

Geographical analysis of airport choice factors among domestic air travelers in Nigeria

¹Aisuebeogun, R.O., ²Aiyegbajeje, F.O., ³Ege, E.E., ⁴Oni, S.I

¹⁻⁴Department of Geography,

Faculty of Social Sciences,

University of Lagos,

Nigeria.

Corresponding email: faiyegbajeje@unilag.edu.ng

Abstract

An effective airline operation is largely a function of the quality of service provided by the host airports. There are numerous studies outlining different factors on the determinants of airline choice or preference, but there is very limited information in this regard on airport's choice among domestic air travelers in Nigeria. The rationale for this study is two-fold. Firstly, the study attempts to establish what influences the choice of airport among domestic air travelers. The second rationale is to significantly contribute to the enrichment of the existing literature on airport choice among air travelers. This paper, therefore attempts to identify the determining factors for choice of airport, particularly where airport is found in towns that are separated by few distance. Primary data was adopted for this study using a structured questionnaire focusing on the determinant factors of airport's choice. A total of 493 domestic air travelers were sampled using the systematic random sampling method. The result of the hypothesis revealed that route availability and airfare were significant factors that influenced the choice of airports among passengers. Furthermore, the stepwise multiple regression analysis results showed that the availability of aircraft for passenger destinations was a strong influence at 91.1% ($F = 28875.881$, $p < 0.05$). The study, however, identified the factor that determines choice of airport. Also, apart from enriching the literature, this finding is expected to assist policy makers to formulate policies that could further entrench equity in the provision of air service to the people in the nearest future.

Keywords: Airport choice, air travel, airport service quality, airport operators, availability of airlines

Department of Geography, Faculty of Social Sciences, University of Lagos, Nigeria.

Corresponding email: faiyegbajeje@unilag.edu.ng

1. Introduction

The transfer of passengers and cargo by airplanes and helicopters is known as air transportation. It is one of the most important industries in the world, and it is critical to economic growth, particularly in emerging countries. Air transport has been able to contribute immensely to modern society due to its advancement in technology and service improvements. Air transportation services are offered to both international and domestic passengers, and their demand has been on the increase by 45% in the last decades. Besides passenger increase, the increase in the movement of cargo is more rapid by over 80% over the years. According to ATAG, (2020), the air transport industry generated about 29 million jobs directly and indirectly. The Air transport service quality delivery seeks to enhance the fortunes of air transport entrepreneurs at the same time promote the satisfaction of air travelers. The need for quality service delivery in air transportation cannot be over-emphasized. Quality service delivery is central to passengers' impression of an organization's service efficiencies or otherwise (Bitner and Hubbert, 1994). In this context, the perception of an air traveler is defined by the services offered by both the airline and airport operators. Some of these services include security, convenience, and on-time departure and arrival. Air passengers usually consider the time spent in the terminal building with baggage facilities provided to facilitate a seamless checking and screening of baggage, seamless facilitation through security, efficient boarding systems, and eradicating flight delay. All of these either add to or take away from a passenger's overall perception of airport service quality. Currently, Nigeria has 32 airports serving different locations within Nigeria (FAAN, 2023). The advancement in technologies has tremendously contributed to the development of the air transport industry in the last decades in Nigeria. This however has also greatly influenced the travel choices and habits of people. Bellizzi, Eboli, and Mazzulla (2020) submitted that airports and airline services evaluation is very critical to improved service delivery which in turn offers passengers better airline and airport' choices. But they noted that there are some difficulties in evaluating service quality in the air transport sector as compared to other public transport modes. According to Cronin, Brady, & Hult, (2000); Anderson et al., (1994); Cronin & Taylor, 1992), improved service quality delivery is one of the ways to achieve customer satisfaction that amounts to increased patronage. Service quality and customer satisfaction have become important issues in the sustenance of any business endeavour. The study by Koech & Macario (2023) founds that improved service quality and airline brand awareness positively determine passengers' choice of airline and by extension, the airport they

use. Gardiner (2006) concluded that cargo airlines are influenced by the demand for a service at a particular airport whenever a choice of airport is to be made by a cargo airline. Another study by Tsaor, Chang, and Yen (2002) argued that the most significant factors determining airline service quality are staff word of mouth, onboard comfort, and cleanliness, safety, the responsiveness of the flight attendant, onboard amusement, and lengthy travel service. Against a generally perceived notion that airline fare could be a major determinant of airline choice, in the work of Smithies (1973), leisure travel is less responsive to airfare, but airlines service quality variables such as safety, reliability, comfort, and conduct of crew members are crucial to decision making on choice of airline. A study by Nwaogbe, Abraham, Balogun, Ikeogu, and Omoke (2017) on airline service quality conducted at Kano Airport revealed that customers are satisfied with all the services offered by Arik, Aero, and Azman Airlines. Akpoyomare, Kunle-Adeosun, and Ganiyu (2016) investigated the relationship between domestic airline service quality and passenger loyalty in MMA and showed that a positive relationship exists between the service quality dimension of customer satisfaction and customer loyalty. Air transport is clearly superior to other types of transport, especially in terms of speed and time savings. However, air transportation comes with high transportation costs. In an effort to satisfy its customers, airlines have made several attempts, including differentiated services through the use of computerized reservation systems designed to generate customer loyalty in distribution channels. (Lee and Kim, 2003). Moreover, over the past two decades, service providers have become more interested in customer satisfaction ratings, which have played an important role in marketing research (Lee and Kim, 2003). Satisfied customers are more likely to return to customers who have helped them, and dissatisfied customers are more likely to go elsewhere next time. Customers develop their opinion based on their previous experiences on service provision, and advice from friends and associates' previous experiences as well (Kotler, 2000).

2. Research purpose and Rationale

The post-independence era in Nigeria has witnessed a substantial increase in the number of new passenger airports and more recently also, cargo airport construction. Recently, new airports have been built by various state governments, for example, Asaba International Airport in Asaba, Delta State; Anambra International Cargo/Passenger Airport in Umuleri, Anambra State; Ekiti Cargo Airport in Ado-Ekiti, Ekiti state; Gateway Agro Cargo Airport in Ikenne, Ogun State; Ebonyi State International Airport in Abakaliki, Ebonyi State. These airports in addition to the existing 32

airports in Nigeria, have made air travel more accessible to passengers located in many parts of Nigeria. With so many airports vying for the patronage of many domestic air travelers, it is necessary to investigate the main factors that influence their preference for one airport over another because these airports have varied advantages over the other. The main focus of this article is to identify the factors that influence the airport choice of Nigerian domestic air travelers. The rationale for this study is two-fold.

The first reason is to determine whether the quality of service actually influences airport choice for domestic Nigerian air travelers. This is because most regions in Nigeria are with many airports with a few distance away from one another and are therefore a significant presence of multiple airports in the regions of the country. For instance, we have airports in Benin and Asaba which is just 130.2km apart. Also, there is an airport in Owerri which is about 102.8km from Asaba, and another airport in Port-Harcourt which is about 97.1KM distance from the airport in Owerri. Also, the airport in Lagos is just about 120 km away from another one in Ibadan. In a similar vein, Minna airport is not far from Abuja; The airport in Calabar is just 97.2 KM away from the airport in Uyo and so on. With the closeness of these airports, it is expected that there will be some sort of competition among them in terms of attracting passengers based on the comparative advantage in terms of the quality of services the airports can offer to their users hence the first rationale of this study to establish if service qualities can actually influence the choice of airport.

Secondly, this study attempts to focus on factors that determine the choice of airport simply because to date, available research on the subject matter is still very few, and none of those studies have attempted to investigate the reasons behind passengers' choice of airports. However, there are few researches on the cargo airline's choice of airport. For instance, a study by Gardiner (2006) on cargo airline's choice of airport listed some airport characteristics that are attractive to cargo airlines' patronage, these include the availability of freight-forwarder, long term reputation for cargo services, and a high-capacity operational cargo terminal among others. Also, Stefano and Roberta (2012) found some approaches such as the possible approach to explicitly model the choice among the offered services, by listing the characteristics of available alternatives and stating the time at which the cargo plane will stay at its destination. Polak, Adler & Hess (2007) drew their conclusion from a few studies that agreed that airport access time has a strong influence on

airport choice. This study, therefore, attempts to contribute significantly to the work on domestic air travelers' choice of

airport. The fact that this research seeks to fill the identified gap and adds to the literature also provides an important rationale for investigating the factors of airport choice among domestic air travelers, which may also help in identifying challenges facing these airports.

3. The aim and objective of the study

The purpose of this study is to identify the factors that influence airport preferences and choices by domestic air travelers. The paper feature specific factor that domestic air travelers contemplate when deciding on which airport to use for their journey. The specific objectives are to identify those factors influencing domestic air travelers in the choice of airport. Furthermore, the paper hypothesized that traffic congestion in the airport host city, delays, availability of aircraft to passenger's destination, proximity to the passenger, airfare, security, and airport user charges will significantly influence domestic air travelers' choice of airport.

4. Materials and Methods

4.1 Study area

The study area for this study is the Nnamdi Azikiwe International Airport in Abuja (see Figure 1). This airport was chosen because it receives passengers from all over Nigeria. The airport is an international airport serving Abuja in the Federal Capital Territory of Nigeria and was named after the first president of Nigeria, Dr. Nnamdi Azikiwe was nominated. The airport is located approximately 20 km (12 miles) west of Abuja and has a single runway for both international and domestic operation for take-off and landing activities. The Abuja airport is an airport that also enjoys international facilities that meet global standards. The airport has category 2 airfield lighting with the potential for upgrade. The master plan land use of the airport includes locations for aviation jet fuel tank farms, approved aircraft maintenance hangers, and in-flight catering facilities. For the purpose of primary data collection, the airport served as a point of tracking passengers arriving and departing selected airports within Nigeria.

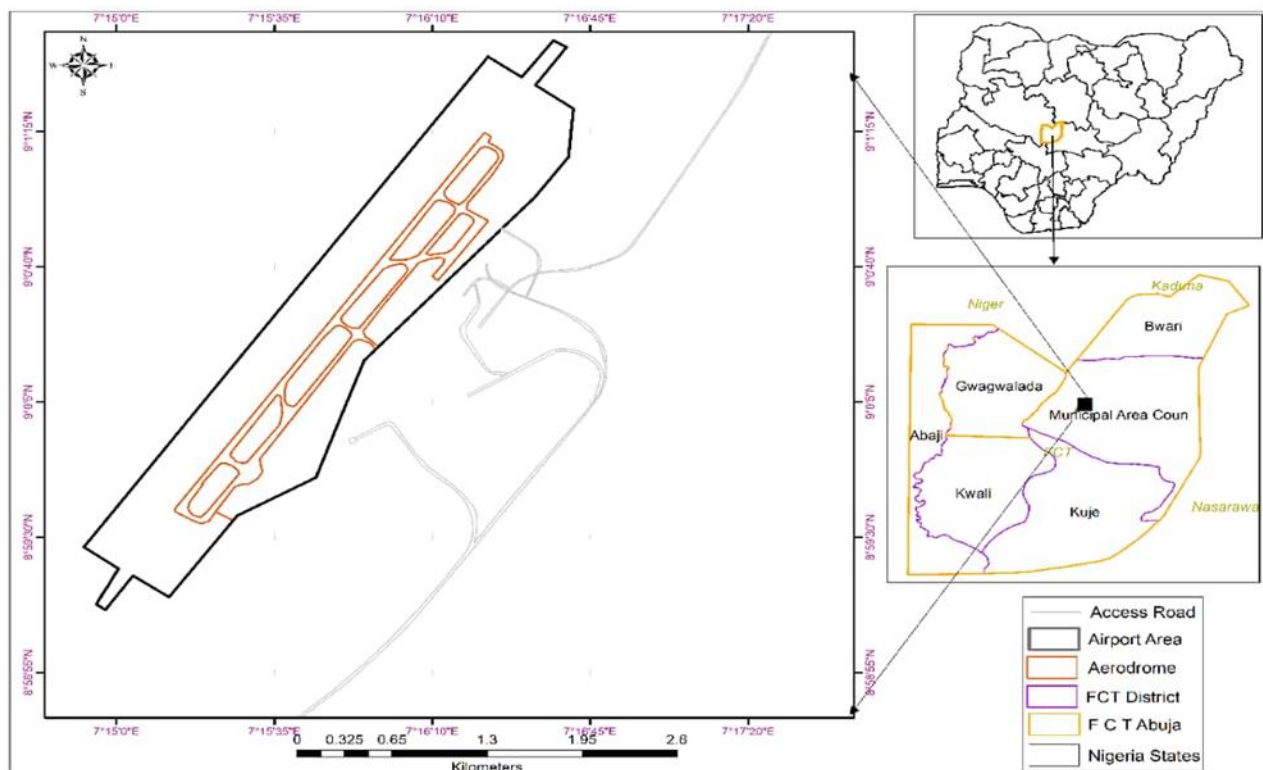


Fig. 1: Map showing Nnamdi Azikiwe International Airport, Abuja, Nigeria.

Source: Author's Analysis

4.2 Methods

Both primary and secondary data were used in this study. Primary data were collected in an open-ended structured questionnaire focusing on the demographic profile of domestic air travelers and the factors that determine their choice of airport. The idea of using an open-ended structured questionnaire was to allow for the identification of the exact situation from the respondents. The study targeted respondents who are eighteen years old and above. The study sampled 600 domestic air travelers, out of which 493 respondents completed and returned their questionnaire forms which resulted to 82.1% of respondents participated in the sampling exercise. The domestic air travelers used for this study were drawn from those departing and arriving at Abuja airports from Port-Harcourt, Owerri, Uyo, Ibadan, Kaduna, Gombe, Jos, and Calabar. The system adopted the simple random sampling method because of the rowdiness that is usually noticeable at both lounges. The Yamane sampling formula was used to determine the sample size. Tables and bar charts were used to present the demographic profiles of respondents and factors that explain the passengers' choice of airport respectively. The Statistical Package for Social Sciences (SPSS) version 20 was

used to compile and interpret information collected through structured questionnaire forms. The stepwise multiple regression analysis was used to analyse the hypothesis which states that congestion, delay, route availability, proximity to the passenger, airfare, security, and airport user charges will significantly influence domestic air travelers' choice of airport. The stepwise multiple regression analysis was conducted with a significance level of ($p < 0.5$).

5. Results

This section discusses the factors that domestic air travelers use when choosing an airport using descriptive data and the discussion of the result of the hypothesis and findings.

5.1 Domestic profile of respondents

This section presents the demographic profiles of respondents. These include gender, age, educational level, income, occupation, religion marital status, etc. These variables are very important in order to properly shape the views and opinions of respondents on issues. Table 1 shows that 300 (60.9%) of the respondents were male while 193 (39.1%) were female. 115 (23.3%) were 20-29 years of age, 159 (32.3%) were 30-39 years of age, 123 (24.9%) were 40-49 years of age, 63 (12.8%) were 50-59 years of age, 18 (3.7%) were 60-69 years of age while 15 (3.0%) were above 70 years of age. 176 (35.7%) were single, 276 (56.0%) were married, 20 (4.1%) were separated, 11 (2.2%) were divorced while 10 (2.0%) were divorcee. 45 (9.1%) had OND, 32 (6.5%) had NCE, 111 (22.5%) had HND, 242 (49.1%) acquired a university degree while 63 (12.8%) possess a postgraduate degree. 120 (24.3%) were self-employed, 298 (60.4%) had formal employment, 12 (2.4%) were unemployed, 35 (7.1%) were retired while 28 (5.7%) were students. 9(1.8%) were artisans, 87 (17.6%) were into trading, 74 (15.0%) were in civil service, 257 (52.1%) were professional, 12 (2.4%) were technicians while 54 (11.0%) were casual labour. The monthly income of respondents ranges from within 50,000 and above. A total of 77 (15.6%) received below ₦100,000 while 149 (30.2%) received ₦101,000 - ₦200,000. Also, 137 (27.8%) received ₦201,000 - ₦300,000. Those within the category of ₦301,000 - ₦400,000 were 72 (14.6%) whereas 58 (11.8%) earns above ₦400,000 monthly.

Table 2: Demographic profile of domestic passengers

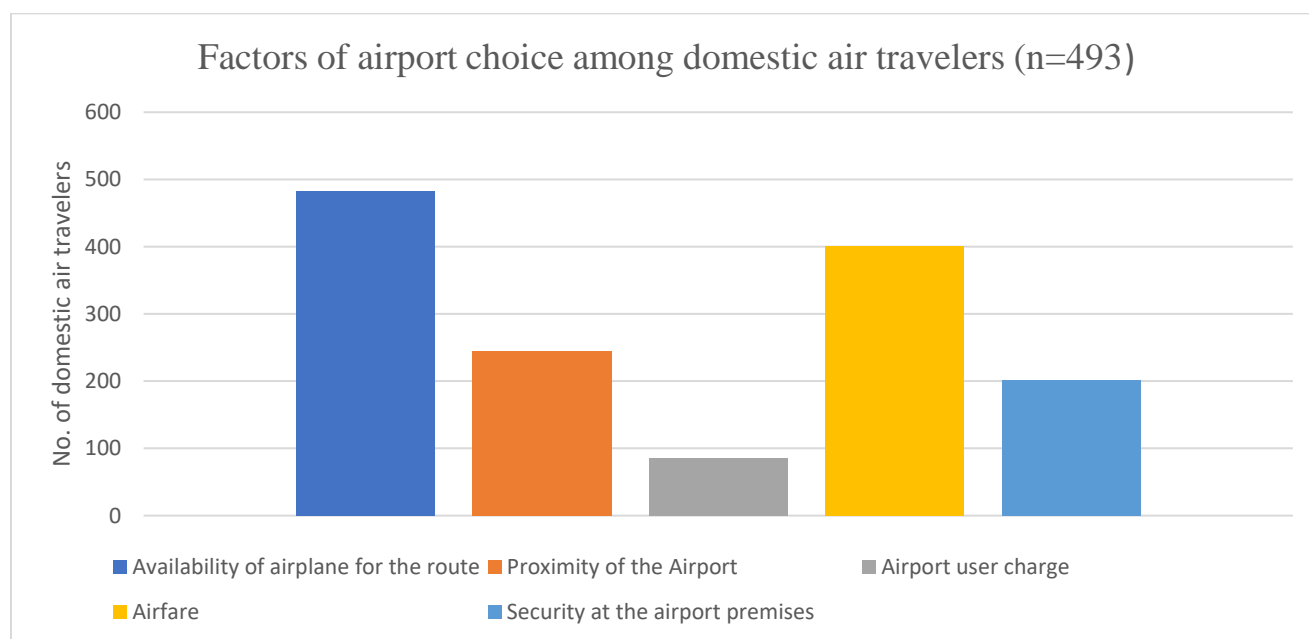
n-493

	Item	Frequency	Percent
Sex	Male	300	60.9
	Female	193	39.1
	Total	493	100.0
Age	20-29 Years	115	23.3
	30-39 Years	159	32.3
	40-49 Years	123	24.9
	50-59 Years	63	12.8
	60-69 Years	18	3.7
	Above 70 Years	15	3.0
	Total	493	100.0
Marital status	Single	176	35.7
	Married	276	56.0
	Separated	20	4.1
	Divorced	11	2.2
	Divorcee	10	2.0
	Total	493	100.0
Educational Level	OND	45	9.1
	NCE	32	6.5
	HND	111	22.5
	B.Sc.	242	49.1
	Post Graduate Degree	63	12.8
	Total	493	100.0
Employment status	Self-Employed	120	24.3
	Formal Employment	298	60.4
	Unemployed	12	2.4
	Retired	35	7.1
	Student	28	5.7
	Total	493	100.0
Income level	Below ₦30,000	77	15.6
	₦31,000 - ₦100,000	149	30.2
	₦101,000 - ₦170,000	137	27.8
	₦171,000 - ₦240,000	72	14.6
	₦241,000 and above	58	11.8
	Total	493	100.0

Source: Author's Analysis

5.2 Factors of airport choice among domestic travelers

This section examines the factors influencing domestic air travelers' choice of airport. As shown in Figure 2, some of the identified factors are heavy traffic congestion in the airport host city, delays, availability of airplanes to passenger's destinations, proximity to passengers, airfare, security, and airport user charges. The survey confirmed that 483 (97.9%) of domestic air travelers confirmed that the availability of airplanes to passenger destinations influenced their choice of airport. The airfare being charged by the airlines was also acknowledged by 401 (81.33%) of the domestic air travelers as one of the factors influencing their decision on airport's choice. A total of 245 (49.70%) of the respondents also agreed that the proximity to their location is of concern to them as well in choosing any airport for their domestic journey. Furthermore, security within the premises of the airport was said to be more important to 202 (40.97%) of the respondents. while 225 (45.63%) agreed that airport user charges influence their decision on airport's choice.



Source: Authors' analysis

5.3 Result of the hypothesis on factors of airport choice

The result in Table 3 for the hypothesis which states that traffic congestion in airport host city, flight delays, route availability, proximity to passengers, airfare, security, and airport user charges will significantly influence domestic air travelers' choice of airport was tested using step-wise multiple regression. Starting with the five predicting variables, Table 3 shows that aircraft

availability at passenger destinations was identified as the primary predictor that best explained airport choice for domestic air travelers. Thus, aircraft availability at passenger destinations influenced 91.1% of airport choices. Regression results also showed that aircraft availability to passenger destinations significantly influenced airport choice ($F = 28875.881$, $p < 0.05$). Sign of the regression coefficient showed that the availability of aircraft for passenger's destination and airfare charged by the airline were the factors that are positively related to choosing an airport while other variables such as traffic congestion in the airport host city, delay, proximity to passenger, security, and airport user charges were not significantly related to airport's choice by domestic air travelers. The negative sign implies that airfare is not a strong factor that influences domestic air travelers in choosing an airport to fly from or arrive at. However, considering the standardized regression coefficients of the predictors, aircraft availability to passenger destinations has the most weight in the model, followed by fares charged by airlines at airports. The t-value results between the two sets of predictor variables showed that the availability of aircraft for passenger destinations exerted a significant effect on airport's choice. Based on the analysis, it could be inferred that the availability of aircraft for passenger destinations is the foremost factor that contributes to respondents' airport's choices. This is evident in the strong weight of the factor in the model because the availability of aircraft for passenger's destination is very important in contributing to travelers' decision of either choosing the airport or not because for any airport to be used, the passenger must first establish the availability of airlines operating the intended route. The equation for estimating passengers' airport choice is of the form:

$$Y = 0.018 + 0.911 \text{ AAR} + 0.081 \text{ ACA} \dots \dots \text{ (Eqn I)}$$

Where: Y = Factors of airport choice by domestic air travelers

AAR = Availability of airplane for passenger's destination

ACA = Airfare charged by airlines at the airport

Table 3: Factors of airport choice by domestic air travelers

n=493

Predictor variables	b coef.	Standard Error of b	Multiple R	Level of explanation	Increase in the level of explanation	t-value for variables
Availability of aircraft for passenger destination	0.962	0.015	0.861	91.1	91.1	44.944*
Airfare charged by airlines at the airport	0.081	0.023	0.128	1.8	75.3	3.434*
Intercept: 0.018; F = 28875.881*						

*Significant at 0.01 significance level; *Significant at 0.05 significance level; N=493

Source: Author's Analysis

5.4 Discussion of findings

The available literature on the choice of airport is not many, and the few ones available are not recent. Previous studies even though not recent, have dealt with varied issues as captured in the literature see [Gardiner (2006); Polak et al., (2007); Stefano and Roberta (2012)]. Apart from this reason, another rationale is to establish if service qualities can actually influence the airport's choice among air travelers within Nigeria. The findings of this study indicated that the availability of aircraft for passenger destinations was found to be the main predictor variable that best explains airport's choice. This finding further widens the discourse and postulations by scholars on service quality in the aviation sector particularly on airports and airlines. For example, numerous studies (Garaus & Hudakova, 2022; Munoz & Laniado, 2021; Sidiq et al., 2021) have established that airline service qualities have great influence on passengers' decision of airline choice. To a greater extent, these findings (Garaus & Hudakova, 2022; Munoz & Laniado, 2021; Sidiq et al., 2021) further buttress the position of this study that airfare charged by airlines operating at the airports also influenced airport choice factors. Aside from this, the study also assessed those factors (traffic congestion in the airport host city, flight delays, route availability, proximity to passengers, airfare, security, and airport user charges) and found that the availability of aircraft for passenger's destination was highly significant in influencing the choice of an airport simply because passengers

can only use airport with airlines operating destination of their interest. Thus, other factors were not found to be significant in influencing the decision of air travelers in the choice of airport.

6. Conclusion

This study attempts to establish the factors that could influence airport's choice among air travelers within Nigeria. Results of the study indicated that the availability of aircraft for passenger destinations and airfare were found to be the main factors influencing passengers' airport choices. This finding further enriches the existing literature in airport studies as found in Gardiner (2006); Polak et al, (2007); Stefano and Roberta (2012), and in airline studies such as Ukpere et al. (2012); Koech & Macario, (2023), Bauner & Liu. (2022), Munoz & Laniado (2021), Sidiq et al (2021) where they identified several factors that could influence airline choice. Based on the findings that the availability of aircraft for passenger destinations is a major factor influencing the decision of domestic air travelers on the choice of airport, it is advisable that policy makers should find a way to make sure that most airports enjoy patronage by making incentives available to airlines for them to extend their services to other parts of the country. This will also make some airports to be functional and save them from becoming moribund.

References

- Akpoymare, O.B., Kunle-Adeosun, L.P., and Ganiyu, R.A. (2016). Airline service quality dimensions and customer loyalty: Empirical evidence from air passengers in Lagos State. *Czech Journal of Tourism*, 5(2), 155-171
- Anderson, E. W., Fornell, C., & Lehmann, D. R. (1994). Customer satisfaction, market share, and profitability: Findings from Sweden. *Journal of marketing*, 58(3), 53-66.
- Air Transport Action Group (2020). Facts and Figures. www.atag.org
- Bitner, M. J., & Hubbert, A. R. (1994). Encounter satisfaction versus overall service satisfaction versus quality In R. T. Rust & R. L. Oliver (Eds.), *Services quality: new directions in theory and practice* (pp. 72-92). Thousand Oaks, CA: Sage Publications
- Bellizzi, M.G., Eboli, L., Mazzulla, G. (2020). Air Transport Service Quality Factors: A Systematic Literature Review. *Transportation Research Procedia*. Vol. 45. Pp. 218-225
- Cronin Jr., J. J., Brady, M. K., & Hult, G. T. M. (2000). Assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environments. *Journal of retailing*, 76(2), 193-218
- Cronin Jr, J. J., & Taylor, S. A. (1992). Measuring service quality: a reexamination and extension. *Journal of marketing*, 56(3), 55-68.
- Federal Airports Authority of Nigeria (FAAN) (2023) FAAN Operations' Report. Statistics Unit, Operations Department, MMA
- Garaus, M., & Hudakova, M. (2022). The impact of COVID-19 pandemic on tourists' air travel interventions: The role of perceived health risk and trust in the airline. *Journal of Air Transport Management*. Vol. 103: Article 102249

- Gardiner, J. (2006) An international study of the airport choice factors for non-integrated cargo airlines. Being a PhD thesis submitted to Loughborough University
- Kau, A. and Wan-Yiun Loh, E. (2006), "The effects of service recovery on consumer satisfaction: a comparison between complainants and non-complainants", *Journal of Services Marketing*, Vol. 20 No. 2, pp. 101-111. <https://doi.org/10.1108/08876040610657039>
- Koeh, A.K., & Macario, R. (2023). Airline brand awareness and perceived quality effect on the attitudes towards frequent-flyer programs and airline brand choice – Moderating effect of frequent-flyer programs. *Journal of Air Transport management*. Vol 107, 102342 <https://doi.org/10.1016/j.jairtraman.2022.102342>.
- Kotler, P., & Keller, K. L. (2009). *Manajemen pemasaran*.
- Lee, S. C., and Kim, B. J. (2003). Development of Passenger Service Quality Index for Inch on International Airport (ILA) http://www.ltrc.lsu.edu/TRB_82/TRB2003-000491.pdf
- Lima, N. & Venables, A.J. (2001) "Infrastructure, Geographical Disadvantage, Transport Costs, and Trade". *The World Bank Economic Review*. Vol. 15, No.3: pp 451-479
- Munoz, C. & Laniado, H. (2021). Airline choice model for international round-trip flights: The role of travelers' satisfaction and personality traits. *Research in Transportation Economics*. Vol. 90: 101-121
- Nwaogbe, O.R., Abraham, P., Balogun, A.O., Ikeogu, C.C., and Omoke, V. (2017). Assessment of Airline Service Quality in a category One Nation: Focus on Mallam Aminu Kano International Airport. *International Journal of Aviation, Aeronautics, and Aerospace*. 4(1)
- Polak, S., Adler, T.J., and Hess, J.W. (2007) Modelling airport and airline choice behaviour with the use of stated preference survey data. *Transportation Research Part E Logistics and Transportation Review* 43(3):221-233
- Sidiq, B., Stephens, M & Ukpere, W. (2021). Significant variables currently influencing air travellers' preference for domestic airlines in Nigeria. *Tourism and traveling*. Vol. 3:16-24.
- Smithes, R.M. (1973). The changing demand for air transport: The Horth Atlantic case. *J. Transp.Econ. Pol.*, 7:231-249
- Stefano, de Luca and Roberta, Di Pace (2012) Modelling passenger departure airport choice: Implicit vs. Explicit approaches. *Procedia-Social and Behavioural Sciences*. 54: 875-885
- Tsaur, S., Chang, T. and Yen, C. (2002). 'The evaluation of airline service quality by fuzzy MCDM', *Tourism Management*, 23(2): 107-115
- Ukpere, W.I., Stephens, M.S., Ikeogu, C.C., Ibe, C.C. and Akpan, E.O.P. (2012). Determinants of airline choice-making: The Nigerian perspective, *African Journal of Business Management*. 6(15), Pp. 5442-5455