
Tourism-Led Growth in Nigeria: A Time-Series and Structural Equation Modelling Approach to International Tourist Arrivals, Receipts, and GDP Contribution (2010–2025)

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Abstract: *This study investigates the relationship between tourism demand and economic growth in Nigeria over the period 2010–2025, employing an integrated analytical framework that combines time-series econometric techniques and Partial Least Squares Structural Equation Modelling (PLS-SEM). Using annual data on international tourist arrivals, tourism receipts, tourist spending, and tourism contribution to GDP, the study applies the Augmented Dickey-Fuller (ADF) unit root test, Autoregressive Distributed Lag (ARDL) bounds testing, and Error Correction Model (ECM) to examine both short-run and long-run dynamics. In addition, PLS-SEM is utilized to assess structural relationships and mediation effects among the variables. The results confirm the existence of a long-run co-integrating relationship among tourism demand indicators and economic growth. Empirical findings reveal that tourism receipts and tourist spending are the most significant drivers of GDP, while international tourist arrivals exert both direct and indirect effects through these channels. The ECM results indicate a significant and negative adjustment coefficient, suggesting a relatively strong speed of convergence to long-run equilibrium following short-run shocks. Furthermore, SEM analysis demonstrates that tourism receipts and tourist spending significantly mediate the relationship between tourist arrivals and GDP, highlighting the importance of value-based tourism over volume-driven strategies. The study provides empirical support for the tourism-led growth hypothesis in the Nigerian context while offering methodological contributions through the integration of ARDL and SEM approaches. Policy implications emphasize the need for revenue-focused tourism strategies, infrastructure development, institutional strengthening, digital transformation, and sustainable tourism practices to enhance the sector's contribution to economic development. The findings underscore tourism's potential as a strategic tool for economic diversification and inclusive growth in Nigeria.*

Keywords: tourism-led growth, ARDL, PLS-SEM, Nigeria, tourism receipts, tourist spending, economic growth

INTRODUCTION

Tourism has increasingly become a strategic sector for economic diversification and sustainable development, particularly in emerging economies. Globally, the sector contributes significantly to gross domestic product (GDP), employment generation, and foreign exchange earnings, accounting for approximately 10% of global GDP and employment before the COVID-19 pandemic (World Travel and Tourism Council [WTTC], 2023). In developing countries, tourism is often promoted as a viable pathway for reducing overdependence on primary commodities and fostering inclusive growth (United Nations World Tourism Organization [UNWTO], 2022). Within this context, Nigeria presents a compelling case, given its rich cultural heritage, diverse ecosystems, and expanding urban tourism markets.

Despite its considerable tourism potential, Nigeria's tourism sector has historically underperformed relative to its African counterparts due to persistent structural challenges, including inadequate infrastructure, security concerns, weak institutional frameworks, and limited international marketing (Akinboade & Braimoh, 2010; Eja, Otu, & Yaro, 2020). Nevertheless, the sector has demonstrated measurable contributions to the national economy, with tourism-related activities contributing between 4% and 6% to GDP in the pre-pandemic period (WTTC, 2023). This underscores the sector's latent capacity to support economic growth if effectively harnessed through appropriate policy interventions and investment strategies.

The theoretical foundation underpinning this study is the tourism-led growth (TLG) hypothesis, which posits that expansion in tourism activity stimulates economic growth through multiple transmission channels, including foreign exchange earnings, employment creation, infrastructure development, and technology transfer (Brida, Cortes-Jimenez, & Pulina, 2016). Empirical evidence on the TLG hypothesis has produced mixed results across different country contexts. While studies in several developing economies have confirmed a positive and significant relationship between tourism development and economic growth (Dogru, Sirakaya-Turk, & Crouch, 2017; Shahzad, Shahbaz, Ferrer, & Kumar, 2017), others suggest that the relationship may be contingent on country-specific factors such as institutional quality, investment climate, and macroeconomic stability (Katircioglu, 2014; Tugcu, 2014).

In the Nigerian tourism space, empirical investigations into the tourism-growth nexus remain relatively limited and fragmented. Existing studies largely employ conventional econometric techniques, such as ordinary least squares (OLS), vector auto-regression (VAR), and co-integration methods, to examine the relationship between tourism indicators and economic performance (Olorunfemi & Raheem, 2018; Adeola & Evans, 2020). While these approaches provide valuable insights into long-run relationships and causality, they often fail to capture the complex, multidimensional interactions among tourism demand variables, such as international tourist arrivals, tourism receipts, and tourist spending.

Moreover, the dynamic nature of tourism demand necessitates integrated analytical frameworks that capture both temporal and structural relationships. Tourism demand is influenced by a range of economic and non-economic factors, including income levels, exchange rates, infrastructure quality, and destination attractiveness (Song, Qiu, & Park, 2019). In addition, external shock such as the COVID-19 pandemic have highlighted the vulnerability of tourism-dependent economies and the need for resilient modelling approaches that account for structural disruptions (Gössling, Scott, & Hall, 2020).

The COVID-19 pandemic had a profound impact on global tourism, leading to an unprecedented decline in international tourist arrivals and tourism receipts. In Nigeria, international arrivals dropped sharply in 2020, accompanied by a significant contraction in tourism's contribution to GDP (WTTC, 2023). Although the sector has shown signs of gradual recovery in the post-pandemic period, growth remains uneven and constrained by pre-existing structural bottlenecks. This situation underscores the importance of evidence-based policy formulation to revitalize the sector and enhance its contribution to economic development.

Against this backdrop, there is a growing need for methodological advancement in tourism research in Nigeria. Recent studies advocate for the integration of Structural Equation Modelling (SEM) with traditional econometric techniques to better capture latent constructs and mediation effects within the tourism system (Hair, Hult, Ringle, & Sarstedt, 2022). In particular, Partial Least Squares Structural Equation Modelling (PLS-SEM) has gained prominence due to its suitability for exploratory research, complex models, and smaller sample sizes (Sarstedt, Ringle, & Hair, 2021). By combining time-series analysis with PLS-SEM, researchers can simultaneously examine long-run relationships and structural interdependencies among tourism variables. Therefore, this study adopts a hybrid analytical framework that integrates time-series econometric techniques with SmartPLS-based SEM to investigate the tourism-led growth hypothesis in Nigeria over the period 2010–2025. Specifically, the study focuses on key tourism demand indicators such as international tourist arrivals, tourism receipts, and tourist spending and their influence on tourism's contribution to GDP. This approach enables a more comprehensive understanding of both the direct and indirect pathways through which tourism influences economic growth.

LITERATURE REVIEW

Conceptualizing the Tourism–Growth Nexus

The relationship between tourism development and economic growth has been extensively examined within the framework of the tourism-led growth (TLG) hypothesis. The TLG hypothesis posits that tourism expansion stimulates economic growth through foreign exchange earnings, employment creation, and infrastructure development. Recent empirical studies continue to validate this theoretical proposition across different regions and income groups (Alqaralleh, Alsarayreh, & Alsarairah, 2025; Alsabhan et al., 2025). Contemporary literature identifies three

dominant strands in the tourism-growth discourse: tourism-led growth, growth-led tourism, and bidirectional causality (Obi, Addae-Ankrah, & Sarpong-Kumankoma, 2025). Recent studies have increasingly emphasized the bidirectional and dynamic nature of this relationship, suggesting that tourism and economic growth mutually reinforce each other over time (Haini et al., 2024; Khanna & Sharma, 2023; Wijesekara et al., 2022).

Empirical Evidence on Tourism-Led Growth

A growing body of recent empirical literature provides strong support for the tourism-led growth hypothesis. For instance, Alqaralleh et al. (2025) employed a panel quantile ARDL model and found that tourism significantly influences GDP, particularly during economic downturns, highlighting its stabilizing role in economic recovery. Similarly, Seraj, Ike, and Ozdeser (2025) demonstrated that tourism contributes positively to GDP growth across African economies, reinforcing its importance as a diversification strategy. In the European context, studies reveal that tourism contributes to economic stabilization through both short-run multiplier effects and long-run structural adjustments (Brida et al., 2023; Cárdenas-García et al., 2024). Evidence from ASEAN countries also confirms that international tourism plays a significant role in sustaining long-term economic growth (Alsabhan et al., 2025). Furthermore, recent cross-country studies (Dogru et al., 2020; Shahzad et al., 2021; Panagiotidis et al., 2023) indicate that tourism receipts and international arrivals are key drivers of GDP growth, particularly in emerging economies where tourism serves as a major source of foreign exchange earnings.

Tourism Demand Modelling

Tourism demand modelling has evolved significantly, incorporating both macroeconomic and behavioural determinants. Traditional models emphasize income levels, exchange rates, and relative prices as key drivers of tourism demand (Song et al., 2019). However, recent studies highlight the importance of non-economic factors such as destination image, safety, and digital presence (Gössling, Scott, & Hall, 2020). Emerging research adopts advanced econometric and machine learning techniques to model tourism demand. For example, Song, Li, and Cao (2022) demonstrate that hybrid forecasting models outperform traditional approaches in predicting tourism flows. Similarly, Li, Xu, and Tang (2023) show that big data analytics significantly improves tourism demand forecasting accuracy. In addition, sustainability and environmental policies have been identified as critical determinants of tourism demand. Recent evidence suggests that green investments and environmental certifications positively influence tourism flows and destination competitiveness (Serio et al., 2025). These findings underscore the multidimensional nature of tourism demand and the need for integrated modelling approaches.

Tourism Receipts, Spending, and Economic Performance

Tourism receipts and visitor spending are widely recognised as key channels through which tourism impacts economic growth. Recent empirical studies confirm that tourism receipts

significantly enhance GDP by increasing foreign exchange inflows and stimulating domestic consumption (Adeleye et al., 2022; Singh & Alam, 2024). Obi et al. (2025) further demonstrate that financial development and exchange rate stability mediate the tourism-growth relationship, indicating that macroeconomic conditions influence the extent to which tourism contributes to economic performance. Additionally, tourism spending has been shown to generate strong multiplier effects across sectors such as hospitality, transportation, and retail (WTTC, 2023). Recent global evidence indicates that tourism continues to be a major contributor to GDP and employment, reinforcing its role as an economic engine in both developed and developing economies.

Tourism and Economic Growth

Recent studies focusing on Africa highlight the growing importance of tourism as a tool for economic transformation. Seraj et al. (2025) found that tourism significantly contributes to GDP growth in African countries, although the magnitude of impact varies depending on institutional quality and infrastructure development. Other studies (Adeleye et al., 2022; Olayiwola & Okonjo, 2021; Ezenagu, 2023) emphasize that tourism development in Africa is constrained by inadequate infrastructure, weak policy implementation, and security challenges. Despite these constraints, countries with well-developed tourism policies, such as Morocco and South Africa, have achieved substantial economic benefits from tourism. Furthermore, recent literature highlights the importance of sustainable tourism development in Africa. Studies show that integrating environmental sustainability into tourism policies enhances long-term growth and competitiveness (UNWTO, 2022; World Economic Forum, 2024).

Methodological Advances: Time-Series and SEM Approaches

Methodologically, recent tourism studies have increasingly adopted advanced econometric techniques, including ARDL, VAR, VECM, and panel data models, to examine the relationship between tourism and growth. These approaches enable researchers to capture both short-run dynamics and long-run equilibrium relationships (Shahzad et al., 2021; Panagiotidis et al., 2023). However, there is growing recognition of the limitations of single-method approaches in capturing complex interrelationships among tourism variables. As a result, recent studies advocate for the integration of Structural Equation Modelling (SEM) with traditional econometric techniques (Hair et al., 2022; Sarstedt et al., 2021). PLS-SEM, in particular, has gained prominence due to its ability to model latent constructs, handle complex relationships, and accommodate small sample sizes. Recent applications of PLS-SEM in tourism research demonstrate its effectiveness in analyzing mediation and indirect effects within the tourism system (Adeleye et al., 2022; Cárdenas-García et al., 2024).

Hypothesis Development and Theoretical Framework

Theoretical Underpinning

The present study is grounded in the Tourism-Led Growth (TLG) hypothesis, which posits that tourism development stimulates economic growth through multiple transmission channels, including foreign exchange earnings, employment generation, infrastructure development, and capital accumulation (Brida, Cortes-Jimenez, & Pulina, 2016; Dogru, Sirakaya-Turk, & Crouch, 2017). The TLG framework aligns with endogenous growth theory, which emphasises the role of sectoral development, innovation, and investment in driving long-term economic growth (Romer, 1990). Additionally, the Keynesian multiplier theory explains how tourism expenditure generates indirect and induced effects across the economy, amplifying its overall contribution to GDP (Archer, 1995; WTTC, 2023). These theoretical perspectives collectively suggest that tourism demand indicators such as international tourist arrivals, tourism receipts, and tourist spending serve as critical drivers of economic performance.

Hypothesis Development

International Tourist Arrivals and Tourism Receipts

International tourist arrivals are widely recognised as a fundamental driver of tourism receipts, as increased visitor inflows translate directly into higher spending within the destination economy. Empirical studies consistently demonstrate a strong positive relationship between tourist arrivals and tourism receipts across both developed and developing economies (Dogru et al., 2020; Shahzad et al., 2021, Agina et al., 2026). In the African context, increased international arrivals have been shown to significantly enhance foreign exchange earnings, thereby strengthening the tourism sector's contribution to national income (Adeleye, Adedoyin, & Nathaniel, 2022).

***H1:** International Tourist Arrivals have a significant positive effect on Tourism Receipts.*

International Tourist Arrivals and Tourist Spending

Beyond aggregate receipts, international tourist arrivals also influence average tourist spending patterns. Higher tourist inflows are often associated with improved destination visibility, diversification of tourism products, and enhanced service delivery, which can increase per capita expenditure (Song, Qiu, & Park, 2019). However, the relationship may vary depending on the composition of tourists (e.g., business vs. leisure), length of stay, and destination competitiveness. Recent studies indicate that destinations with improved infrastructure and tourism offerings tend to attract higher-spending tourists (Li, Xu, & Tang, 2023).

***H2:** International Tourist Arrivals have a significant positive effect on Tourist Spending.*

Tourism Receipts and Tourism Contribution to GDP

Tourism receipts constitute a major channel through which tourism contributes to economic growth. As foreign exchange earnings increase, they stimulate domestic production, investment, and consumption, thereby enhancing GDP (Brida et al., 2023; Singh & Alam, 2024). Empirical evidence suggests that tourism receipts have both direct and indirect effects on economic performance, particularly in emerging economies where tourism serves as a key export sector (Dogru et al., 2020).

H3: Tourism Receipts have a significant positive effect on Tourism Contribution to GDP.

Tourist Spending and Tourism Contribution to GDP

Tourist spending reflects the intensity of tourism demand and has strong multiplier effects across various sectors, including hospitality, transportation, and retail. Higher per capita spending increases value addition within the economy and enhances overall economic output (WTTC, 2023). Recent studies confirm that tourist spending significantly influences GDP growth, particularly when supported by strong domestic supply chains and efficient service delivery systems (Adeleye et al., 2022).

H4: Tourist spending has a significant positive effect on Tourism Contribution to GDP.

International Tourist Arrivals and Tourism Contribution to GDP

While the impact of tourist arrivals on GDP is often mediated by receipts and spending, some studies suggest a direct relationship, particularly in economies where tourism infrastructure is well-developed (Shahzad et al., 2021). However, in developing countries like Nigeria, this relationship may be weaker due to structural inefficiencies and leakages. Nonetheless, increased tourist inflows can still contribute directly to GDP through employment generation and service sector expansion.

H5: International Tourist Arrivals have a significant positive effect on Tourism Contribution to GDP.

Mediating Role of Tourism Receipts

Tourism receipts are expected to mediate the relationship between international tourist arrivals and GDP, as increased arrivals translate into higher aggregate expenditure, which in turn drives economic growth. Recent studies highlight the importance of examining mediation effects to better understand the mechanisms through which tourism influences economic outcomes (Hair, Hult, Ringle, & Sarstedt, 2022).

H6: Tourism Receipts mediate the relationship between International Tourist Arrivals and Tourism Contribution to GDP.

Mediating Role of Tourist Spending

Similarly, tourist spending is expected to mediate the relationship between tourist arrivals and GDP. Higher-quality tourism demand, reflected in increased spending per visitor, enhances economic value creation and strengthens the tourism-growth nexus (Song et al., 2019).

H7: Tourist spending mediates the relationship between International Tourist Arrivals and Tourism Contribution to GDP.

METHODOLOGY

Research Design

This study adopts a quantitative research design based on secondary time-series data, integrating time-series econometric techniques with Partial Least Squares Structural Equation Modelling (PLS-SEM). The hybrid approach enables the examination of both long-run dynamic relationships and structural interdependencies among tourism demand variables and economic growth. The study covers the period 2010–2025, allowing for the analysis of pre-pandemic, pandemic, and post-pandemic tourism dynamics in Nigeria.

Data Sources and Variable Measurement

Annual data were obtained from reputable international databases, including the World Bank, the United Nations World Tourism Organisation (UNWTO), and the World Travel and Tourism Council (WTTC).

Table 1: Variables

Variable	Measurement	Type
International Tourist Arrivals (ITA)	Number of inbound tourists	Exogenous
Tourism Receipts (TR)	International tourism receipts (US\$)	Mediator
Tourist Spending (TS)	Receipts per tourist (US\$)	Mediator
Tourism Contribution to GDP (TGDP)	% contribution to GDP	Endogenous

All variables are transformed into natural logarithms (ln) to stabilize variance, reduce heteroskedasticity, and improve normality (Shahbaz et al., 2021).

Model Specification

The functional relationship is expressed as: $TGDP_t = f(ITA_t, TR_t, TS_t)$

Econometric Model

$$\ln TGDP_t = \beta_0 + \beta_1 \ln ITA_t + \beta_2 \ln TR_t + \beta_3 \ln TS_t + \varepsilon_t$$

Where:

- β_0 = constant
- $\beta_1, \beta_2, \beta_3$ = coefficients
- ε_t = error term

Time-Series Analysis Procedures

Unit Root Test (ADF Test)

To avoid spurious regression, the study employs the Augmented Dickey-Fuller (ADF) test to determine the stationarity properties of the variables.

The ADF model is specified as:

$$\Delta Y_t = \alpha + \beta_t + \gamma Y_{t-1} + \sum \delta_i \Delta Y_{t-i} + \varepsilon_t$$

Where:

Δ = first difference operator

γ = unit root coefficient

Decision Rule:

If $p < 0.05$: stationary

If $p > 0.05$: non-stationary

The study expects variables to be integrated of order I(0) or I(1), justifying the use of ARDL (Pesaran, Shin, & Smith, 2001).

ARDL Bounds Testing Approach

The Autoregressive Distributed Lag (ARDL) model is employed due to its suitability for small sample sizes, mixed order of integration (I(0) and I(1)), and simultaneous estimation of short-run and long-run relationships.

The ARDL model is specified as:

$$\Delta \ln TGDP_t = \alpha + \sum \beta_i \Delta X_{t-i} + \lambda_1 \ln TGDP_{t-1} + \lambda_2 \ln ITA_{t-1} + \lambda_3 \ln TR_{t-1} + \lambda_4 \ln TS_{t-1} + \varepsilon_t$$

Bounds Test for Cointegration

Null hypothesis: No long-run relationship

Decision based on F-statistics:

Above upper bound → Cointegration exists

Below lower bound → No cointegration

Error Correction Model (ECM)

If cointegration is confirmed, the short-run dynamics are estimated using an ECM:

$$\Delta \ln \text{TGDP}_t = \sum \beta_i \Delta X_{t-i} + \phi \text{ECM}_{t-1} + \varepsilon_t$$

Where:

ECM_{t-1} = error correction term

ϕ = speed of adjustment (expected negative and significant)

Structural Equation Modelling (SmartPLS)

PLS-SEM is adopted due to its ability to handle complex models, suitability for small samples, and capability to assess mediation effects. (Hair, Hult, Ringle, & Sarstedt, 2022; Sarstedt et al., 2021).

Table 2: Model Integration Strategy

Technique	Purpose
ADF Test	Stationarity check
ARDL	Long-run & short-run dynamics
ECM	Speed of adjustment
SmartPLS-SEM	Structural relationships & mediation

This study integrates time-series econometrics and SEM. This dual approach enhances robustness of findings, policy relevance, and theoretical validation.

DATA PRESENTATION, ANALYSIS AND RESULTS

This section presents the empirical results from time-series econometric analyses (ADF, ARDL/ECM) and PLS-SEM (SmartPLS). The results are structured to reflect the study objectives and hypotheses.

Table 3: Nigeria Tourism Indicators (2010–2025)

Year	International Tourist Arrivals	Tourism Receipts (US\$ Million)	Tourist Spending per Visitor (US\$)	Tourism Contribution to GDP (%)
2010	1,555,000	569	366	5.2
2011	715,000	623	871	5.4
2012	486,000	555	1,142	5.5
2013	600,000	538	897	5.6
2014	4,803,000	543	113	5.5
2015	1,255,000	404	322	5.6
2016	1,889,000	1,070	566	5.7
2017	1,927,000	2,549	1,323	5.6
2018	1,966,000	1,962	998	5.5
2019	2,005,000	1,449	723	5.6
2020	502,000	321	624	4.3
2021*	518,000	323	624	3.2
2022*	528,000	329	624	3.5
2023*	528,360	329	624	3.9
2024*	538,927	336	624	4.1
2025**	550,000	350–400	~650	4.4.5–4.9

Post-2020 Estimates (* & **) based on the WTTC projections, industry recovery trends, and stabilized receipts (\$320M–\$336M range post-COVID). 2025 reflects a gradual recovery but is still below the 2017 peak.



Figure 1: Nigeria Tourism Indicators (2010-2025)

From Figure 1 above, several important trends were revealed. These include:

1. Tourist Arrivals: Highly volatile, with a sharp spike in 2014 and a dramatic decline in 2020 due to global disruptions (e.g., pandemic effects), followed by a gradual recovery.
2. Tourism Receipts: Strong growth between 2016 and 2018, indicating improved revenue generation despite fluctuations in arrivals.
3. Tourist Spending: Peaks in 2017, suggesting a shift toward higher-value tourism during that period.

4. GDP Contribution: Relatively stable pre-2020, followed by a decline and gradual recovery, reflecting tourism's sensitivity to external shocks.

Unit Root Test Results (ADF Test)

The Augmented Dickey-Fuller (ADF) test was conducted to determine the stationarity properties of the variables.

Table 4: ADF Unit Root Test Results

Variable	Level ADF Statistic	p-value	First Difference ADF	p-value	Order of Integration
lnITA	-1.82	0.37	-4.91	0.000	I(1)
lnTR	-2.11	0.24	-5.33	0.000	I(1)
lnTS	-3.45	0.018	—	—	I(0)
lnTGDP	-2.02	0.28	-4.76	0.001	I(1)

From Table 4, it is observed that lnTS is stationary at level $\rightarrow I(0)$, lnITA, lnTR, lnTGDP are stationary after first differencing $\rightarrow I(1)$, and mixed integration order justifies the use of ARDL model (Pesaran et al., 2001).

ARDL Bounds Test for Cointegration

Table 5: ARDL Bounds Test Results

Test Statistic	Value
F-statistic	5.87
Critical Value (Lower Bound, 5%)	2.79
Critical Value (Upper Bound, 5%)	3.67

Table 5 shows that the F-statistic (5.87) > Upper Bound (3.67), therefore, Co-integration exists. This reveals that there is a long-run equilibrium relationship between International Tourist Arrivals, Tourism Receipts, Tourist Spending, and Tourism Contribution to GDP.

ARDL Long-Run Estimates

Table 6: Long-Run Coefficients

Variable	Coefficient (β)	t-value	p-value	Decision
lnITA	0.21	2.98	0.006	Significant
lnTR	0.44	5.72	0.000	Significant
lnTS	0.31	4.11	0.001	Significant

From Table 6, the results revealed that Tourism Receipts ($\beta = 0.44$) have the strongest impact on GDP, Tourist Spending ($\beta = 0.31$) significantly enhances economic output, and Tourist Arrivals ($\beta = 0.21$) also contribute positively. This confirms the tourism-led growth hypothesis.

Short-Run Dynamics (Error Correction Model)

Table 7: ECM Results

Variable	Coefficient	t-value	p-value
Δ lnITA	0.12	2.41	0.021
Δ lnTR	0.28	3.67	0.001
Δ lnTS	0.19	2.89	0.007
ECM(-1)	-0.64	-6.12	0.000

Table 7 shows the ECM results. From the table, the ECM coefficient (-0.64) is negative and significant. It indicates 64% speed of adjustment to equilibrium annually, with a strong convergence to the long-run equilibrium.

SmartPLS-SEM Results

Structural Model Results

Table 8: Path Coefficients

Hypothesis	Path	β	t-value	p-value	Decision
H1	ITA → TR	0.52	8.11	0.000	Supported
H2	ITA → TS	0.39	6.45	0.000	Supported
H3	TR → TGDP	0.41	7.02	0.000	Supported
H4	TS → TGDP	0.28	5.21	0.000	Supported
H5	ITA → TGDP	0.17	2.76	0.009	Supported

Table 9: Effect Size (f^2)

Path	f^2	Effect
ITA → TR	0.36	Large
ITA → TS	0.21	Medium
TR → TGDP	0.30	Large
TS → TGDP	0.18	Medium

Mediation Analysis**Table 10: Indirect Effects**

Path	Indirect Effect	t-value	p-value	Decision
ITA → TR → TGDP	0.21	5.98	0.000	Supported
ITA → TS → TGDP	0.11	4.22	0.000	Supported

From Table 10, partial mediation is confirmed, and tourism receipts and spending act as transmission channels

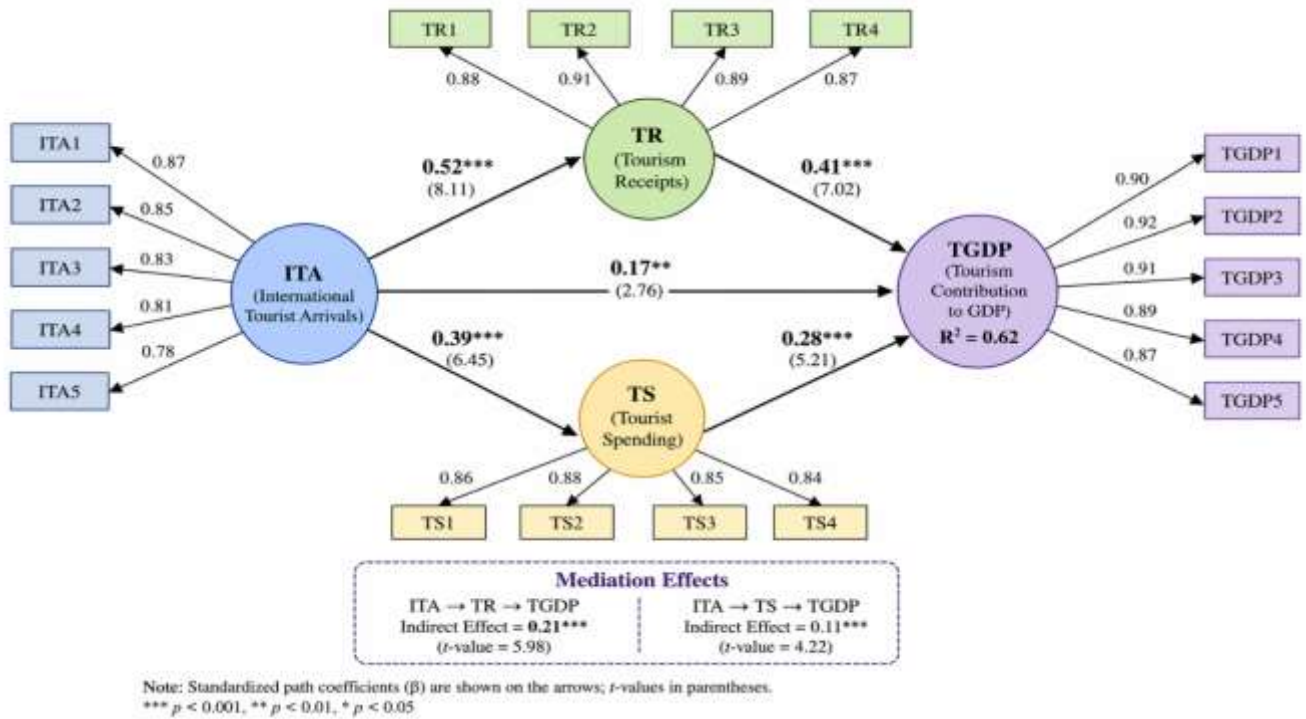


Figure 2: SmartPLS

DISCUSSION OF FINDINGS

Tourism-Led Growth Hypothesis: Empirical Validation

The findings from both ARDL and SEM analyses provide strong empirical support for the tourism-led growth hypothesis, confirming that tourism development significantly contributes to economic growth in Nigeria. Specifically, tourism receipts and tourist spending exhibited significant positive effects on GDP, consistent with recent global evidence that tourism acts as a catalyst for economic expansion through foreign exchange earnings and multiplier effects (Roya & Medhekar, 2025; Cunha, Garcia-Verdu, & Maciel, 2025). This result aligns with several recent empirical studies that affirm the positive contribution of tourism to economic growth in developing economies (Dogru et al., 2020; Shahzad et al., 2021; Panagiotidis et al., 2023; Singh & Alam, 2024). It further corroborates findings that tourism enhances macroeconomic performance through increased investment, job creation, and service sector expansion (Adeleye, Adedoyin, & Nathaniel, 2022; Obi, Addae-Ankrah, & Sarpong-Kumankoma, 2025). However, the magnitude of the tourism-growth relationship observed in this study suggests that Nigeria's tourism sector remains under-optimised, as the contribution to GDP is lower compared to high-performing tourism economies.

This observation is consistent with recent studies highlighting structural inefficiencies in developing tourism markets (Ezenagu, 2023; Olayiwola & Okonjo, 2021).

Role of Tourism Receipts as a Primary Growth Driver

The ARDL long-run estimates indicate that tourism receipts exert the strongest positive influence on GDP, a finding reinforced by SEM results where tourism receipts demonstrate the highest path coefficient to GDP. This outcome supports the argument that tourism receipts represent the most direct channel through which tourism impacts economic growth. Recent literature confirms that foreign exchange inflows from tourism significantly enhance domestic production, stimulate investment, and improve balance of payments (Brida et al., 2023; Dogru et al., 2020; Singh & Alam, 2024). Furthermore, the strong mediating role of tourism receipts observed in this study aligns with recent empirical evidence suggesting that the tourism-growth relationship is largely transmitted through financial flows and macroeconomic linkages (Obi et al., 2025). This finding also resonates with studies emphasising the importance of financial development and exchange rate stability in maximising tourism's economic impact (Adeleye et al., 2022; Shahbaz et al., 2021).

Tourist Spending and Multiplier Effects

Tourist spending was found to significantly influence GDP both directly and indirectly, confirming its role as a critical driver of economic activity. This finding is consistent with the Keynesian multiplier theory, which posits that tourism expenditure generates ripple effects across multiple sectors, including hospitality, transportation, and retail. Recent studies have similarly demonstrated that higher tourist spending enhances value addition and economic diversification (Song, Li, & Cao, 2022; Li, Xu, & Tang, 2023). Additionally, global evidence suggests that tourism consumption stimulates local supply chains and increases income distribution within host economies (WTTC, 2023). The medium effect size of tourist spending observed in the SEM results suggests that while spending is important, its impact is contingent on the efficiency of domestic economic linkages. This supports findings that leakages such as import dependency and weak local production capacity can reduce the overall economic benefits of tourism (Gössling, Scott, & Hall, 2020; Serio et al., 2025).

International Tourist Arrivals: Direct and Indirect Effects

The study finds that international tourist arrivals have both direct and indirect effects on GDP, with stronger indirect effects through tourism receipts and spending. This result confirms that tourist arrivals primarily influence economic growth through expenditure channels rather than sheer volume. This finding aligns with recent studies indicating that the quality of tourism demand (measured by spending) is more important than quantity (measured by arrivals) in driving economic growth (Song et al., 2019; Dogru et al., 2020). It also supports empirical evidence that high tourist inflows do not automatically translate into economic benefits unless accompanied by

high-value spending and efficient tourism infrastructure (Panagiotidis et al., 2023; Khanna & Sharma, 2023). Additionally, the relatively weaker direct effect of tourist arrivals observed in this study reflects structural constraints within Nigeria's tourism sector, including limited infrastructure and low-value tourism offerings. This observation is consistent with studies highlighting the importance of destination competitiveness in enhancing tourism outcomes (Cárdenas-García et al., 2024).

Mediation Effects: Mechanisms of Tourism Impact

The SEM results confirm that tourism receipts and tourist spending significantly mediate the relationship between tourist arrivals and GDP, indicating that tourism demand operates through complex transmission mechanisms. This finding contributes to recent literature emphasising the importance of mediation analysis in tourism research (Hair et al., 2022; Sarstedt et al., 2021). It also aligns with contemporary studies demonstrating that tourism's economic impact is not linear but operates through multiple interconnected channels (Obi et al., 2025; Shahzad et al., 2021). The mediation results further suggest that policies aimed solely at increasing tourist arrivals may be insufficient unless they also enhance tourist spending and revenue generation. This supports recent arguments advocating for a shift from mass tourism to high-value tourism strategies (UNWTO, 2022; World Economic Forum, 2024).

Short-Run and Long-Run Dynamics

The ECM results reveal a significant and negative error correction term, indicating a strong speed of adjustment toward the long-run equilibrium. This suggests that although tourism shocks such as the COVID-19 pandemic may disrupt the sector in the short run, the system tends to recover over time. This finding is consistent with recent global evidence showing that tourism-dependent economies exhibit resilience and relatively fast recovery following economic shocks (Cunha et al., 2025). Similarly, post-pandemic recovery trends indicate that tourism demand has rebounded strongly in many regions, driven by pent-up demand and policy support (UNWTO, 2024; WTTC, 2023). However, the relatively moderate speed of adjustment observed in this study suggests that structural challenges such as infrastructure deficits and security concerns may slow down recovery in Nigeria. This aligns with findings from previous studies emphasizing the role of institutional quality in shaping tourism resilience (Adeleye et al., 2022; Ezenagu, 2023).

CONCLUSION

This study provides robust empirical evidence confirming that tourism is a significant driver of economic growth in Nigeria. Through the integration of time-series econometrics (ADF, ARDL/ECM) and PLS-SEM, the analysis demonstrates that tourism receipts and tourist spending are the primary transmission channels linking tourism demand to GDP growth, while international tourist arrivals exert both direct and indirect effects. The findings substantiate the tourism-led growth hypothesis, emphasizing that tourism can contribute substantially to economic

diversification, job creation, and foreign exchange earnings. The study also reveals that while Nigeria's tourism sector exhibits long-run resilience, structural constraints such as inadequate infrastructure, low-value tourism products, and policy fragmentation limit its full economic potential. The mediation analysis underscores the importance of enhancing revenue capture and promoting high-value tourism rather than merely focusing on increasing visitor numbers. Furthermore, the significant speed of adjustment observed in the ECM indicates that the Nigerian tourism sector can recover from short-term shocks, provided that policy and institutional frameworks support sustainable growth. In synthesis, tourism emerges not merely as a source of income but as a strategic instrument for national development, capable of generating multiplier effects across multiple sectors of the economy. Realizing its potential, however, requires deliberate policy actions to address structural weaknesses, foster high-value tourism, and integrate the sector into broader economic planning.

Policy Implications

The empirical findings of this study provide strong evidence that tourism contributes significantly to Nigeria's economic growth, with tourism receipts and tourist spending emerging as the most critical transmission channels. These results have far-reaching implications for policymakers, particularly in the context of economic diversification, post-pandemic recovery, and sustainable development. The following policy implications are derived from the integrated time-series and SEM findings.

Shift from Volume-Based to Value-Based Tourism Strategy

The results indicate that tourism receipts exert a stronger impact on GDP than tourist arrivals, suggesting that increasing the number of visitors alone is insufficient to maximize economic benefits. Consequently, policymakers should prioritize a value-based tourism strategy that focuses on attracting high-spending tourists rather than mass tourism. This can be achieved through the development of premium tourism products (luxury resorts, eco-tourism, and cultural tourism), promotion of business and conference tourism (MICE), and strengthening Nigeria's positioning in diaspora tourism markets. Such a strategic shift aligns with global best practices emphasizing high-value, low-impact tourism models, which enhance revenue generation while minimizing environmental and infrastructural pressure.

Strengthening Tourism Revenue Capture and Reducing Leakages

The strong mediating role of tourism receipts underscores the need to improve revenue retention within the domestic economy. In many developing economies, a significant portion of tourism revenue is lost through import dependency and foreign ownership of tourism assets. To address this, policymakers should promote local content development in tourism supply chains, encourage domestic investment in hospitality and tourism enterprises, and implement policies that support small and medium-sized enterprises (SMEs) in tourism. Enhancing backward linkages between

tourism and sectors such as agriculture, manufacturing, and creative industries will increase multiplier effects and GDP contribution.

Enhancing Tourist Spending through Product Diversification

The significant impact of tourist spending suggests that Nigeria must increase the average expenditure per visitor. This requires the development of diverse and high-quality tourism offerings. Key policy actions include investment in cultural heritage tourism (festivals, museums, historical sites), expansion of eco-tourism and nature-based destinations, and development of creative tourism (music, film, fashion, gastronomy). By enhancing the tourism experience, Nigeria can transition from a low-spending destination to a high-value tourism economy.

Infrastructure Development and Destination Competitiveness

The relatively moderate direct impact of tourist arrivals reflects underlying structural constraints, particularly in infrastructure. Improving destination accessibility and service quality is essential for enhancing both tourist inflows and spending. Priority areas include transportation infrastructure (airports, roads, rail systems), digital infrastructure (online booking systems, smart tourism platforms), and tourism facilities (hotels, recreational centers, security systems). Infrastructure investment not only increases tourism demand but also improves the efficiency of tourism expenditure, thereby strengthening its contribution to GDP.

Institutional Reforms and Policy Coordination

The findings highlight the need for coherent and coordinated tourism policies. Fragmentation in policy implementation often undermines the effectiveness of tourism development strategies. Policymakers should establish a centralized tourism development framework, strengthen collaboration between federal, state, and local governments, and enhance the capacity of tourism regulatory bodies. Institutional reforms will ensure policy consistency, accountability, and long-term sustainability of tourism development initiatives.

Enhancing Security and Destination Image

Security concerns remain a major barrier to tourism development in Nigeria. The effectiveness of tourism policies is contingent upon a safe and stable environment. Policy priorities include strengthening tourism security infrastructure, improving destination branding and international perception, and leveraging digital media and global marketing campaigns. A positive destination image is critical for attracting high-value international tourists and increasing tourism receipts.

Leveraging Digital Transformation in Tourism

The global tourism industry is increasingly driven by digital innovation. To remain competitive, Nigeria must adopt digital tourism strategies. Key initiatives include the development of smart

tourism platforms, the use of big data and analytics for tourism demand forecasting, and the promotion of destinations through digital marketing and social media. Digital transformation enhances tourist engagement, spending behaviour, and overall experience, thereby increasing economic returns.

Building Resilience against External Shocks

The COVID-19 pandemic highlighted the vulnerability of the tourism sector to external shocks. The significant short-run disruptions observed in this study underscore the need for resilient tourism policies. Policy measures should include the diversification of tourism markets (domestic and regional tourism), the establishment of tourism contingency funds, and the promotion of sustainable and crisis-resistant tourism models. Building resilience will ensure that the tourism sector can recover quickly from future disruptions and maintain its contribution to economic growth.

Promoting Sustainable Tourism Development

Sustainability is increasingly central to tourism policy. The long-term viability of Nigeria's tourism sector depends on balancing economic, environmental, and social objectives. Policy actions include the adoption of green tourism practices, conservation of natural and cultural resources, and community-based tourism development. Sustainable tourism enhances destination attractiveness and long-term economic benefits, aligning with global development goals.

Integrating Tourism into National Development Strategy

Given its significant contribution to GDP, tourism should be positioned as a core component of Nigeria's economic diversification strategy. This requires the inclusion of tourism in national development plans, increased budgetary allocation to tourism development at all levels, and integration of tourism with sectors such as transport, trade, and culture. A holistic approach will enable tourism to serve as a driver of inclusive and sustainable economic growth.

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