

Connectivity and Culture: The Aviation Industry's Contribution to Calabar's Tourism Arrivals

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Abstract:

This study explored how air connectivity and cultural attractions jointly shape tourism arrivals in Calabar, Cross River State, Nigeria, with particular emphasis on the aviation industry's role in enhancing destination accessibility. A mixed-methods research design was employed, drawing on primary data from airport staff and passengers at Margaret Ekpo International Airport alongside relevant secondary sources. Descriptive statistics and Chi-square analysis were used to test the study hypothesis. The findings revealed a statistically significant relationship between aviation industry development and visitor arrivals ($\chi^2 = 33.28$, $df = 11$, $p < 0.05$), thus, the null hypothesis was discarded. Improved flight frequency, upgraded airport infrastructure, availability of direct flights, and expanded route networks emerged as key drivers of increased tourist inflows. Cultural and leisure attractions, notably Carnival Calabar, Tinapa Resort, and Obudu Mountain Resort, were strongly influenced by enhanced air access. Tourist travel decisions were further shaped by safety performance, airline reputation, service quality, and booking flexibility. Overall, the study demonstrates that effective air connectivity amplifies the visibility and accessibility of Calabar's cultural assets, strengthening tourism competitiveness and economic growth. The paper recommends sustained investment in aviation infrastructure, route development, and service quality as strategic pathways for leveraging culture-driven tourism and long-term destination development.

Keywords: *Aviation connectivity; cultural tourism; visitor arrivals; destination accessibility; tourism development; Calabar.*

1. Introduction

The aviation industry represents a highly integrated transport system encompassing airline operations, airport management, air traffic services, regulatory institutions, and extensive supporting infrastructure that collectively enable rapid spatial mobility. Beyond merely facilitating movement, aviation has become a central force shaping tourism connectivity by reducing travel time, overcoming geographic barriers, and linking cultural destinations to national and international markets (Anguera-Torrell & Langer, 2022). Through enhanced air access, previously peripheral locations are transformed into competitive tourism spaces, enabling cultural festivals, heritage sites, and leisure attractions to attract broader visitor flows (Eja et al., 2020).

In contemporary tourism systems, connectivity and culture are increasingly interdependent. Cultural assets such as festivals, historical heritage, creative industries, and ecological attractions rely heavily on efficient transport networks for market visibility and visitor accessibility. Aviation serves as the primary gateway through which tourists access destination cultures, transforming local traditions into globally consumed tourism products. By strengthening spatial interaction between origin markets and culturally rich destinations, the aviation industry amplifies tourism demand, length of stay, and economic spillovers within host communities.

Beyond mobility, aviation functions as a catalyst for tourism-led economic development. It generates direct employment within airlines, airports, accommodation, and regulatory agencies while indirectly stimulating hospitality, retail, transport services, tour operations, and cultural enterprises (Batrancea et al., 2022; Akeh & Anake, 2025). Improved air connectivity enhances investment flows, integrates tourism supply chains, and supports the commercialisation of cultural attractions, positioning aviation as a strategic driver of destination competitiveness and regional transformation.

Globally, destinations that strategically align aviation development with cultural tourism promotion have achieved sustained growth in visitor arrivals. Expansion of airport capacity, liberalisation of air service agreements, introduction of low-cost carriers, and route diversification have significantly improved access to cultural hubs and festival cities across Asia, Europe, and the Middle East (Novelli et al., 2021; Pearce, 2020; Leung et al., 2023). These developments demonstrate how connectivity strengthens cultural tourism visibility and market reach, reinforcing the symbiotic relationship between aviation systems and tourism performance.

In West Africa, aviation development has increasingly been positioned as a tool for enhancing regional mobility, tourism accessibility, and cultural exchange. Investments in airport modernisation, navigational systems, and service efficiency have contributed to improved inter-country connectivity and growing visitor movements (Cobbinah et al., 2020; Samunderu, 2023). Nevertheless, high operational costs, limited route networks, infrastructural gaps, and service quality challenges continue to restrict the full realisation of aviation-driven cultural tourism growth across the sub-region.

Nigeria occupies a strategic position within West Africa's aviation landscape due to its population size, economic influence, and expanding domestic air network. Ongoing airport rehabilitation programmes and private sector involvement in terminal management have enhanced connectivity among major cities and emerging tourism destinations. Among these destinations, Cross River State particularly Calabar stands out as one of Nigeria's leading cultural tourism hubs. The city hosts iconic attractions such as Carnival Calabar, Tinapa Business Resort, the Slave History Museum, and numerous eco-cultural sites that attract both domestic and international tourists. These cultural assets depend heavily on efficient air connectivity for sustained visitor inflows, seasonal event participation, and destination competitiveness.

Despite the acknowledged role of aviation in facilitating tourism growth, empirical understanding of how air connectivity translates into visitor arrivals at destination levels in Nigeria remains limited. While national policies emphasise airport modernisation and passenger experience improvement, few studies have systematically assessed how aviation infrastructure, route availability, and service quality influence tourism performance within specific cultural destinations such as Calabar. Persistent issues including limited flight frequency, high airfare costs, seasonal route suspensions, and operational inefficiencies continue to affect accessibility to Calabar, potentially constraining the growth of its vibrant cultural tourism sector.

Existing aviation-tourism research has largely focused on international hubs, macroeconomic impacts, or developed economies, leaving a notable gap concerning emerging cultural destinations in developing countries. In Nigeria, tourism scholarship has concentrated mainly on attraction development, visitor perception, and hospitality services, with limited integration of transport connectivity as a central determinant of tourism demand. Moreover, few studies have jointly examined aviation connectivity, infrastructure quality, and

service efficiency within a unified framework to explain destination-level visitor arrivals.

This study therefore fill the noticeable gaps by empirically examining the role aviation connectivity in enhancing access to Calabar's cultural and tourism assets. Specifically, it investigates how air transport infrastructure, route networks, and service quality shape visitor arrivals and tourism development in Calabar, Cross River State. By linking connectivity with culture, the study contributes to destination-level tourism planning literature and offers policy-relevant insights for strengthening tourism growth through strategic aviation development.

2. Study objective

This study examine the contribution of aviation connectivity, infrastructure, and service quality to visitor arrivals and tourism development in Calabar, Cross River State, Nigeria.

3. Hypothetical statement

Aviation industry has no significant influence on visitor arrivals and tourism development in Calabar, Cross River State, Nigeria.

4. Literature Review

4.1 Aviation and Tourism Interdependence

The interdependence between aviation and tourism is firmly established within transport geography and tourism economics. Aviation functions as a core accessibility mechanism that shapes travel behaviour, spatial interaction, and destination competitiveness (Williams et al., 2017). Liberalisation of air transport markets has expanded route networks, reduced fares, and stimulated tourism demand, particularly in Europe and Asia countries (Hüschelrath et al., 2013; Graham et al., 2019).

The rise in low-cost carriers and airline alliances has further improved access to secondary and culturally rich destinations, enabling festivals, heritage cities, and peripheral regions to integrate into global tourism circuits (Castillo-Manzano et al., 2012). Economic conditions, disposable income, and exchange rate dynamics also mediate aviation-induced tourism flows (Tsui et al., 2021; Mr & O'Connell, 2024).

Within West Africa, enhancements in air connectivity and infrastructure investment have strengthened tourism mobility and cultural exchange

(Chijioke, 2021; Cobbinah et al., 2020). However, destination-specific empirical assessments—particularly focusing on culturally driven tourism centres such as Calabar remain limited, underscoring the need for localized studies linking aviation systems with tourism arrivals.

4. Methodology

4.1 Research Design

The mixed-methods of research design was utilized for the study, which integrates both quantitative and qualitative approaches to examine how aviation connectivity facilitates access to Calabar's cultural attractions and influences tourism arrivals. The quantitative component enabled statistical assessment of the relationship between aviation-related variables such as route availability, flight frequency, infrastructure quality, and service efficiency and visitor inflows to cultural and leisure sites within the destination. The qualitative component provided contextual insights into how air transport accessibility shapes tourists' travel decisions, event participation, and destination choice, particularly in relation to Calabar's major cultural festivals and heritage attractions. This integrated approach strengthened analytical depth and ensure the validity of data obtained and findings.

4.2 Data Sources

The major instrument for primary data collection was questionnaires administered to airport staff and passengers at Margaret Ekpo International Airport, Calabar, the main aviation gateway to the city's cultural and tourism assets. The instrument captured perceptions of air connectivity, airport infrastructure, service quality, travel convenience, and their influence on visitation to cultural events, heritage sites, and recreational destinations. Secondary data were obtained from airport traffic statistics, tourism development agency reports, government publications, and peer-reviewed literature on aviation–tourism linkages to support triangulation and contextual interpretation of results.

4.3 Population and Sampling Procedure

The study population comprised 200 respondents, including 80 airport personnel involved in aviation operations and service delivery, and 120 passengers travelling for tourism, cultural events, business, and leisure purposes. To ensure statistical reliability, the finite population sampling formula proposed by Saunders et al. (2007) was applied, resulting in a sample size of 132 respondents at a 95% confidence level. Simple random sampling was employed to minimise selection bias and ensure equal representation of

stakeholders directly engaged with aviation connectivity and tourism mobility within Calabar.

4.4 Method of Data Analysis and Hypothesis Testing

Descriptive statistical analysis was utilized to analyzed quantitative data and presented through frequency and percentages to summarise key aviation connectivity indicators influencing tourism arrivals, including flight frequency, direct route availability, airport facilities, and service efficiency. To test the study hypothesis on the contribution of aviation connectivity to visitor arrivals and tourism development, a Chi-square (χ^2) goodness-of-fit test was employed. This technique was appropriate given the categorical nature of the data and its suitability for assessing whether observed distributions of tourism responses significantly differed from expected values under the assumption of no aviation influence.

Expected frequencies for each aviation connectivity factor were obtained by dividing the total responses by the number of influence categories. Meanwhile, the Chi-square test was analyzed using:

$$\chi^2 = \sum (O - E)^2 / E$$

where O represented all the observed frequencies and E represented expected frequencies. The calculated χ^2 value was then compared with critical value at the 0.05 level of significance as well as the relevant degrees of freedom to determine whether the null hypothesis would be rejected or retained.

5. Results

Table 1: **Aviation Industry Influence on Visitor Arrivals in Calabar**

Factor	Frequency	Percentage
Increase in direct flights	16	13.91
Competitive pricing	6	5.21
Improved flight frequency	19	16.52
Expanded route network	10	8.70
Marketing and advertising	8	7.00
Partnerships with travel agencies	7	6.10
Loyalty programmes	5	4.34
Seasonal promotions	10	8.70
Airport infrastructure improvement	18	15.70
Event-specific flights	4	3.50
Connectivity to other transport modes	9	8.00

Others	3	3.00
Total	115	100

Table 2: **Tourist Attractions Visited in Calabar**

Attraction	Frequency	Percentage
Carnival Calabar	20	17.40
Tinapa Resort	16	13.91
Obudu Mountain Resort	17	14.80
Agbokim Waterfall	14	12.17
National Museum	10	8.70
Kwa Falls	8	7.00
Marina Resort	7	6.10
Mary Slessor's House	6	5.21
Chief Ekpo Basse House	5	4.34
Drill Rehabilitation Centre	5	4.34
Orange Resort	4	3.50
Others	3	3.00
Total	115	100

Table 3: **Factors Influencing Passenger Choice**

Factor	Frequency	Percentage
Safety records	25	21.8
Airline reputation	18	15.6
Customer service	17	14.8
Booking flexibility	11	10.0
Flight schedule	10	8.7
Baggage allowance	8	7.0
Flight duration	7	6.1
Ticket price	5	4.4
In-flight amenities	5	4.34
Frequent flyer programmes	4	3.47
On-time performance	3	2.60
Others	2	1.7
Total	115	100

5. Hypothesis Test Analysis: Aviation Connectivity and Cultural Tourism Access

To examine how aviation connectivity contributes to visitor arrivals at Calabar's cultural and tourism destinations, a Chi-square (χ^2) goodness-of-fit test was applied using the distribution of aviation-related factors presented in Table 1. The test assessed whether observed responses across connectivity, infrastructure, and service-related categories differed significantly from an equal distribution that would be expected if the aviation industry had no meaningful influence on tourism arrivals to Calabar's cultural attractions.

With a total of 115 responses distributed across 12 aviation connectivity indicators, the expected frequency for each category was 9.58. The computed Chi-square value was $\chi^2 = 33.28$ with 11 degrees of freedom. With 0.05 level of significance, observed critical Chi-square value was 19.68. Since the calculated value exceeded the critical threshold ($33.28 > 19.68$), the null hypothesis was rejected.

This outcome indicates a statistically significant relationship between aviation connectivity development and visitor arrivals to Calabar's tourism and cultural sites. Respondents did not perceive aviation influences as random; rather, specific connectivity-related variables exerted stronger effects on tourism mobility. Improved flight frequency (16.52%), expanded direct flights (13.91%), and airport infrastructure upgrades (15.70%) emerged as the most influential contributors to increased visitation. These findings demonstrate that efficient air access serves as the primary gateway through which tourists engage with Calabar's festivals, heritage attractions, and leisure resorts.

Lower-ranked factors such as event-specific flights (3.50%), loyalty programmes (4.34%), and airfare competitiveness (5.21%) suggest that promotional mechanisms play supportive roles, while structural connectivity remains the dominant driver of cultural tourism accessibility in Calabar. This pattern aligns with transport accessibility theory, which asserts that destinations with reliable, high-capacity, and well-integrated transport systems attract higher tourist volumes due to reduced spatial and temporal constraints.

Overall, the Chi-square analysis confirms that aviation connectivity and infrastructure development significantly shape tourism flows into Calabar. The dominance of access-related variables highlights the central role of aviation in

transforming Calabar's cultural assets into viable tourism products and sustaining visitor arrivals.

6. Discussion of findings

The findings provide strong empirical evidence that aviation connectivity plays a decisive role in facilitating tourism arrivals and cultural destination development in Calabar, Cross River State. The statistically significant Chi-square result ($\chi^2 = 33.28$, $df = 11$, $p < 0.05$) confirms that improvements in air transport systems are directly associated with increased visitor mobility rather than occurring by chance.

Enhanced flight frequency and modernised airport infrastructure emerged as the most influential accessibility factors, reinforcing prior research that identifies transport connectivity as a fundamental enabler of tourism growth (Anguera-Torrell & Langer, 2022; Novelli et al., 2021). The availability of direct routes and expanded flight networks reduces travel complexity, cost, and time, making Calabar's cultural attractions—such as Carnival Calabar, heritage museums, and resort destinations—more attractive to domestic and international tourists. These findings support Graham et al.'s (2019) argument that simplified air travel systems stimulate tourism demand by lowering spatial barriers to participation in cultural and leisure activities.

Passenger preferences for safety standards, airline reputation, service quality, and booking flexibility further demonstrate how aviation reliability influences destination choice. In the context of cultural tourism, where travel is often time-bound around festivals and events, dependable flight schedules and quality services are particularly critical. This aligns with behavioural tourism models suggesting that perceived risk and convenience strongly shape travel decisions (Tsui et al., 2021).

The strong concentration of visitors at flagship attractions such as Carnival Calabar, Tinapa Resort, and Obudu Mountain Resort illustrates aviation's role as a cultural tourism multiplier. Improved air access not only increases visitor numbers but also enhances the economic value of festivals, heritage assets, and eco-tourism sites by expanding their market reach. These outcomes are consistent with the broader literature linking transport infrastructure development to tourism-led regional economic transformation (Batrancea et al., 2022; Eja et al., 2020).

Collectively, the findings demonstrate that connectivity is the mechanism through which Calabar's cultural richness is converted into sustained tourism demand. Aviation development therefore functions not simply as a transport service but as a strategic tool for cultural tourism competitiveness and destination growth.

7. Conclusion

This study has empirically established that aviation connectivity significantly contributes to visitor arrivals and tourism development in Calabar, Cross River State, Nigeria. The hypothesis test confirmed a strong relationship between air transport development and tourism flows ($\chi^2 = 33.28$, $df = 11$, $p < 0.05$), resulting to the acceptance of the alternate hypothesis, while the null was discarded. Improved flight frequency, availability of direct routes, expanded networks, and enhanced airport infrastructure emerged as the primary drivers of accessibility to Calabar's cultural and leisure attractions.

The findings further demonstrate that aviation service reliability, reflected in safety standards, service quality, and operational efficiency, plays a critical role in shaping tourist travel behaviour. Overall, the study confirms that the success of Calabar's cultural tourism sector is fundamentally anchored in effective air connectivity. Aviation development therefore represents a strategic lever for enhancing destination competitiveness, cultural visibility, and sustainable regional economic growth.

8. Recommendations

In line with the study's emphasis on connectivity-driven cultural tourism growth, the following recommendations are proposed:

- i. **Sustained Investment in Airport Infrastructure:** Continuous modernisation of terminal facilities, runways, and passenger services should be prioritised to enhance accessibility, safety, and travel experience for cultural tourists.
- ii. **Expansion of Direct Routes and Flight Frequency:** Incentives should be provided to airlines to establish additional direct connections and increase service frequency, particularly from major Nigerian cities and regional hubs, to strengthen access to Calabar's cultural attractions.
- iii. **Aviation-Tourism Marketing Partnerships:** Strategic collaborations between airlines, tourism boards, and hospitality providers should promote Calabar's cultural festivals, heritage sites, and eco-tourism offerings through bundled travel packages and joint campaigns.

iv. **Improvement of Service Quality and Reliability:** Regular training and operational upgrades should be implemented to enhance punctuality, customer service, and safety compliance, ensuring tourist confidence and repeat visitation.

v. **Event-Focused Connectivity Planning:** Special flight schedules should be introduced during peak tourism seasons and major cultural events such as Carnival Calabar to accommodate increased visitor demand.

vi. **Integrated Mobility Systems:** Policymakers should develop coordinated transport frameworks linking air travel with road and local transit networks to improve internal destination accessibility and overall visitor experience.

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