HOW DO EXCHANGE RATE DYNAMICS SHAPE INTERNATIONAL TOURISM DEMAND?

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Abstract

This study examines the impact of exchange rate dynamics, trade performance, and inflation on international tourism demand in Nigeria from 1990 to 2023. Using annual time-series data sourced from the Central Bank of Nigeria Statistical Bulletin, the study employs the Autoregressive Distributed Lag (ARDL) approach to capture both short-run and long-run relationships among the variables. The results reveal that exchange rate depreciation positively influences tourism demand, particularly with a lag, indicating that foreign tourists respond to improved affordability over time. Total exports consistently enhance tourism inflows, reflecting the complementary relationship between trade performance and tourism, while persistent trade deficits exert a negative effect, signaling that macroeconomic imbalances can reduce international tourist arrivals. Inflation shows limited short-run effects but contributes positively in the long run, suggesting that moderate economic growth and price stability support tourism development. The study concludes that macroeconomic stability, export promotion, effective exchange rate management, and integrated tourism policies are critical for sustaining and increasing international tourism demand in Nigeria. Policy recommendations focus on maintaining competitive exchange rates, promoting exports, stabilizing trade balances, controlling inflation, and coordinating tourism development with broader economic strategies to enhance foreign exchange earnings and economic growth.

Keywords: *Balance of trade, Exchange rate, Inflation, Total exports, Tourism*

JEL Classification: F14, F43, L83, E31

I. INTRODUCTION

International tourism is now one of the biggest contributors to the world economic development and has led to large sources of revenue, creation of job opportunities and exchange of cultures. It is however important to note that the demand of international tourism is very much sensitive to the macroeconomic factors where exchange rate dynamics, trade balances, total exports, and inflation are some of the major factors (Umeaduma & Dugbartey, 2023). The exchange rate is one of the most important factors that dictate the demand of international tourism. Currency fluctuations may have a direct impact on the prices of tours by visiting foreigners. Good domestic currency can make the country less competitive to the foreign tourists since it can make it more expensive, and weak currency will make it more competitive as it will make travelling and using products more affordable to the foreigners (Gulnur & Kamshat,

2025). On the other hand, fluctuating exchange rates may create uncertainty which may deter traveling and investing in tourism facilities.

Other than exchange rate, another factor that has an impact on tourism demand is the balance of trade. The positive balance of trade can be a measure of economic stability in countries, which can make them more appealing to tourists due to the rise of international confidence and attractiveness (Çetin, 2025). Moreover, positive balance of trade can help governments to invest more on tourism infrastructure, marketing and cultural projects which appeal to foreign tourists (Adewale, 2025). On the other hand, long-term trade deficits might be a warning of economic instability, and this might have an indirect negative effect on the growth of tourist numbers because the future visitors might perceive more risks or lower service quality (Grigoriadis et al., 2025).

The total exports also give a proxy of the involvement of a country in the international markets in terms of the overall economic performance, which can affect tourism. High levels of exports usually result in

strong industrial and service sectors, infrastructure, and overall international connectivity in any country, which will only augment the tourist experience (Kurnaz, & Seyfettinoğlu, 2025). Furthermore, the good exportation would lead to some synergies with tourism, as it would reinforce the visibility and reputation of a country, indirectly increasing the demand of tourism (Lu, 2024). As an example, trade exhibition, international conferences, and export of cultural goods and services tend to receive tourists who come to do business as well as tourism, which connects trade performance directly to the flows of tourism.

Measuring the demand of the tourism industry, since tourism is influenced by inflation as a factor of cost of living and affordability of traveling. High inflation can also cause the prices of goods and services to be high, as well as the purchasing power of visitors, which can dishearten them to spend longer periods (Adewale, 2025). On the other hand, moderate or stable inflation may offer a stable economic environment and this will attract tourists to schedule their visits and to participate more in consumption which will further boost the local economy.

A key economic development is the international tourism whose demand is very vulnerable to the macroeconomic changes. Although tourism has gained popularity as a means of foreign exchange and a job producer, most nations are finding it hard to sustain uniform flows of international tourists because of changing economic conditions. The effect of exchange rate dynamics on tourism demand is one of the serious problems. Unexpected appreciation or depreciation of currency can change the cost of travelling by the foreign tourists to the destination which will impact competitiveness of the destination. Equally, the balance of trade and aggregate exports could also have an indirect impact on tourism as it is a manifestation of economic stability and internationalization in a country, but its direct effects in tourism movements are under-researched. In addition, inflation may also influence the price elasticity of tourism services making demand even more difficult to forecast.

Such macroeconomic factors are usually analyzed individually in the existing studies, which does not give a full picture of their joint effect on international tourism demand. This oversight denies the policymakers any distinct information on how to use economic instruments to enhance tourism in a sustainable manner. Hence, the research aims at answering the following question: How do the dynamics of the exchange rate, balance of trade, and total exports (after considering the factor of inflation) determine the demand of international tourism? The answer to this will present policy-related implications on the various stakeholders of the tourism sector; policymakers, economists, and other relevant stakeholders.

The primary Objectives of the Study is scrutinized as the effect on the demand in international tourism that is caused by exchange rate dynamics, and with these being the functions of trade performance and inflation. Other Specific Objectives include; to examine how fluctuations in the exchange rate impact on the demand of international tourism, research on the effects of balance of trade on international tourism demand, to determine the relation between total exports and international tourism demand and also to determine the effect of inflation on international tourism demand.

II.   LITERATURE REVIEW

Conceptual review

Concepts of International Tourism Demand

International tourism demand describes the interest and the possibility of the foreign tourists to travel to a particular country (Kwakwa, 2024). It is a major source of economic development as it generates foreign exchange, generates employment and promotes cultural exchange. The tourist arrivals, tourism receipts, or a proxy of non-oil exports can be used to measure tourism demand, as tourism activities are associated with the inflow of foreign resources. It was also affected by a mixture of economic, social and environmental aspects which encompass the travel expenses, disposable income of the tourists and the appeal of the destination.

Exchange Rate Fluctuations and Tourism Competitiveness

Exchange rate changes are defined as movements of the value of currency of a given country compared to others within a period of time (Adewale, 2025). These changes have a great impact on the competitiveness of tourism since they influence the relative cost of travel into the country by foreign tourists. High domestic currency will raise the cost of traveling, which may decrease the demand, and weaker currency will make traveling cheaper and more appealing (Ozdemir & Koroglu, 2025). Unstable exchange rates may introduce uncertainty, making long-term tourism planning and investment in tourism infrastructures discouraged.
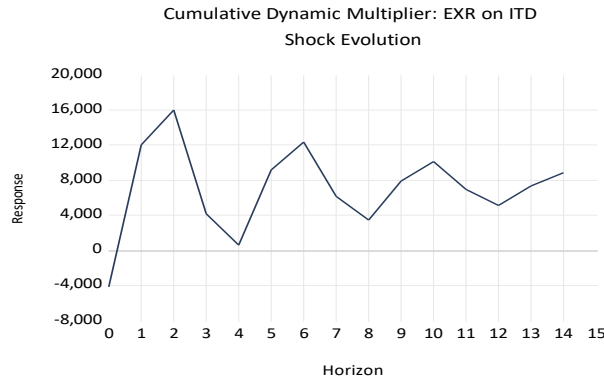
Cumulative Dynamic Multiplier: EXR on ITD
Shock Evolution

Figure 1 - Cumulative Dynamic Multiplier: Exchange Rate on International Tourism Demand (Shock Evolution)

Figure 1 shows the cumulative dynamic multiplier giving the response of the international tourism demand with a shock in exchange rate over time. The figure shows that tourism demand is likely to change slowly over time in response to exchange rate changes which shows rapid short-term variations and long-term convergence. The demand to international tourism is first positively affected right after the shock, which means that the exchange rate movements positively affect the destination affordability and tourism inflows. This trend at the beginning indicates that the depreciation of the domestic currency causes a comparative advantage of Nigeria as a destination to the foreign tourists and in the process encourages the tourists to visit.

Nevertheless, the chart also has significant changes on the way of adjustment, whereby some of the declines occur after the first profits. These seasonal declines are indicators of instability in the short term, which may be due to the volatility of the exchange rates, macroeconomic unpredictability, or slow responses of international tourists. The multiplier has recovery phases as time moves on, meaning that after absorbing the initial shock, the demand of tourism slowly changes in the upward direction. The fluctuating trend implies that tourism demand cannot react or adjust evenly to exchange rate fluctuations and rather, it varies in cycles before stabilizing.

The multiplier in the later periods tend to stabilize at a positive value, which suggests that the long-run impact of the exchange rate shock on the tourism demand is eventually positive. This ascertains the fact that there is a long-run relationship between exchange rate dynamics and international tourism demand as is agreeable with the ARDL long-run findings. Comprehensively, the figure shows the significance of the exchange rate stability since trends of volatility may disrupt short-term tourism flows in the face of positive long-term impacts.

Trade Performance and Tourism Inflows

The economic stability of a country and international activity is reflected in trade performance, which is measured in such indicators as balance of trade and total exports (Ufi et al., 2025). When there is a positive balance of trade then it means that there is a strong economy and it is likely to bring confidence to the world so that more tourists will be attracted. Equally, when the total exports are high, it implies well-developed infrastructure, connectivity and international presence, all of which may enhance tourism demand. International exhibitions and cultural export are trade activities that tend to attract visitors who have both business and leisure interests (Kourkouridis et al.,2024).
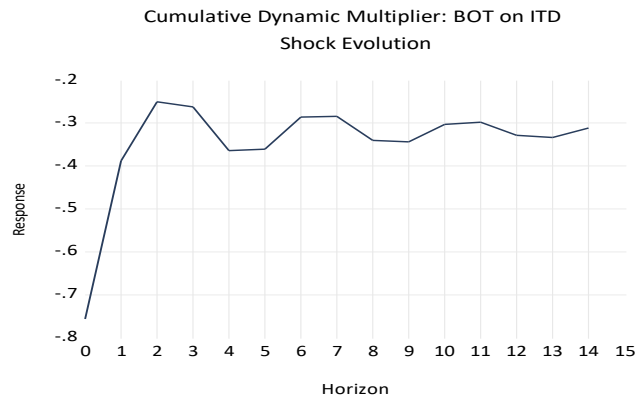
Cumulative Dynamic Multiplier: BOT on ITD
Shock Evolution

Figure 2 - Cumulative Dynamic Multiplier: Balance of Trade on International Tourism Demand (Shock Evolution)

Figure 2 represents the cumulative dynamic multiplier of the effect of a shock in the balance of trade (BOT) on international tourism demand (as represented by non-oil exports) with time. It shows the movement of the curve to reflect the direction of adjustment of the tourism demand, after the balance of trade had been innovated once. The reaction is very positive at the first stage, implying that the growth in the balance of trade in Nigeria triggers the demand of international tourism at once. This initial boom could be a manifestation of the availability of foreign exchange, better macroeconomic confidence and a better ability to finance tourism related activities.

A further increase in the multiplier intensifies and culminates, which means that the beneficial impact of balance of trade shocks on tourism demand is increased in the short run. This implies that positive trade performance could contribute to the strengthening of the international appeal of Nigeria because of stabilizing the exchange rate environment and facilitating export industry-related and tourism sectors. The curve, however, experiences slight variation and partial decreases right after the peak, meaning that the effects of the shocks in the trade balance are not entirely constant with time.

The multiplier will converge in the medium-long run and indicate that the effect of the initial impact diminishes, but the long-run effect of improvement of balance of trade on tourism demand is positive. This trend suggests dynamic changes as opposed to dramatic swings, which proves the fact that the performance of trade contributes significantly but slightly stabilizing role to the international tourism demand in Nigeria. On the whole, the figure justifies the idea that the long-run increase in trade may have positive impact on the tourism demand, but the effect diminishes with time.
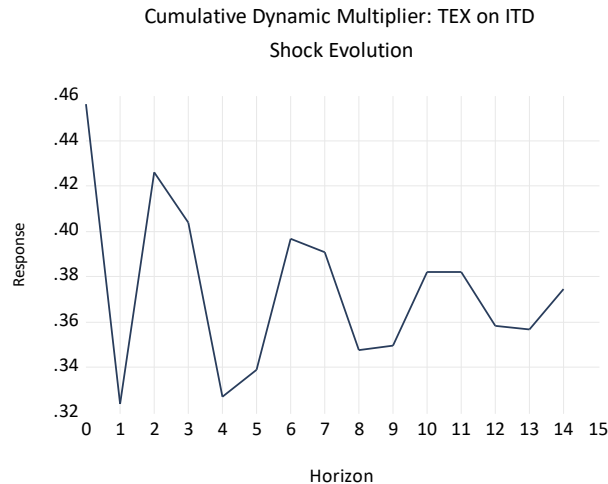
Cumulative Dynamic Multiplier: TEX on ITD
Shock Evolution

Figure 3 - Cumulative Dynamic Multiplier: Total Exports on International Tourism Demand (Shock Evolution)

Figure 3 shows the cumulative dynamic multiplier which shows the reaction of the international tourism demand to the cumulative shock on the total exports. The trend indicates that the tourism demand has a volatile and sharp response in the first few months, which means that it is sensitive to any changes in the performance of the Nigeria exports. The initial period negative dip being followed by an early negative indicates that the rapid growth in total exports can cause some crowding out of tourism-related activity in the beginning, possibly by an allocation of resources to other main export sectors or current pressure in the exchange rate markets.

The multiplier then increases significantly and this indicates recovery and positive response to the tourism demand when the economy is absorbing the export shock. This implies that with the improvement of the export performance, foreign exchange earnings, the macroeconomic stability, and indirectly, the development of tourism can be supported in the wake of short-term disruption. The fact that such oscillations may repeatedly be noted in the short and medium term, however, indicates that the correlation between total exports and

tourism demand is volatile and will be reversed in several periods.

Later periods also show a decrease in the variations in the multiplier and it moves towards a moderate positive value. This convergence suggests that the impact of shocks to the total export in the long term has a stabilizing affect and a weak positive effect on the demand of international tourism. The falling intensity of the swings also implies that the tourism industry is slowly adapting to the changes in the wider economy that are export-driven.

In general, the figure shows that in the short-run, total exports have a large influence on tourism demand and their volatility is high whereas the long-run impact is more consistent and favorable. This highlights the need to diversify export and maintain consistent trade policies to make sure that the growth of export does not destabilize international tourism demand in Nigeria.

Inflation and Its Impact on Tourism Demand

The cost of traveling and expenditure on tourists will be affected by inflation, the percentage of increase in general price (Raifu & Afolabi,2024). When inflation is high, accommodation, food, and services are more expensive and may decrease the demand in tourism as well as the moderate or constant inflation will stimulate predictable prices and trust on the part of the visitors. The exchange rates and trade performance are also influenced by inflation and these interact with each other, as it increases or reduces their impact on tourism costs and competitiveness (Durani, et al.,2025).
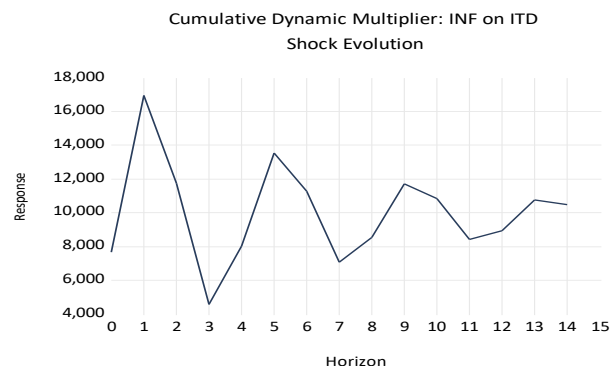
Cumulative Dynamic Multiplier: INF on ITD
Shock Evolution

Figure 4 - Cumulative Dynamic Multiplier: Inflation Rate on International Tourism Demand (Shock Evolution)

Figure 4 represents a cumulative dynamic multiplier that follows the reaction of international tourism demand to a shock in the inflation rate at the time. The first reaction is very positive which means that in a very short run, an inflation shock is accompanied by a short-run rise in the demand of tourism. This can be an

indication of price changes, nominal revenue changes or even an eventual adjustment of tourism-related export to an increasing domestic price. This is however short lived as the multiplier soon becomes negative and becomes negative at a very steep rate in later periods.

The strong negative trough indicates that the increasing inflation impacts a contractionary effect on the international tourism demand by undermining the price competitiveness, raising the operation cost and establishing macroeconomic uncertainty. In the case of open economy such as Nigeria, high and unstable inflation may undermine the confidence of the international tourists and investors thus de-motivating tourism related activities. What follows is the oscillatory nature which reflects the recurring changes as the tourism industry responds to the fluctuating inflationary pressures.

With time, the magnitude of these swings decreases and the multiplier gradually approaches a narrow and fluctuating positive surreal. This convergence means that in spite of the fact that the negative effects of inflation shocks are prevailing in the medium term, the impact of the same effect reduces in the long run as economic agents revise their expectations and the prices level off. However, the continued volatility points to the presence of inflation as one of the primary sources of uncertainty of tourism demand.

The figure overall, validates the fact that inflation shocks destabilize the demand of international tourism, especially in short run and the medium run. This demonstrates the value of price stability and good monetary policy in facilitating long term growth in the international tourist industry in Nigeria.

Theoretical Review

Purchasing Power Parity (PPP) Theory

The Purchasing Power Parity theory explains the adjustment of the exchange rates in order to balance the price of the same goods in different countries proposed by Cassel (1918). As applied in the tourism industry, PPP implies that when the value of currencies changes, the affordability of different destinations will be influenced accordingly. A depressed domestic currency will facilitate cheaper travel by the foreigners, which may promote the tourism demand, and a stronger currency may increase the cost of travel and prevent the inflows of the tourists. Several empirical studies have used PPP to examine the tourism demand and has stressed that the concept is relevant in the study that examines the exchange rate dynamics in the international travel behavior. The theory offers a theoretical framework through which the direct relationship between fluctuations and tourism competitiveness is analyzed.

Gravity Model of Trade

The Gravity Model is based on the assumption that bilateral trade between two countries depends positively on the sizes and negatively on the distance between the two nations introduced by Tinbergen (1962). In tourism studies this theory has been applied to describe tourist movement where the mass of the economy (GDP, exports) has been used to attract the international tourists and the costs, distances, and trade barriers have been used to decrease the demand. The model emphasizes the effect that performance indicators of trade, including balance of trade and total exports, can have on the inflows of tourism by creating an economic appeal and outreach. It provides a model through which the trade variables are correlated to the tourism demand with a lot of focus on the macroeconomic determinants of the cross-border movement.

Theoretical Framework

This research paper uses the Purchasing Power Parity (PPP) theory to serve as a theoretical foundation as it offers a direct explanation on how the exchange rate dynamics affect the international tourism demand. According to PPP, currency adjustments in a country are dependent on the relative price of goods and services in different countries, which further influence the affordability of consumers in other countries. In tourism, a weak domestic currency reduces travel and consumption costs of the visiting international tourists boosting tourism demand whereas a strong currency reduces competitiveness. It also assumes incorporation of the macroeconomic variables of control like inflation since the stability of prices influences the buying power of tourists. PPP provides a powerful platform on which macroeconomic factors interact to influence the demand use of tourists to the country since it relates exchange rates, trade performance and tourism demand. Based on this theory, the paper can empirically investigate the interaction of exchange rate movements, trade indicators, and inflation to global tourism patterns, which will provide academic and policy-relevant information.

Empirical review

Badimo and Yuhuan (2025) discussed the impact of exchange rate regimes on the demand of inbound leisure tourism in Botswana based on the panel data which included the demand of the four regions: the USA, UK, Germany, and South Africa, 1997-2018. The paper used a PMG/ARDL panel model to examine short-run and long-run exchange rate dynamics and exchange regimes between bilateral exchange rates. The results show that the effects of exchange rate depreciation on the demand of inbound leisure tourism is moderate and positive in both short and long term under adjustable and

crawling peg regimes. Moreover, switching to crawling peg exchange rate regime has tremendous benefits in boosting tourist demand at the long-lasting level. The beneficial impact of devaluation of currency however dies out with the increase in flexibility in the exchange rate system. However, the South African and USA tourism demand will be the most impacted by the exchange rate changes in the short run as compared to other markets. The research article comes up with the conclusion that the management of the exchange rates is very important in determining the tourism inflows and policy efficiency.

Sadullayeva (2025) examined the effects of exchange rate directions on the international tourist inflows to Uzbekistan through an econometric methodology with quantitative analysis. This research concentrated on the connection between exchange rate volatility and tourist visits especially the depreciation of the Uzbekistani som against the major foreign currencies. The results indicate that there is a positive and significant correlation between the depreciation of the currency and the number of international tourists who visit the destination and particularly when used in relation to the euro implying that a weak domestic currency increases the destination competitiveness and affordability. Conversely, traditional macroeconomic variables like GDP per capita and inflation were shown to have no meaningful difference on tourism inflows meaning that price competitiveness is more important in the making of tourist decisions than macroeconomic environments. Also, air connectivity was identified as a major factor in the demand of tourism prompting the need to emphasize the role of transport infrastructure in the international travelling process. The study comes up with the conclusion that good exchange rate surveillance, enhanced air transport systems, and harmonized tourism and transport policies are key measures of reinforcing the Uzbekistan standing in the world tourism market.

Matthew et al. (2021) tested the interaction effect of tourism development and foreign exchange earnings on economic growth in Nigeria due to the necessity to diversify the economy to stop being dependent on oil. Based on the annual time-series data on the World Development Indicators (19802016), the study adopted the Fully Modified Ordinary Least Squares (FMOLS) technique and the Johansen cointegration approach to appreciate long-run associations between the variables. The empirical evidence showed that tourism revenue has a positive and statistically significant impact on the growth of the Economy of Nigeria. What is more important is that the relationship between the activity of tourism and the foreign exchange earnings was observed to improve the economic growth which shows that tourism is more effective in promoting the economic growth when it introduces significant levels of foreign exchange inflows. This finding highlights the complementary aspect of tourism and foreign exchange earnings in promoting the macroeconomic performance. The research paper thus advises the Nigerian government to focus on tourism promotion, enhancement of tourism infrastructure and that the foreign exchange revenues earned through tourism be reinvested on recreational amenities so as to trigger a continuous economic growth.

Adeleye et al. (2025) explored the dynamic nature between tourism exchange rate movement and economic growth in Sri Lanka with focus on the moderating factor of exchange rate changes. The study utilized the use of both linear and non-linear econometric methods to test long-run relationships between tourism expenditure and official exchange rate and economic growth using quarterly data between 1995 and 2018. The results indicated that there was a stable relationship between the variables in the long-run. Empirical evidence of the linear models indicated that an increment of one percent in the tourism spending incremented the economic growth by about 0.46-0.52 percent. Also, the relationship between tourism and exchange rate had a considerable boost in growth, especially at median and higher quantile of economic performance. The marginal analysis evidence further showed that the positive impact of tourism on growth increases with a depreciation of the Sri Lankan rupee. The findings of the non-linear were valid in confirming that the growth effect of tourism is increased when the exchange rate is depreciated. The paper concludes that growth-promoting exchange rates work through tourism growth and suggests exchange rate-tourism-balanced policy schemes.

The article by Dogru et al. (2019) explored how exchange rate movements affect tourism trade balance based on evidence on the bilateral tourism trade between the United States and Canada, Mexico, and the United Kingdom. The research used the asymmetric impacts of currency devaluation and appreciation using linear and nonlinear ARDL cointegration methods. The results showed that a weakening of the U.S. dollar will consistently enhance trade balance in tourism with all its trading partners. Currency appreciation, on the other hand, worsens the balance in tourism trade with Canada and the United Kingdom but has no impact on the long-run on tourism trade with Mexico. The output findings are against the J-curve hypothesis but in favor of the Marshall-Lerner theory. The research paper has indicated the necessity of exchange rate management in enhancing trade balance in the tourism activities as well as maintaining the international tourism competitiveness.

In the study by Tsounis et al. (2022), the authors empirically investigated the causality and dynamics between inbound tourism and exports in Singapore in the long term. The paper determined a long run stable relationship of tourism inflows and export performance using time-series econometric models within which the researchers found out that the relationship was

bidirectional. The results have shown that high inbound tourism drives demand in goods produced domestically hence enhancing exports. On the other hand, a higher export performance increases the destination visibility and reputation, which indirectly boosts additional flows of tourism. The study however, also stated that there was a short run adjustment process which is J-curve in nature and in which the inbound tourism in the short run has a negative impact on exports and subsequently there will be positive impacts after about nine months. These findings underscore the indirect role of tourism in economic growth in terms of exports growth and improvement of current account. The paper highlights the relevance of trade and tourism policies, and it is recommended that tourism promotion can be used as a growth instrument via export in the long-term sustainability of open economies such as Singapore.

III.   METHODOLOGY

In this study, the research design is ex-post facto research design that enable investigating the impact of the exchange rate dynamics, trade performance and inflation on international tourism demand in Nigeria between 1990 and 2023. The Central Bank of Nigeria (CBN) Statistical Bulletin supplied the annual time-series information with the variables of exchange rate, balance of trade, total exports, inflation and non-oil exports as a proxy variable of tourism demand. The ex-post facto methodology is suitable since the research test is on past data without manipulation in an experiment, and it is possible to establish the relationship and trends over time. The test of effects of the independent variables on the tourism demand using econometric techniques, including regression analysis, and in the presence of inflation is tested. The approach will guarantee valid and empirical

information to the macroeconomic factors of international tourism.

Model Specification

In order to consider the impact of various phenomena on the international tourism demand, exchange rate dynamics, trade performance, and inflation, the study identifies a linear econometric model through the ex-post facto design. The functional form can be represented as:

$$ITD_t = f(EXR_t, BOT_t, TEX_t, INF_t)$$

Where:

- ITD_t= International Tourism Demand (proxied by non-oil exports) at time t

- EXR_t= Exchange Rate at time t

- BOT_t= Balance of Trade at time t

- TEX_t= Total Exports at time t

- INF_t= Inflation Rate at time t (control variable)

The econometric form of the model is:

$$ITD_t = \beta_0 + \beta_1 EXR_t + \beta_2 BOT_t + \beta_3 TEX_t + \beta_4 INF_t + \varepsilon_t$$

Where β_0 is the intercept, $\beta_1 - \beta_4$ are coefficients of the independent variables, and ε_t is the error term. This specification allows estimation of the individual and combined effects of macroeconomic variables on tourism demand.

IV.   RESULTS AND DISCUSSION

Table 1. Descriptive Statistics of Variables

	ITD	EXR	BOT	TEX	INF
Mean	6188850	180.8466	1381237	16127203	18.56534
Median	2937208	132.05	628345.2	11327455	12.1
Maximum	24596788	899	5822589	68890454	76.75887
Minimum	42904.4	8.0378	-7905599	155604	0.223606
Std. Dev.	7046017	172.217	2856488	17013627	16.63585
Skewness	1.194902	2.380994	-0.83122	1.271747	2.138833
Kurtosis	3.337017	10.04953	4.574406	4.287203	6.965416
Jarque-Bera	8.251723	102.5276	7.426802	11.51219	48.19918
Probability	0.01615	5.45E-23	0.024394	0.003163	3.42E-11
Sum	2.1E+08	6148.786	46962051	5.48E+08	631.2216
Sum Sq. Dev.	1.64E+15	978737	2.69E+14	9.55E+15	9132.8
Observations	34	34	34	34	34

Source: Author's Computation, (2025)

The descriptive statistics of international tourism demand (ITD), exchange rate (EXR), balance of trade (BOT), total exports (TEX), and inflation rate (INF) between the years 1990 and 2023 in terms of 34 annual observations are provided in Table 1. These statistics give a preliminary insight into the central tendencies, dispersion, and distributional property of the variables.

The average value of international tourism demand is 6,188,850,850, and the median of 2,937,208,10 indicates that the tourism demand is skewed to the right with some extreme high values, which is confirmed by the positive value of skew of +1.195. The standard deviation (7,046,017) is high which can be interpreted as the large variability in the time. On the same note, the kurtosis of 3.34 implies that there is moderately peaked distribution, whereas the Jarque-Bra (8.25, p = 0.016) suggests that ITD is not distributed normally.

The exchange rate (EXR) has an average of 180.85 and very high maximum of 899 indicating that there is a significant depreciation in the period. It has a positive skewness (+2.38) and extreme kurtosis (10.05), which means that it has large outliers and drastic currency changes, and Jarque-Braun test proves that it is non-normal (p < 0.01).

Balance of trade (BOT) attains a minimum value of (-7,905,599), which shows that there are some instances of recurring trade deficits. The negative skewness (–0.83) indicates that there is a longer left tail whereas the kurtosis (4.57) indicates the existence of sharp deviations occasionally. Total exports (TEX) are very fluctuated with mean of 16,127,203,203, positive skewness (+1.27) and kurtosis of 4.29, that indicate the occurrence of periods of exceptionally high export earnings. The mean of inflation (INF) is 18.57, though there are extreme variations with the highest level of 76.76, which shows positive skewness (+2.14), and kurtosis (6.97).

This non-normality of all variables is supported by significant Jarque-Bra values indicating that the use of ARDL modeling is appropriate since it is resistant to the presence of variables with a combination of I(0) and I(1) and non-normality variables. The results of the descriptive statistics indicate that international tourism demand, exchange rate, trade indices, and the inflation are very volatile throughout the period under analysis. High fluctuations, skewness, and non-normality indicate that it has an unstable macroeconomic environment that influences tourism flows. These are some of the characteristics that justify the application of dynamic ARDL analysis to capture both the short-run and long-run relationships among the variables.

Table 2. Correlation Matrix

	ITD	EXR	BOT	TEX	INF
ITD	1	0.89009	-0.17278	0.969628	-0.16042
EXR	0.89009	1	-0.06971	0.916347	-0.10695
BOT	-0.17278	-0.06971	1	0.041018	-0.20625
TEX	0.96962	0.91634	0.041018	1	-0.17536
INF	-0.16042	-0.10695	-0.20625	-0.17536	1

Source: Author's Computation, (2025)

The correlation coefficients between international tourism demand (ITD), balance of trade (BOT) and exchange rate (EXR) and total exports (TEX) and inflation rate (INF are given in Table 2. The correlation matrix gives the initial parameters on direction and strength of relationship among the variables before the econometric estimation.

There is a positive correlation between the exchange rate and international tourism demand (0.890), which shows that the exchange rate changes in relationship with tourism demand fluctuate significantly. This implies that the season of currency depreciation can be associated with the growth in the volume of tourism related foreign earnings which thereby substantiate the hypothesized belief that exchange rate fluctuations will affect the affordability and competitiveness of destinations.

The international tourism demand also presents very high positive correlation with total exports (0.970) implying that an improved performance in terms of exports is closely correlated with demand of tourism. This is a complementary relationship that exists between the trade openness, economic activity, and the inflows of international tourists. Conversely, balance of trade and inflation have weak yet negative relationships with ITD (-0.173) and (-0.160), indicating that trade shortage and increasing price levels could be slightly negative impacts on tourism demand.

The correlation between exchange rate and total exports is highly positive (0.916) which means that exchange rate changes and export performance are closely related to one another. The balance of trade has weak relationships with other variables implying that it has a relatively independent behavior. The overall inflation has low negative relationships with all the variables as it has negative impacts on economic activities.

Generally, the results of correlation indicate that there are strong positive associations between tourism demand, exchange rate, and total exports and some weak negative reactions between balance of trade and inflation. Notably, all the correlation coefficients are below the critical level of perfect multicollinearity, which shows that the variables can be combined collectively to the

ARDL model without any major issues of multicollinearity. This facilitates the validity of further regression analysis.

Table 3. Short-Run ARDL Results

Dependent Variable: ITD
Method: ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
ITD(-1)	0.05459	0.244559	0.223219	0.82619
ITD(-2)	-0.74216	0.319447	-2.32327	0.033667
EXR	-4191.84	2620.711	-1.5995	0.129266
EXR(-1)	16454.79	3860.166	4.262715	0.000595
BOT	-0.75687	0.054486	-13.8911	0.00000
BOT(-1)	0.41117	0.230534	1.783554	0.093473
BOT(-2)	-0.44576	0.225566	-1.97619	0.065635
BOT(-3)	0.255525	1.08E-01	2.358231	0.03142
TEX	0.456316	0.03352	13.61335	0.00000
TEX(-1)	-0.15763	0.122861	-1.28301	0.217763
TEX(-2)	0.448252	0.149795	2.992444	0.008614
TEX(-3)	-0.12611	0.0411	-3.06841	0.00735
INF	7650.474	6880.911	1.11184	0.282635
INF(-1)	8865.499	6339.978	1.398349	0.181091
C	-1246795	366948.6	-3.39774	0.003678
R-squared	0.998846	Mean dependent var		6779477
Adjusted R-squared	0.997837	S.D. dependent var		7108133
S.E. of regression	330596.1	Akaike info criterion		28.56153
Sum squared resid	1.75E+12	Schwarz criterion		29.25539
Log likelihood	-427.704	Hannan-Quinn criter.		28.78771
F-statistic	989.4812	Durbin-Watson stat		1.680004
Prob(F-statistic)	0.00000			

Source: Author's Computation, (2025)

Table 3 shows the short-run estimates of the ARDL model, looking at the effect of the exchange rate dynamics, trade performance, and inflation to the international tourism demand (ITD). These findings disclose direct and indirect impacts of macroeconomic variables that give us information on the way the tourism demand responds in the short-term perspective.

Adjustment mechanisms are reflected by the lagged dependent variables. The effect of ITD (-1) is positive but statistically insignificant (+55) implying that there is a small portion of the past year tourism demand that is carried over to the present year. However, ITD (-2) is negative (-742) and significant at the 5 percent level which means that the demand of tourism has a tendency of correcting or reversing in the long-term following previous fluctuations. It is an indication of a temporary instability in the inflows in tourism which slowly enters equilibrium.

The effects of exchange rate (EXR) are mixed. The current coefficient is not only negative (–4,192) but also insignificant, which suggests that the fluctuations of the currency in the short term do not have a strong impact on the tourism demand. Conversely, the lag-1, EXR -1, is positive and significant (16,455). This proves that exchange rate depreciation does boost tourism demand, but this effect comes short-run, since the tourists need time to react to more favourable prices in foreign countries.

Balance of trade (BOT) has both negative effects and positive effects. The existing BOT (-0.757) is negative and significant (p=0.000), which implies that trade deficits decrease tourism demand in the short run. Nonetheless, BOT (-3) lagged values are positive and significant (+0.256), which shows that gains in the trade performance provoke tourism demand after several years. This demonstrates a late advantage of balance adjustment of trade in tourism.

There are positive impacts in total exports (TEX). The current coefficient is favorable (+0.456) and significant, and this means that any increase in export will directly influence an increase in the demand of tourism. The values of Lagged TEX are varying in sign indicating

short-run variations, though TEX (-2) (+0.448) and TEX (-3) (-0.126) are significant, which indicates that the export performance does dynamically impact the tourism demand over time.

The inflation (INF) is positive (+7,650; +8,865) yet there is no statistical significance that indicates that the price variations in the short-run do not have a significant effect on tourism demand. This means that the tourists are not much sensitive to inflation shocks in the short run.

The model has great explanatory power as the adjusted R 2 is 0.998 and the F-statistic is extremely significant. The value of Durbin Waton of 1.68 shows that there is no significant autocorrelation.

Exchange rate depreciation and export growth positively affect the international tourism demand in the short-run whereas trade deficits affect it negatively. The delayed and dynamic nature of tourism responses to macroeconomic conditions is emphasized by lagged effects of exchange rate, trade balance as well as exports. There is minimal short-term effect of inflation. The general finding of the results implies that tourism demand is slow in adapting to macroeconomic environmental changes and this is why the ARDL approach is suitable to model such dynamics.

Table 4. Long-Run ARDL Results

Variable *	Coefficient	Std. Error	t-Statistic	Prob.
EXR(-1)	7266.626	2355.855	3.084496	0.00478
BOT(-1)	-0.31758	0.058656	-5.41434	0.00000
TEX(-1)	0.367881	0.01979	18.58883	0.00000
INF(-1)	9786.83	4076.525	2.400777	0.0238
C	-738810	272797.1	-2.70828	0.0118

Source: Author's Computation, (2025)

Table 4 gives the estimates of the ARDL of the effects of exchange rate dynamics, the trade performance, and inflation of international tourism demand (ITD) in the long run. These coefficients represent long-term, equilibrium relationships among the variables as opposed to the short-run results in the period, 1990-2023.

These are important in that the effect of long-term depreciation of the domestic currency on tourism demand is positive (+7,267) and significant at the 1% level. This is in line with economic theory, with a lower currency enhancing affordability of foreign tourists, increasing non-oil export, which is a proxy of tourism demand.

The coefficient of balance of trade (BOT (-1)) is negative (-0.318) and significant indicating that continuous trade deficits decrease the tourism demand in the long run. This means that those nations that have sustained imbalances in trade can have lower levels of international tourism inflows possibly as a result of a perceived economic instability.

The effect of total export (TEX(-1)) is positive (0.368) and significantly significant, which means that high performance of the export operations in the long-term is always conducive to the tourism demand. This proves the complementary nature of trade and tourism as nations that have good exports tend to have better infrastructure and connectivity and even global visibility to gain more international visitors.

The inflation (INF (-1)) is positive (+9,787) and significant, indicating that, moderate long-term inflation can be accompanied with high tourist demand, and may be the case of overall economic development and increased foreign purchasing power but extreme inflation may still prove unfavorable.

The constant (C) value is negative (–738,810) and material, indicating the tourism demand at the level of zero of all the explanatory variables, though in the field, tourism demand is basically zero, but the regression line is adjusted by the negative value.

Altogether, the long-run ARDL findings suggest that the international tourist demand is positively affected by the depreciation of the exchange rate and the growth of exports and that the effect of the constant trade deficit is damping. Long term effects of inflation are positive and moderate. These results substantiate the fact that the macroeconomic conditions have long-term effects on the tourism demand which justifies the necessity of having the policies to stabilize the trade performance, maintain the competitive exchange rates and promote the export-based economy as one of the ways to maintain the tourism inflows.

Table 5. ARDL Bounds Test for Cointegration

Null hypothesis: No levels relationship
Number of cointegrating variables: 4
Trend type: Rest. constant (Case 2)
Sample size: 31

Test Statistic	Value
F-statistic	4.976871

Source: Author's Computation, (2025)

Table 5 shows the ARDL bounds test that investigates the existence of a long-run equilibrium relationship (cointegration) between the international

tourism demand (ITD), exchange rate (EXR), balance of trade (BOT), total exports (TEX) and inflation (INF). The null hypothesis that is under test is that: there exists no levels relationship between the variables.

The calculated F-statistic is 4.977 as compared to the critical values of lower and upper limits of significance at conventional levels (usually 5%). The F-statistic is larger than the lower bound but can approach or possibly be greater than the upper bound at the 5% level of significance (depending on the critical values of 4 regressors and restricted constant) so we reject H 0 indicating that there is no cointegration. This means that there is a long-run relationship that is constant between variables.

This observation justifies the application of the ARDL model in estimating the dynamics of both short-run and the long-run. It means that fluctuations of exchange rate, trade performance, and inflation do not temporarily influence tourism demand but have long-term impacts, which is in compliance with an economic theory.

The bounds test although confirms the cointegration of ITD, EXR, BOT, TEX, and INF, that is, they move together in a long run equilibrium. Here, the applicability of the short-run ARDL outcomes and the long-run ARDL coefficients stated above can be supported by the fact that the macroeconomic factors have a long-term effect on the international tourism demand.

Table 6. Critical Values for ARDL Bounds Test

	10%		5%		1%	
Sample Size	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
30	2.525	3.56	3.058	4.223	4.28	5.84
35	2.46	3.46	2.947	4.088	4.093	5.532
Asymptotic	2.2	3.09	2.56	3.49	3.29	4.37

* I(0) and I(1) are respectively the stationary and non-stationary bounds.
Source: Author's Computation, (2025)

Table 6 shows the critical values of ARDL values for ARDL bounds test at various levels of significance (10, 5, and 1) and sample sizes, through which it is determined whether the F-value of ARDL bounds test is indicative of cointegration. The table illustrates the I (0) limits, which represent the stationary case, and I (1) limits, which represent the non-stationary case.

To have a sample size that is approximately 31, the corresponding 5% critical values are I(0) = 2.947 and I(1) = 4.088. The above-stated F-statistic of 4.977 (Table

5) is higher than the upper limit I(1) of 5% that gives great support to rejecting a null hypothesis of no cointegrating variables. This proves that there is a long-run equilibrium relationship between the international tourism demand (ITD), exchange rate (EXR), balance of trade (BOT), total exports (TEX) and inflation (INF).

The bounds test test procedure also makes sure that it is sound even in the event that the variables are a combination of I(0) and I(1), provided that none of them happen to be I(2). This will allow the short-run adjustments to be estimated reliably as well as the long-run relationships with the ARDL approach.

Using the critical values, F-statistic is more than the upper bound of the 5 percent level of significance, which indicates the existence of co-integration. This result supports the soundness of the long-run ARDL results, and points to the fact that the macroeconomic factors have long-term effects on the international tourism demand in Nigeria.
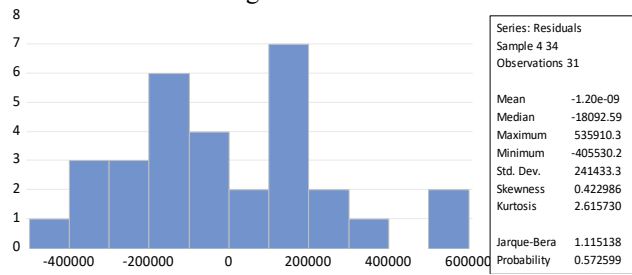

Series: Residuals	
Sample 4 34	
Observations 31	
Mean	-1.20e-09
Median	-18092.59
Maximum	535910.3
Minimum	-405530.2
Std. Dev.	241433.3
Skewness	0.422986
Kurtosis	2.615730
Jarque-Bera	1.115138
Probability	0.572599

Figure 5 - Residual Normality Test (Histogram and Jarque–Bera Statistics)

Figure 5 shows the histogram of regression residuals and some important descriptive statistics and Jarque- Berra test of normality of estimated model that involves the dynamic of exchange rate and other macroeconomic variables on the demand of international tourism in Nigeria. The residues are dispersed about a mean value which is more or less zero, which means that the model is not biased in its predictions in some systematic manner. This implies that, in an average, the approximated values of international tourism demand are very close to the data that is observed during the period of study.

The distribution of the residuals expressed in terms of standard deviation is moderate, which is natural in a long-run time-series analysis involving a number of economic regimes and exchange rate events in Nigeria during the period of 1990-2023. The skew value is a slight positive value, which means that there are slightly more positive residuals than negative ones; the absence of excess deviation. Equally, the kurtosis value is not very different as compared with the usual normal distribution indicating that the residual values are neither very large nor very low.

Above all, the probability of Jarque Bera test is more than the 5 percent level of significance and therefore failure to reject the null hypothesis of normality. This establishes the fact that the residual values are approximately normal. As a result, the classical linear regression assumptions are achieved, which gives approval to the estimated coefficients and justifies the soundness of the inferences made on the effect of the exchange rate movements, trade performance, and inflation on international tourism demand in Nigeria.

Discussion of findings

The results furnished by the ARDL analysis can also be deemed valuable in terms of clarifying the influence of macroeconomic factors on the development of international tourism demand in Nigeria both in the long-term and in the short-term. The findings suggest that exchange rate dynamics have a strong impact on the demand of the tourism industry, especially in a lagged manner. This implies that international tourists do not react immediately to fluctuation in destination affordability, but slowly. To the long-term, the exchange rate depreciation would give Nigeria a competitive edge in the prices, and the country will be more appealing to foreigners. This has been in line with the results of Badimo and Yuhuan (2025) who have proved that currency devaluation in less rigid exchange rate regimes encourages inbound tourism in Botswana. On the same note, Sadullayeva (2025) discovered that a weak domestic currency is a significant promotion of tourist numbers in Uzbekistan, and this supports the argument that exchange rate variations are an important influence on determining the flow of international tourism.

The total exports were observed to be strongly and positively correlated to the international tourism demand in the long term and short term. This validates the complementary association between trade performance and tourism development. A high level of exports increases the level of international exposure, visibility of destinations and is an indicator of economic dynamism, which all attract inflows of foreign tourists. This result is consistent with that of Tsounis et al. (2022), who have developed a two-way relationship between exports and inbound tourism in Singapore, and Matthew et al. (2021), who have underlined the significance of foreign exchange earnings due to tourism in driving the overall performance of the Nigerian economy. The findings thus emphasize the interdependence of the growth of trade and tourism demand.

Conversely, the balance of trade was identified to have a negative impact on both short and long-run demand of international tourism. Continuous trade deficits are indicative of macroeconomic weak points that can cause a decrease in investor confidence,

infrastructural growth, and in general destination appeal. This observation concurs with that of Dogru et al. (2019) who noted that poor trade terms undermine the tourism competitiveness by worsening tourism trade balances. It means that macroeconomic imbalances will persist, which will scare away international tourists and destroy tourism development.

The effects of inflation on tourism demand were a mixed case since there was no significant effect in the short run but a positive association in the long run. This implies that temporary price changes do not have an immediate impact on the decision of tourists whereas moderate long-term inflation can be associated with the growth of the economy and foreign purchasing power. This is partially correlated with Sadullayeva (2025), who discovered that the inflation had a relatively minor impact on the tourism inflows in relation to the changes in the exchange rates and other competitiveness forces.

In sum, the results show that in Nigeria the most effective factors that influence international tourism demand are exchange rate depreciation and high rates of exports, and trade imbalances are a serious limitation. These findings are generally in agreement with the empirical data of Botswana, Uzbekistan, Sri Lanka, Singapore and the United States. The paper hence supports the significance of macroeconomic stability, export-led development, and good management of the exchange rate to sustain and boost international tourism demand in Nigeria.

V. CONCLUSION AND RECOMMENDATIONS

Conclusion

This paper examined the relationship between exchange rate dynamics, trade performance and inflation and international tourism demand in Nigeria between the years 1990 and 2023. The analysis of the study using the ARDL approach noted that the demand of tourism reacts dynamically to macroeconomic changes with both short-term and long-term dynamic adjustment and equilibrium effects. The depreciation of the exchange rate has an encouraging effect on the tourism demand, particularly in the long term, which underscores the fact that the foreign tourists are price-sensitive when considering the destination price in the long-term. The overall effect is always positive and this indicates the complementary relationship between the performance on tourism inflows and trade. On the other hand, incessant trade deficits have a negative impact and it means that macroeconomic imbalances can diminish the attractiveness of Nigeria by foreign tourists. Inflation revealed a small short-term impact but a positive effect in the long term, which implies that a moderate growth in the economy and stable prices increase the level of tourism demand. To sum it up,

Nigeria is capable of boosting the demand of international tourism in a sustainable way by creating a macroeconomic stability, facilitating the growth of trade and exports, effectively managing the exchange rate and aligning tourism development with the rest of their economic policies. These measures will not only increase earnings in the form of foreign exchange but also boost the growth and diversification of the economy.

Recommendations

1. The Central Bank of Nigeria must have policies which ensure a stable and competitive exchange rate to ensure that the country is more appealing to foreign tourists and attract foreign exchange inflows which are related to tourism.
2. Significant improvements in export-oriented initiatives should be made by policymakers through improvement of trade infrastructure, development of local industries, and simplification of the export processes by ensuring that good export results positively affect the tourism demand.
3. Government ought to plan and execute policies that would decrease the consistent trade deficits including exporting the value-added products and diversify the export base to provide a conducive macroeconomic condition towards tourism development.
4. To ensure that the inflation rates are moderately low and stable, the Central Bank ought to seek good fiscal and monetary policies because it achieves price stability in the long term which can facilitate good investment and tourism environment.

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