



Factors influencing cargo agents choice of operations in Abuja airport, Nigeria



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ABSTRACT

The ability of an airport to attract traffic can vary within a multi-airport model of operation and highly competitive environment. This study is an effort to examine the factors that cargo agents rank as most important in their choice of Abuja airport cargo transshipment operations. A questionnaire survey was conducted on a random sample of members of the Association of Nigeria Customs Licensed Agents (ANCLA) at Abuja airport for primary data collection. The study employed a combination of Factor Analysis (FA) and Multiple Linear Regression (MLR) to analyse the data collected. The results of the factor loadings indicate airport capacity, airport charges and customs efficiency as the most significant factors that agents consider in their choice of handling cargo through Abuja airport. The three variables were found to have a high correlation relationship ($R = 0.802$) with the dependent variable of airport choice after subjecting it to regression analysis. This serves as information to airport managers for the airport planning of capacity in cargo operations within multi-airport country such as Nigeria.

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1. Introduction

The role airports play in the flow and development of cargo traffic from location to location cannot be overemphasised. Cargo agents, shippers and airlines alike are so conscious of this that efforts are put in place individually to ensure business is transacted with utmost efficiency at airports. Air cargo transportation is designed as a system to provide fast and efficient delivery of goods. Air transport as the fastest mode of transport is used to safely carry high-valued and time-critical goods. It is necessary to note that air cargo has its own rules, and need to be studied separately from passenger transport as airports need to develop separate strategies concerning air cargo to make them more competitive in the market (Kupfer et al., 2012). Developments in the overall air transport operations lay importance to cargo operations at airports alongside passenger handling by the airlines. To show the importance of cargo operations by passenger airlines, Kupfer et al. (2012) stated that about half of air cargo is still transported in the belly space of passenger aircraft or in combi-aircraft and is therefore partly influenced by passenger transport, and that there are very important differences between air freight transported in all-cargo aircraft and in passenger aircraft. The view of Woodrow (2012) emphasised

the growing percentage of cargo that will have to be transported in passenger bellies of most modern Airbus and Boeing twin-engine aircrafts; while smaller freighter operators are likely to increasingly focus on optimising their belly space for cargo operations. The study of Merkert and Ploix (2014) further established the influence of passenger terminal reorganisation on belly-hold freight operations at airports.

Airports as terminal points in the transport system compete for traffic in multi-airport country such as Nigeria. Ohashi et al. (2005) detailed out airport choice factors for cargo transshipment in the North/East Asia region. The choice arises basically as a result of competition among airports. This possibly will make cargo agents prefer routing operations in one airport at the expense of the other even when the other airport is not close to the final destination of the cargo. Nevertheless, the ability of an airport to attract cargo routing by agents where there are alternative airports to satisfy their cargo delivery purpose needs to be studied extensively. The competition for cargo traffic handling and its connection to the airport choice of cargo agents operations is the focus of this study. The study of Gardiner (2006) found the location and presence of freight forwarders (cargo agents) as part of airport characteristics identified to be attracting cargo airlines to an airport. This underscores the importance of cargo agents operations at any airport. To this end, this study is an effort to find out why cargo agents prefer to operate at an airport at the expense of the other with

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competitive traffic demand.

The paper is structured such that Section 1 handles the introduction; Section 2 is a focus on literature, while Section 3 described the study area; Section 4 gives the details of data and methods adopted for the study while Section 5 deals with the presentation of results and discussion; and Section 6 presents the policy recommendation and conclusion.

2. Literature

A search for literature on Nigeria air cargo traffic revealed that much attention had not been given to this aspect of air transportation. While the analysis of the flow of passenger, aircraft movement (Afolayan et al., 2012a,b), airline services (Adeniyi and Olufemi 2011), airline choice of passengers (Ukpere et al., 2012); issues of policy and bilateral agreements (Danjuma et al., 2014); air transport demand (Aderamo, 2010); and airport development (Aun, 2013) had received much attention by scholars. The air cargo sub sector of the Nigeria aviation industry seems to have been neglected. This can be translated that researchers in the Nigerian aviation sector have been overlooking the issues relating to the choice of airport in cargo flow. This is in line with the statement of Kupfer et al. (2012) in their study on airport choice of freighter operations that airport competition is a topic which recently gained interest in air transport research, and that research about airport competition for air cargo is still scarce. Meanwhile, the issues regarding airport choice of cargo agents operations play important roles in the ability of an airport to develop in a competitive aviation market. In such market, agents tend to route cargoes through a particular airport at the expense of others, even when the other airport(s) is closer to the final destination of the cargo. This study, therefore, examines the factors informing the choice of cargo agents for operating in Abuja airport with a view to examining the explanatory factors that cargo agents considered most important in their choice of operations at the airport.

3. Study area

There are four major international airports in Nigeria that are strategically located to serve as regional airport hubs for traffic. These airports are located in Lagos and Port Harcourt serving as hubs for traffic in the southern part of Nigeria, and Abuja and Kano serving as hubs for traffic in the northern part. There also exist other airports located around the major international airports (See Fig. 1). This indicates the multi airports system of operation in Nigeria. These airports have the capacity to compete among themselves in the handling of cargo traffic. The choice of air cargo operations at any of the airports is basically on their consideration of some choice factors which might lead to concentration of operations at one airport at the expense of the other.

It is suggestive that the major international airports with customs facilities will compete for traffic destined for various locations within their geographical zones. To this end, while Abuja and Kano airports compete in the North, Lagos and Port Harcourt airports may compete in the South. Cargoes are handled at airports by the Nigerian Aviation Handling Company (NAHCo Aviance), which serves as a major cargo handler in Nigeria with offices located in all the major international airports. The company handles more than 70 per cent of cargo carrying airlines operating in Nigeria (www.nahcoaviance.com). The remaining 30 per cent are handled by Skypower Aviation Handling Company Limited (SAHCOL). NAHCo handles all airlines operating dedicated freighter and cargo belly operations in the country. The total volume of cargo handled by NAHCo at Abuja and Kano airports from 2006 to 2015 is presented in Fig. 2.

Fig. 2 is presented to show the importance of cargo traffic at the airports as well as the tendency for competition between Abuja and Kano airports in the handling of cargo traffic over the years. For a period of ten (10) years, Abuja handled a total of 36,502,523 tons of cargo which is closely competed with 34,943,472 tons handled at the Kano airport over the same period. This indicates the airports handled an average of 3.6million and 3.4million tons of cargo on annual basis respectively.

Abuja airport been the airport of the study was named Nnamdi Azikwe International Airport after the first Governor General and president of Nigeria. The airport serves both international and domestic traffic. The airport is located some 40 km from Abuja City Centre on the main road from Abuja City to Gwagwalada.

4. Data and methods

The study relied on primary sources of data collection involving the survey of cargo agents who are registered members of the Association of Nigerian Licensed Custom Agents (ANLCA), Abuja chapter through questionnaire administration. The study took a census of the agents where 112 of the potential 130 representing 86% responded to questions to form the sample size for the study. The survey took place in May 2013 successfully. The sample size of the study is said to be adequate according to the suggestion of Hair et al. (1995) referred to in Williams et al. (2010) that sample sizes should be 100 or greater. The study employed simple random sampling technique to collect data with the support of the branch Chairman and two research assistants. The sampling technique is to ensure that agents were surveyed with equal chance of probability. Information in the questionnaire was presented such that cargo agents will have to indicate the weight they attached to a multiple of factors that is capable of influencing their choice of operating at Abuja airport.

The instrument was designed on a multiple-item measurement scale fashioned on the 5-point Likert scale to allow for a wide measurement of the degree of the agents' consideration of the each factor presented in the questionnaire. The choice factors measured are ten (10), and are extracted and modified from the literature on airport choice factors (Gardiner et al., 2005; Ohashi et al., 2005; Ozoka, 2009; Kupfer et al., 2012; Ubogu, 2013). These items include airport capacity, cargo security, and airline flight route, cargo handling equipment, airport infrastructure, airport-airport interconnection, airport service quality, customs efficiency, airport charges and airline flight frequency. Some variables such as accessibility, location and access time were not considered because they seem to be more significant in the choice of airports by passengers. The variables were tabulated for the agents to rank in order of significance from 1–Not Significant to 5–Highly Significant as each influences the agents' choice of operating at Abuja airport.

Factor and multiple linear regression analyses were employed as techniques for data analysis. This is in the light of the need to reduce the variables to a few orthogonal ones that could be used to explain the major factors that determine cargo agents' preference and usage of Abuja airport. At the same time, further measurement of the extent of the influence of the few variables on airport choice is seen to be essential. The factor analysis is to highlight the three most significant factors of airport choice for cargo agent operations, while the multiple linear regression analysis was chosen with a single purpose of evaluating the extent of the relationship between the three most significant factors (identified by factor analysis) serving as independent variables and airport choice (Abuja airport) serving as the dependent variable. The main purpose of the factor analysis is to determine the number of common factors needed that can adequately describe the correlations between the observed variables, and estimating how each factor is related to each

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