some specific events influence international tourism demand in Zimbabwe. Wamboye et al. (2020) found that the income of tourists and infrastructural development (transportation, water, sanitation, and hospitality facilities) are primary determinants of tourist demand in Tanzania. Naude and Saayman (2005) examined the determinants of tourist arrival in 43 African countries. They concluded that political stability, tourism infrastructure, marketing, information, and level of development in the destination determine tourist arrival. Adeola et al. (2018) found that real exchange rate, income, FDI, trade openness, taste formation and infrastructure determine tourist arrival in Africa. Infrastructure, ICT, bilateral real exchange rate, GDP per capita, the population of countries of origin, habit persistence and natural resources positively affect tourism demand in 40 African countries. In contrast, distance has a negative impact (Adeola & Evans, 2020).

In the Nigerian context, Awaritefe (2007) identified destinations attractive to tourists but did not consider factors related to the specific countries of origin of the tourists, such as income and tourism prices in a destination relative to prices in the tourist's origin. This paper aims to fill this gap by analyzing the determinants of international tourist arrival in Nigeria using a dynamic panel model incorporating economic and non-economic variables.

### 3. Material and method

This study employs a dynamic panel data regression approach to examine the determinants of international tourist arrivals in Nigeria since it considers changes in travel habits and tourist preferences. Dynamic panel model suits panels with many cross-sections and short-time dimensions.

#### 3.1. Model specification

The relationship between the number of international tourist arrivals to Nigeria from 53 main markets and the explanatory variables is expressed as:

$$TA_{it} = \beta_i x_{it} + \mu_{it} \quad (1)$$

where  $TA_{it}$  is the number of international tourist arrival from origin  $i$  in year  $t$ ,  $i = 1, 2, 3, \dots, 53$ ,  $\beta_i$  is the vector of parameters to be estimated,  $x_{it}$  is the vector of the explanatory variables including the lagged dependent variable ( $TA_{it-1}$ ), economic (GDP per capita, relative price, travel cost, foreign direct investment, trade) and non-economic factors (number of hotel rooms, proportion of the population that uses internet, urbanization rate, political stability index),  $\mu_{it}$  is a two-way error component disturbance term and  $\mu_{it} = b_i + \lambda t + \epsilon_{it}$ ,  $b_i$  is the unobserved individual country-specific effect,  $\lambda t$  represent the unobserved time specific effect,  $\epsilon_{it}$  is a zero mean random disturbance with variance  $\Theta^2_v$ .

Including the lagged dependent variable as an explanatory variable leads to an endogeneity problem. Since tourist arrival is a function of the unobserved individual effect, the lagged dependent variable is also a function of the unobserved unique effect. Hence, the lagged dependent variable is correlated with the error term, making the ordinary least squares estimator biased and inconsistent (Nyamongo, 2019). To solve this problem, the model is first differentiated to eliminate the unobserved individual effect and then used as instruments for the value of the dependent variable lagged for two or three periods. This method leads to consistent and efficient estimates of the model's parameters. The Generalized Method of Moments is estimated using Arellano and Bond's (1991) proposed estimator. Sargan test for over-identifying restrictions, which checks the validity of the instruments and the test that error term is not serially correlated were conducted.

To determine the effect of economic and non-economic factors on inbound tourism, three alternative models are derived from the specification in equation (1):

$$\text{Model 1: } TA_{it} = a_0 + \beta_1 TA_{it-1} + \beta_2 GDP_{it} + \beta_3 RP_{it} + \beta_4 TC_{it} + \beta_5 TO_{it} + \mu_{it} \quad (2)$$

Model 1 examines the effect of macroeconomic factors on tourist arrival. The explanatory variables are the number of inbound arrivals lagged by one year ( $TA_{it-1}$ ), real GDP per capita (GDP), relative price (RP), travel cost from origin to destination (TC) and trade openness (TO).

$$\text{Model 2: } TA_{it} = \beta_0 + \beta_6 TA_{it-1} + \beta_7 HR_{it} + \beta_8 ICT_{it} + \beta_9 PS_{it} + \beta_{10} UR_{it} + \mu_{it} \quad (3)$$

In model 2, non-economic factors, namely, the number of inbound arrivals lagged by one year, the number of hotel rooms (HR), the percentage of the population using the internet (ICT), political stability (PS), and urbanization rate (UR) are identified as explanatory variables.

Model 3:

$$TA_{it} = \alpha_0 + \beta_1 TA_{it-1} + \beta_2 GDP_{it} + \beta_3 RP_{it} + \beta_4 TC_{it} + \beta_5 TO_{it} + \beta_6 HR_{it} + \beta_7 ICT_{it} + \beta_8 PS_{it} + \beta_9 UR_{it} + \mu_{it} \quad (4)$$

The effect of all the economic and non-economic variables on tourist arrival are examined together in model 3.

## 3.2. Data

Annual panel data on tourist arrival from 2010-2016 from 53 countries is used as the dependent variable. The total number of inbound tourists accounts for 50% - 90% of tourists that arrived each year during the study period. The number of years is limited to seven due to the unavailability of data on tourist arrival from each country of origin. Although the annual number of ITA is published in the World Development Indicator (WDI) by the World Bank, data on the number of inbound tourists from each origin country is only available for selected years on the UNWTO tourism data dashboard. Most of the tourists that visited Nigeria were from Africa (60.2%), followed by Asia Pacific (16.8%), Europe (11.2%), the Americas (9.9%) and the Middle East (1.9%). The highest (14.6%) number of tourists were from Niger, followed by China (9.8%), Benin (7.7%), USA (7.6%), Cameroun (7.0%), UK (6.5%) and India (5.0%). Based on findings from past studies, the following factors were included in the model:

- i. Lagged tourism arrival measures the strength of habit persistence in travel preferences. The coefficient could be positive or negative.
- ii. Income (GDP): GDP per capita (constant 2015 US\$) is used as a proxy for tourists' real income, and the World Bank's World Development Indicator (WDI) was the source of data. It is expected to have a positive coefficient.
- iii. Relative price (RP) is the cost of goods and services paid for by tourists in Nigeria relative to the origin. Following Seetaram (2012), the real exchange rate is used as a price proxy, and it was estimated using the consumer price index (CPI) in Nigeria (2010=100) in time t, CPI in country i in time t, and exchange rate between Nigeria and country i. Data on CPI was obtained from WDI, while the currency exchange rate (NGN-naira versus the country's currency in time) is from the United Nations Commission on Trade and Development (UNCTAD, n.d.). The sign of the coefficient is expected to be negative.
- iv. Travel cost (TC): The cost of airfare between Nigeria and the tourist's country of origin is unavailable. Hence, the cost of round-trip travel by air between the origin and destination was estimated by multiplying the distance between the capital city of the tourist country of origin and the capital city of Nigeria (Abuja) by the annual jet fuel price. Data on the yearly cost of jet fuel is from the US Energy Information Administration (n.d.), while distance information was obtained from Geophytes. The coefficient of the variable is expected to be negative.
- v. The number of hotel rooms (HR) is used as a proxy for tourism infrastructure, and its coefficient is expected to be positive. Annual data on the number of hotel rooms in Nigeria during the study period is from UNWTO.

- vi. The percentage of the population using the internet (ICT) is used as a proxy for tourism marketing. Data was obtained from WDI.
- vii. Political stability and absence of violence/ terrorism index (PS) was used as a proxy for political stability—the index ranges from -2.5 to +2.5. Data was obtained from Worldwide Governance Indicators (2023). The coefficient is expected to have a negative sign.
- viii. Urbanization rate (UR) is the proportion of the population living in urban areas. An increase in the urbanization rate provides the threshold required for infrastructure provision, thereby creating a tourist center. Data was from WDI.
- ix. Trade openness (TO) is determined by adding imports and exports between Nigeria and tourist origin; the result is divided by the GDP of Nigeria. Data on imports and exports were obtained from the UNCTAD database (n.d.), while data on Nigeria's GDP was from WDI. The coefficient is expected to be positive.

All the variables except political instability were transformed into natural logarithms. To determine the effect of the explanatory variables on tourist flows from different regions, tourist arrivals from countries within Africa and outside Africa (Asia Pacific, Africa, Europe, Americas, and Middle East) are modelled. The variables were tested for multicollinearity by checking the variance inflation factor (VIF). The VIF of the variables in models one and two were less than two, but the VIF of the variable urbanization rate was more significant than eight in model 3. Hence, it was excluded from model three.

## 4. Results and discussion

### 4.1. Descriptive statistics

Descriptive statistics of variables included in equations 2-4 are presented in Table 1. As noted earlier, only 11.2% and 9.9% of the tourists were from Europe and the Americas, respectively. The low number of tourists arriving from high-income countries could be attributed to a low level of tourism development, lack of infrastructure, including unsafe roads, inadequate water supply and sanitation, and high costs of airfare and utilities. The low number of tourists from high-income countries has implications for the revenue generated from the tourism sector. International tourism receipts in Nigeria ranged between US\$ 0.6 billion and US\$1.1 billion from 2010-2016, compared to US\$ 7.9 billion and US\$10.1 billion in South Africa (UNWTO, 2023).

**Table 1**  
*Descriptive statistics*

| Variable                 | Obs | Mean      | Std. dev. | Mean Ln(x) | Std. dev. Ln (x) |
|--------------------------|-----|-----------|-----------|------------|------------------|
| Tourist arrival          | 371 | 51,674.12 | 107,790.5 | 9.271184   | 2.823533         |
| GDP per capita           | 371 | 9,423.118 | 13,609.24 | 8.093017   | 1.498258         |
| Relative price           | 371 | 55.29393  | 98.71814  | 1.549838   | 2.861289         |
| Travel cost              | 371 | 10,215.28 | 8,956.418 | 8.883507   | 0.8521532        |
| Trade openness           | 371 | 729,203.5 | 1,784,663 | 11.26966   | 3.718898         |
| Hotel rooms              | 371 | 16,913    | 8,776.286 | 9.479709   | 0.874465         |
| Number of internet users | 371 | 18.81     | 4.937556  | 2.89772    | 0.2759783        |
| Political stability      | 371 | -2.03308  | 0.1109219 | -2.03308   | 0.1109219        |
| Urbanization rate        | 371 | 3.830144  | 0.0377357 | 3.830144   | 0.0377357        |

Except for South Africa, an upper middle-income country, other tourist-origin African countries are either low-income or lower-middle-income economies. The high number of tourists from African countries could be attributed to lower travel costs and accessibility. For instance, Niger, Benin, Cameroun, Ghana, and Togo

either share similar cultures and common borders or are members of the Economic Community of West African States, which promote unrestricted movement. McKercher and du Cros (2003) noted that tourists visit destinations with cultures like their country of origin due to difficulty coping with cultural differences.

## 4.2. Results of dynamic panel regression analysis

Table 2 presents the results of the dynamic panel regression analysis of the three models. The diagnostic test result indicates that the Arellano-Bond null hypothesis test of zero autocorrelation in first-differenced errors at order one is rejected in the three models. This implies that the first differential errors in order one is serially correlated. In addition, there is no serial correlation in the first-differenced errors at order two in the three models, suggesting that the moment conditions are valid and there is no evidence of model misspecification. The Wald Chi-squared test is statistically significant at a 1% significance level in the three models. Hence, the null hypothesis that all the coefficients are zero is rejected, and the explanatory variables in each model are collectively significant. The Sargan test failed to reject the null hypothesis that the overidentifying restrictions are valid, indicating that the choice of instruments in the three models is supported.

Furthermore, the number of instruments is less than the number of cross-sections in all the models. The diagnostic tests indicate that the three models are adequate and correctly specified. Although the intercept for models two and three are statistically significant at a 5% significance level, the signs of the coefficients are different. While the intercept of model two is negative, it is positive in model three. The positive intercept in the pooled model suggests that tourists have a positive image of Nigeria, which is generally like the results of Naude and Saayman (2005).

**Table 2**  
*Results of dynamic panel data regression analysis (one-step GMM estimator)*

|                        | Total arrivals    |                    |                   | Arrivals from other continents | Arrivals from Africa |
|------------------------|-------------------|--------------------|-------------------|--------------------------------|----------------------|
|                        | Model 1           | Model 2            | Model 3           |                                |                      |
| Constant               | 19.72 (0.73)      | -443.43 (-3.67)*** | 97.97 (2.02)**    | 247.10(2.56)*                  | 92.11 (1.67)         |
| Tourist arrival        | -0.24 (-3.82)***  | 0.00 (0.02)        | -0.02 (-0.23)     | -0.08(-0.75)                   | -0.04 (-0.42)        |
| GDP per capita         | 1.33 (0.43)       |                    | -2.48 (-0.68)     | -9.90 (-1.97)*                 | -2.79 (-0.62)        |
| Relative price         | -0.61 (-1.26)     |                    | -0.69 (-1.34)     | -1.94 (-1.07)                  | -0.85 (-1.18)        |
| Travel cost            | -1.89 (-4.18)***  |                    | -17.49 (-3.50)*** | -20.97 (-2.36)*                | -18.96 (-2.95)**     |
| Trade openness         | -0.12 (-1..26)    |                    | -0.03(-0.29)      | -0.26 (-1.20)                  | 0.013 (0.13)         |
| Internet users         |                   | -43.00 (-5.43)***  | -41.99 (-5.40)*** | -41.24 (-3.63)***              | -44.05 (-4.20)***    |
| Political stability    |                   | 2.83 (1.74)        | -32.44 (-2.99)*** | -36.85(-1.98)*                 | -36.18(-2.60)***     |
| Urbanization rate      |                   | 109.11 (3.25)***   | -                 | -                              | -                    |
| Number of rooms        |                   | 17.04 (5.91)***    | 15.14 (5.36)***   | 12.37 (3.10)*                  | 16.01 (4.16)***      |
| Number of instruments  | 20                | 20                 | 23                | 19                             | 23                   |
| Number of groups       | 53                | 53                 | 53                | 19                             | 35                   |
| Number of observations | 257               | 257                | 257               | 95                             | 167                  |
| Diagnostic test        |                   |                    |                   |                                |                      |
| Wald test              | 44.82 [0.0000]    | 76.50 [0.000]      | 80.56 [0.0000]    | 29.81 [0.00002]                | 68.49 [0.0000]       |
| Sargan test            | 14.189 [0.770]    | 21.928 [0.08]      | 19.09911 [0.1612] | 9.590 [0.79]                   | 20.87[0.105]         |
| AR (1)                 | -2.9692 [0.003]   | -3.9677 [0.0001]   | -4.196 [0.0000]   | 2.8968[0.003]                  | -3.4904[0.0000]      |
| AR (2)                 | -0.69714 [0.4857] | 1.176 [0.2396]     | 0.88398 [0.3767]  | 0.5276 [0.5978]                | 0.089 [0.9288]       |

Note. z-values are shown in parentheses; p-values are in brackets.

\* p-value significance at 10% level. \*\* p-value significance at 5% level. \*\*\* p-value significance at 1% level.

The coefficient of the lagged dependent variable is negative in the three models. However, it is only statistically significant in the first model's 1% significance level. This suggests that tourists do not return to Nigeria after their initial visit. Although the value of the coefficient is low (0.24), the effect of word-of-mouth is

an important variable influencing tourist arrival in Nigeria. When tourists are dissatisfied with their visit to Nigeria, it reduces the number of tourists in the following year, as Naude and Saayman (2005) found. The decrease in the level of tourist arrival between the current and next year is probably due to supply-side factors such as safety and security, quality-price offering, poor infrastructure including hotels, airports, roads, car rentals and ATMs, high prevalence of diseases, political risk, and poor development of ICT (Fourie & Santana-Gallego, 2013.) which make the country unattractive to tourists, especially from developed countries.

The estimated income, relative price and trade openness coefficients are not statistically significant in models one and three. The coefficient of income is positive and greater than one in model one, which is consistent with the results of Naude and Saayman (2005). However, when non-economic factors are included in model three, the estimated coefficient of income becomes negative and statistically insignificant, suggesting that Nigeria is an inferior tourist destination not considered by tourists as the real income of the country-of-origin increases. This is probably due to supply-side factors and the availability of substitute destinations in sub-Saharan Africa.

The estimated coefficient of relative price is negative but statistically insignificant. This implies that tourists to Nigeria are not sensitive to price fluctuations, like the results of Eilat and Einav (2004). The low prices (cost of living) in the destination account for the insignificant effect of relative prices on tourist arrival. The results confirm the significant negative impact of travel costs on inbound tourism in Nigeria, consistent with Wamboye et al. (2020) and Akter et al. (2017). A 1% increase in travel cost leads to a 1.89% decline in ITA in model one. However, model three's travel cost elasticity estimate is higher (17.49%). Since most tourists travel by air, improving air transport infrastructure and providing low-cost carriers catering to the African market could increase demand for the African route.

The coefficient of trade openness is slight, negative, and statistically insignificant, suggesting that it does not influence ITA. This finding corroborates the result of Erjavec and Devčić (2021) in Croatia, but it is inconsistent with findings by Fourie and Santana-Gallejo (2013) on Africa. This is probably due to the low level of trade between Nigeria and African countries, although 60.2% of the tourists who visited Nigeria were from Africa. In contrast, the number of tourists from Europe, the Americas and the Asia-Pacific countries is low. Still, the international trade values between Nigeria and these countries are high.

All the parameter estimates of the explanatory variables in model two, except political stability, are statistically significant at a 5% significance level. This indicates the essential effects of non-economic factors on tourist arrival in Nigeria. The impact of the number of hotel rooms and urbanization rate is positive and statistically significant. A 1% increase in hotel rooms will lead to a 17.04% increase in inbound tourists—also, a 1% rise in urbanization rate results in a 109% increase in tourist arrival. The result is consistent with the findings of Seetanah et al. (2010). Investment in hotel rooms will make the country more attractive to tourists. The coefficient of political stability is negative and statistically significant in model three, indicating that political instability leads to an increase in ITA, like the result of Naude and Saayman (2005). It is difficult to explain this result since locations that are insecure and with high levels of violence, terrorism and crime are less attractive to tourists.

Regarding the proportion of the population using the internet, the elasticity estimate is negative and statistically significant in models two and three. A 1% increase in internet users leads to a decline of over 40% in the number of international tourists. Although the percentage of internet users has increased in Nigeria, internet use for scheduling itineraries, booking travel, and accommodation is limited due to poor mobile network coverage and electricity supply. A similar result was reported by Naude and Saayman (2005).

Table 2 also presents the results of the one-step GMM estimates of the model for tourist arrivals from African countries and outside Africa. Determinants of tourist arrivals to Nigeria from African countries are not systematically different from factors influencing tourist's arrival from other continents. The diagnostic tests of the models indicate that Arellano-Bond's first-order and second-order autocorrelations present no evidence of model misspecification. The Sargan test failed to reject the null hypothesis that the overidentifying restrictions

are valid. In addition, the Wald chi-squared test indicates that the joint significance of the explanatory variables is significant at a 1% significance level. The intercept of the model for tourist arrivals from outside Africa is positive and statistically significant, suggesting that tourists from outside Africa have a good image of the country. Although income negatively influences tourist arrivals from within and outside Africa, the estimated coefficient for countries outside Africa is higher and significant. This confirms that Nigeria is considered an inferior tourist destination, as Naude and Saayman's (2005) findings for tourist arrivals from Europe to Africa. This is possibly due to deficient supply-side factors in Nigeria. The estimated travel cost coefficient is negative and statistically significant at a 5% significance level, suggesting that travel cost is negatively associated with the number of tourist arrivals from outside and within Africa. A 1% increase in travel costs leads to a 20.9% and 18.9% decline in tourist arrivals from countries outside and within Africa, respectively. This result is consistent with findings by Fourie and Santana-Gallego (2013).

All the estimated coefficients of internet use, political stability, and number of hotel rooms have similar signs. They are statistically significant for the models on tourist arrivals from within and outside Africa. In other words, the supply-side factors are considered necessary by tourists irrespective of their regions of origin. A 1% increase in hotel rooms will lead to a 12.37% and 16.01% rise in tourists from outside and within Africa, respectively. This suggests that increasing hotel rooms will attract more tourists to the country.

## 5. Conclusion

This paper examined the effects of economic and non-economic factors on inbound tourism in Nigeria. Annual data from 53 tourist-origin countries was analyzed using the one-step GMM estimator proposed by Arellano and Bond (1991). Furthermore, the tourist-origin countries were classified into two groups, within- and outside-Africa, for comparative analysis of the determinants of tourist arrival. The empirical results suggest that non-economic factors are essential and should be considered more by governments and policymakers when discussing strategies to increase tourism's contribution to the economy.

The negative and statistically significant lagged dependent variable demonstrates the importance of the effect of habit persistence, like findings by Naude and Saayman (2005). Tourist who visit Nigeria are not likely to return the following year based on their experience. In contrast to prior studies (Seetaram, 2012), income is not a primary determinant of tourist arrival in Nigeria. However, the effect of income on tourist arrival depends on the tourist's origin, country, and region. Income is a significant determinant for tourists from outside Africa. The negative sign of the estimated coefficient suggests that tourists outside Africa consider Nigeria an inferior destination. Travel cost is a primary determinant of tourist arrival, and it strongly negatively affects tourists from within and outside Africa, consistent with Saayman and Saayman (2008). The number of hotel rooms and urbanization rate positively influence tourist arrival, indicating the importance of tourism infrastructure, as Seetanah et al. (2011) found. The percentage of the population using the internet and political stability have similar significantly adverse effects on tourist arrival irrespective of the country of origin.

The findings in this study have important policy implications for government, policymakers, and other stakeholders in the tourism industry. Government and policymakers must prioritize the tourism sector by providing an enabling business environment, infrastructure, and policies that will improve the country's global competitiveness. Since most tourists travel to Nigeria by air, enhancing connectivity between Nigeria and other countries, reducing airline costs, and improving airlines' safety and operational efficiency will increase ease of access and reduce travel costs. In addition, an efficient road and railroad network between African countries could increase tourist movement to Nigeria. An increase in hotel rooms will lead to growth in tourist arrivals. Government and policymakers need to improve ICT infrastructure, overcome the challenge of terrorism and promote good governance in the country. Tourism development needs to be included in the country's economic reform programs.



The paper has some limitations. The data used in the study was limited to only seven years due to the unavailability of data on the number of tourists from various countries. Also, the effect of other variables, such as health risks, air quality, culture, and price of substitute destinations, was not investigated. Future studies could examine the effect of these factors on tourist arrival. The spatiotemporal stability of the parameters could also be explored. Future studies could examine the impact of these factors on tourism receipts and the length of stay of tourists.

## References

- Adeola, O., Boso, N., & Evans, O. (2018). Drivers of international tourism demand in Africa. *Business Economics*, 53(1), 25–36. <https://doi.org/10.1057/s11369-017-0051-3>
- Adeola, O., & Evans, O. (2020). ICT, infrastructure, and tourism development in Africa. *Tourism Economics*, 26(1), 97–114. <https://doi.org/10.1177/1354816619827712>
- Ajani, F., Oluyisola, O.O., Kalu, J.E., & Ayodele, I.A. (2018). Determinants of international tourism demand in Nigeria. *African Journal of Resources Management Fisheries and Aquatic*, 3, 1-14.
- Akter, H., Akhtar, S., & Ali, S. (2017). Tourism demand in Bangladesh: Gravity model analysis. *Tourism: An International Interdisciplinary Journal*, 65(3), 346 – 360. <https://hrcak.srce.hr/en/file/275672>
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, 58, 277-297. <https://doi.org/10.2307/2297968>
- Awaritefe, O.D. (2007). Evaluating tourism resource areas in Nigeria for development. *Tourism Review*, 62, 37-45. <https://doi.org/10.1108/16605370780000313>
- Bankole, A.S., & Babatunde, M.A. (2010). Elasticities of demand for tourism in Nigeria: An ARDL approach. *Tourism Analysis*, 15(4), 489–496. <https://doi.org/10.3727/108354210X12864727453421>
- Crouch, G.I. (1994). The study of international tourism demand: A review of findings. *Journal of Travel Research*, 33(1), 12–23. <https://doi.org/10.1177/004728759403300102>
- Eilat, Y., & Einav, L. (2004). Determinants of international tourism: A three-dimensional panel data analysis. *Applied Economics*, 36(12), 1315–1327. <https://doi.org/10.1080/000368404000180897>
- Erjavec, N. & Devčić, K. (2022). Accommodation capacity, trade openness and international tourism demand in Croatia: Evidence from a dynamic panel model. *Tourism: An International Interdisciplinary Journal*, 70(1), 43-52. <https://doi.org/10.37741/t.70.1.3>
- Fourie, J., & Santana-Gallego, M. (2013). The determinants of African tourism. *Development Southern Africa*, 30(3), 347–366. <https://doi.org/10.1080/0376835X.2013.817302>
- Ibrahim, M.A.M.A. (2011). The determinants of international tourism demand for Egypt: Panel data evidence. *European Journal of Economics, Finance and Administrative Sciences*, 30. <https://dx.doi.org/10.2139/ssrn.2359121>
- Kulendran, N., & Wilson, K. (2000). Is there a relationship between international trade and international travel? *Applied Economics*, 32(8), 1001–1009. <https://doi.org/10.1080/000368400322057>
- McKercher, B., & du Cros, H. (2003). Testing a cultural tourism typology. *International Journal of Tourism Research*, 5, 45-58. <https://doi.org/10.1002/jtr.417>
- Montes-Rojas, G. & Barroso, R.C. (2020). *What are the empirical determinants of international tourist arrivals and expenditures? An empirical application to the case of São Tomé and Príncipe* (World Bank Policy Research Working Paper No. 9189). SSRN. <https://ssrn.com/abstract=3556242>, <https://doi.org/10.1596/1813-9450-9189>
- Muchapondwa, E., & Pimhidzai, O. (2011). Modelling international tourism demand for Zimbabwe. *International Journal of Business and Social Science*, 2(2), 71–81.
- Naudé, W.A., & Saayman, A. (2005). Determinants of tourist arrivals in Africa: A panel data regression analysis. *Tourism Economics*, 11(3), 365–391. <https://doi.org/10.5367/000000005774352962>

- Nguyen, L.P., & Nguyen, H.T. (2021). Factors impacting tourism demand: An analysis of 10 ASEAN countries. *Journal of Asian Finance, Economics and Business*, 8(1), 385–393. <https://doi.org/10.13106/jafeb.2021.vol8.no1.385>
- Nyamongo, E. (2019). *Panel data analysis with special application to monetary policy transmission mechanism*. COMESA Monetary Institute (CMI). <http://cmi.comesa.int>
- Pham, T.D., Nghiem, S., & Dwyer, L. (2017). The determinants of Chinese visitors to Australia: A dynamic demand analysis. *Tourism Management*, 63, 268–276. <https://doi.org/10.1016/j.tourman.2017.06.015>
- Rogerson, C.M. (2017). The economic geography of South Africa's international tourism industry. *Acta Universitatis Danubius (Economica)*, 13(2), 66-80. <https://journals.univ-danubius.ro/index.php/oeconomica/article/view/3869/3981>
- Saayman, A., & Saayman, M. (2008). Determinants of inbound tourism to South Africa. *Tourism Economics*, 14(1), 81–96. <https://doi.org/10.5367/000000008783554893>
- Seetaram, N. (2012). Immigration and international inbound tourism: Empirical evidence from Australia. *Tourism Management*, 33(6), 1535–1543. <https://doi.org/10.1016/j.tourman.2012.02.010>
- Seetanah, B., Juwaheer, T.D., Lamport, M.J., Rojid, S., Sannasee, R.V., & Subadar, A.U., (2011). Does infrastructure matter in tourism development? *University of Mauritius Research Journal*, 17, 89-108.
- Song, H., & Li, G. (2008). Tourism demand modelling and forecasting - A review of recent research. *Tourism Management*, 29(2), 203–220. <https://doi.org/10.1016/j.tourman.2007.07.016>
- Song, H., Li, G., Witt, S.F., & Fei, B. (2010). Tourism demand modeling and forecasting: How should demand be measured? *Tourism Economics*, 16(1), 63–82. <https://doi.org/10.5367/000000010790872213>
- United Nations Conference on Trade and Development. (n.d.). *Data on consumer price index*. <https://unctadstat.unctad.org/EN/>
- United Nations World Tourism Organisation. (2023). *Data on tourist arrival in Nigeria*. <https://www.unwto.org/tourism-data/unwto-tourism-dashboard>
- Uppink Calderwood, L., & Soshkin, M. (2019). *The travel and tourism competitiveness report 2019: Travel and tourism at a tipping point*. World Economic Forum.
- Uppink Calderwood, L., & Soshkin, M. (2022). *Travel and tourism development index 2021: Rebuilding for a sustainable and resilient future*. World Economic Forum.
- US Energy Information Administration. (n.d.). *Data on Jet fuel prices*. [https://www.eia.gov/dnav/pet/hist/eer\\_epjk\\_pf4\\_rgc\\_dpgD.htm](https://www.eia.gov/dnav/pet/hist/eer_epjk_pf4_rgc_dpgD.htm)
- Wamboye, E.F., Nyaronga, P.J., & Sergi, B.S. (2020). What are the determinant of international tourism in Tanzania? *World Development Perspectives*, 17, Article 100175. <https://doi.org/10.1016/j.wdp.2020.100175>
- World Bank. (2022). *World development indicator*. <https://databank.worldbank.org/source/world-development-indicators>
- World Bank. (n.d.). *Worldwide governance indicators. Political stability and absence of violence/terrorism index*. <http://info.worldbank.org/governance/wgi/Home/Reports>
- World Travel and Tourism Council. (2022). *Nigeria 2022 annual research: Key highlights*.
- Yang, C.H., Lin, H.L., & Han, C.C. (2010). Analysis of international tourist arrivals in China: The role of World Heritage Sites. *Tourism Management*, 31(6), 827–837. <https://doi.org/10.1016/j.tourman.2009.08.008>

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