COVID-19 and Domestic Airlines Operations in Nigeria: The Emerging Issues

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Abstract

The study was conducted to investigate how the outbreak of COVID-19 has affected the operational performance of Nigeria domestic airlines. The study adopted a survey approach with a population of Six Hundred and Fifty-Five (655) respondents drawn randomly from full-time employees (Station Managers, Pilots, Engineers, Cabin crew and Baggage Handlers) of the five domestic airlines, Air Peace, Azman, Arik Air, Aero Contractor and Dana Airline operating at Murtala Mohammed and Nnamdi Azikiwe International Airports and a descriptive statistic was specified using Logistics Regression model. The study found that the Outbreak of the COVID-19 Pandemic affects operations, revenue, the attitude of the customer, and labor turnover of skilled professionals and ultimately affects the optimal performance of domestic airlines. It was recommended that the management of domestic airlines put up effective strategies for the management of the COVID-19 pandemic in view of its impact on the operations of domestic airlines. The airline operators should strengthen the implementation of COVID-19 pandemic health safety protocols since it has an impact on the confidence of the flying public and that the management of domestic airlines should explore alternative means of funding to meet up with their financial requirements since the COVID-19 pandemic impacts on the revenue base of domestic airlines in Nigeria. The study concluded that for Nigerian domestic airlines to sustain their airline businesses, it is imperative that sound strategies for the management of COVID-19 impact be put in place to assure the revamping and continuous flight operation, increased revenue generation, redeeming the confidence of air passengers and retention/re-engagement of technical/skilled professionals.

Background to the Study

The impact of the outbreak of any pandemic could be disruptive to the economic activities of a country and the world economy in general. The effect could be felt not only as a public health crisis but also in other sectors (educational, environmental, and social). A virus outbreak can have a far-reaching effect on income loss or fall, increased loss of jobs, and disruptions in transportation (land, sea, and air). Others Sectors like the service industry and manufacturing industries bear the devastating effect of a pandemic.

The World Health Organization classified COVID-19 as a pandemic (WHO). Since then, the globe has faced tremendous challenges in all areas of human activity, including political, social, economic, and demographic issues. COVID-19, which originated in China, has had an international influence. The illness has not only become a public health emergency, but it has also had an economic impact on the world. Significant economic consequences include decreased productivity, mortality, and the closure of firms, particularly small businesses. This is in addition to the disruption of trade and tourism.

COVID-19 has evolved into a full-fledged pandemic by the year 2020, posing a global threat to our health and economies. Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2) was discovered to be the cause of the sickness in December 2019 in the Wuhan area (Andersen, 2020). COVID-19 was declared a pandemic by the World Health Organization (WHO) on March 11, 2020. (World Health Organization, 2020). COVID-19 has been linked to 105.8 million confirmed cases and more than 2.3 million fatalities as of February 9, 2021. Although the long-term impacts of COVID-19 are still unknown, the impact in 2020 has been significant. Millions of people fell into extreme poverty as a result of the epidemic, which is thought to have created the largest global recession since the severe international economic slump in the 1930s (the Great Depression) (Sumner, 2020).

The aviation industry is likely to be among the hardest hit of all industries (Suau-Sanchez, 2020). Most airlines have had to halt operations due to an unprecedented drop in passenger demand (combined with country-specific flight bans); many companies have had to cease almost all operations and ground entire fleets (Sun, 2020); many airports have closed runways to make room for aircraft parking (Adrienne, 2020) or simply shut down indefinitely, most companies in the aviation sector are wobbling (Truxal, 2020). COVID-19 has had a huge impact overall, as evidenced by the number of flights that have been canceled. Nonetheless, the aviation sector has shown resilience in the face of enormous setbacks in the past, including oil crises, financial crises, wars, and prior diseases (Gudmundsson, 2020; Tanriverdi, 2020), and will almost certainly overcome COVID-19 in some way. However, it is often overlooked that the aviation sector is not only a victim of COVID-19 but also known to play a key role in the spread of diseases, allowing a (local) epidemic to turn into a (global) pandemic (Budd, 2009; Chinazzi, 2020; Yang, 2020), as it has been observed for several previous diseases, including Ebola (Pigott, 2014), SARS/MERS (Poletto, 2016; Wong, 2015),

The constraints faced by domestic aircraft operating during the COVID-19 pandemic provided the impetus for this research. Domestic aviation operations in Nigeria are a big

economic participant. Prior to the crisis, IATA stated that aviation contributed $1.7 billion to Nigeria's GDP and employed 241,000 people. (https://twitter.com/iata, IATA, 2020).

Statement of the Problem

Measures to curb the spread of COVID-19 through airports and airlines have caused flight delays and cancellations aside from passengers missing their flights because of compliance with safety protocols, which could take time. The emphasis on electronic ticketing and electronic checking-in has constituted a burden for non-literate air passengers. The breakout of COVID-19 has added more burden to the operational costs of domestic airlines. Loss of revenue is staring the airlines on their faces. Many aircraft in the fleet of the airlines are lying down fallow. This attracts maintenance costs. Allocated routes are not being flown by the airlines optimally, which is a loss in revenue. Additional expenses to put their aircraft back in the sky are huge. Constant disinfection of the aircraft, purchase of Personal Protective Equipment (PPEs) for the crew, provision of temperature check equipment, and hand sanitizers are additional costs to domestic airlines operations. The study, therefore, investigated these challenges of the domestic airlines' operations brought about by the outbreak of COVID-19. The study also sought to know the strategies adopted by the airlines to mitigate these challenges and how the Government has rolled out support for the airlines.

Research Questions

The study was carried out to provide answers to the following research questions:
   i.   To what extent has the COVID-19 outbreak affected flight operations (FO) of domestic airlines in Nigeria?
   ii.   To what extent has the COVID-19 outbreak affected the airline revenue (AR) base of domestic airlines in Nigeria?
   iii. To what degree have COVID-19 health safety protocols influenced the attitude of passengers (AP) towards flying with domestic airlines in Nigeria?
   iv.   To what extent has the COVID-19 outbreak influenced labour turnover of skilled professionals (TSP) in the domestic airlines in Nigeria (aircraft pilots, cabin crew, and Aircraft Maintenance Engineers)?

Objectives of the Study

The main objective of the study was to investigate how the outbreak of COVID-19 affected the operational performance of Nigeria domestic airlines. However, the study dwelled on the following specific objectives:
   i.   To examine the effect of the COVID-19 pandemic on the flight operation (FO) performance of domestic airlines in Nigeria.
   ii.   To investigate how the COVID-19 pandemic has affected the airline revenue (AR) base of domestic airlines in Nigeria.
   iii. To identify the effect of COVID-19 health safety protocols on the influence attitude of passengers (AP) to have the confidence to fly.
   iv.   To examine how COVID-19 has affected the ability of domestic airlines in Nigeria to retain skilled professionals (TSP).

Statement of Hypotheses

Considering the above research questions, the following null hypotheses were formulated:

H_{o1}: There is no significant relationship between COVID-19 and domestic airlines flight (FO)operations in Nigeria.

H_{o2}: The outbreak of COVID-19 has not affected the airline revenue (AR) generation of domestic airlines in Nigeria;

H_{o3}: There is no significant relationship between COVID-19 health safety protocols and domestic airlines passengers' attitude (AP) to flying in Nigeria.

H_{o4}: COVID-19 outbreak has not affected the domestic airlines' abilities to retain skilled professionals (TSP) in Nigeria.

Significance of the Study

The devastating effects of the COVID-19 pandemic on the operational performance of Nigerian domestic airlines are no longer news. Domestic airlines are at the risk of being thrown out of business if strategic measures are not taken to weather this big storm. This study is therefore significant as it will tremendously avail the airlines with information on the effects COVID-19 have on their businesses' operational performance. Aviation stakeholders (airlines, service providers, government agencies, the regulator, travel agencies, and labor unions) will also have platforms to plan and strategies on how the aviation industry will bounce back to its pre-COVID-19 era. The National Bureau of Statistics (2019) stated that the contribution of the aviation industry in 2018 to Gross Domestic Product (GDP) was 150 billion naira, and the following year the contribution increased to about 200 billion Naira. This critical role is being threatened by the COVID-19 pandemic. Thus, the study will also assist the Government in taking proactive measures for the revitalization of the industry. Airports and domestic airlines will be united in the call for the Government to partner with the industry to prepare to restart global connectivity as the intensity of spread is easing, the third wave contained, and the unprecedented global vaccination effort offers a beacon of hope that a return to normality is becoming clear in the horizon.

Scope and Limitation of the Study

The study focused on the impact of COVID-19 on domestic airlines' operational performances in Nigeria. The aviation business is global/international, and therefore domestic airlines operations in Nigeria are not isolated from the effects of COVID-19. Along with the human tragedy, the crisis has been felt in the global economy, trade, and mobility. Practically, all aspects of economic and social activities were and are still disrupted. It is common knowledge that the virus found its way to Nigeria through aviation (NCDC, 2020). The study focused on domestic, commercial airline operations in Nigeria.

The study focused on Air peace, Azman, Arik Air, Aero Contractor, and Dana Airline. These airlines have operated for a long time in the domestic routes and have dominance in terms of the number of routes network being flown, types and sizes of aircraft fleet, and

the number of flights operated daily. Hence, the choice of these airlines for this study. The chosen airlines also operate in and out of Nnamdi Azikiwe and Murtala Muhammed International Airports, where the study was concentrated. The airports are the main hub airports that also account for over 80% of domestic airline operations and accounts for as much passenger traffic on year by year basis. (Aisuebeogun, 2021) The study covered the 2016 – 2021 periods of operations of the chosen domestic airlines. The selected period covered the Pre-COVID-19 and COVID-19 periods. The workforce is structured into Ground staff, senior staff/ Station Managers, and Pilots/Engineers/Cabin Crew. Time limitation constrained this study to only five (5) domestic airlines as aforementioned and two (2) Nigerian airports.

Literature Review
Concept of COVID-19 in Nigeria
Nigeria, like any other African nation, had about 50 days or more to prepare for the pandemic since the outbreak started in China. The country announced its first COVID-19 case on February 27, 2020. It was a case of a 44years old Italian who came into the country on February 24, 2020 and displayed symptoms of the disease while visiting Lafarge Cement Company in Ewekoro, Ogun State. Many public health experts had criticized the Nigeria Centre for Disease Control (NCDC) for not being vigilant enough to detect the Italian man at the Lagos International Airport. However, in a swift reaction by the Minister of Health, Dr. Osagie said the virus was still in its incubation stage when the passenger arrived, hence the reason for escaping detection at the airport (Nigeria Centre for Disease Control, 2020). As cases of the virus continue to escalate, Nigeria, like other countries, closed down its airports and airspace to international flights from high-risk countries. This intervention was a major key in flattening the pandemic curve. Currently, Nigeria had 67,838 confirmed cases, 3,232 active cases, 63,430 discharged cases, and 1,176 fatalities as of December2, 2020 (NCDC, 2020).

Concept of Performance
Ristea (2002), defined performance in terms of the three E's: efficiency, effectiveness, and economies. Efficiency, economies, and efficacy, he believes, are three notions that might be linked to performance. The professor coined the term "the equation of the 3Es" to describe this approach to performance, which can be expressed mathematically as *performance = Efficiency + Efficacy + Economies.* It is obvious that an entity is successful when it is efficient, effective, and cost-effective. As a result, being successful entails combining all three factors, the sum of which reflects an entity's performance level. Efficiency is defined as either using a given number of resources to accomplish the highest degree of results or reducing the number of used resources to reach a set result. Economies are defined as the provision of the means, or the necessary resources, to carry out a task at the lowest possible cost. Efficacy is measured by comparing predetermined results to actual results obtained throughout the course of the activity's development. This reflects the company's capacity to satisfy, if not exceed, the expectations of accounting information consumers (shareholders/associates, clients, suppliers, employees, and the Government) while also achieving predefined organizational goals.

An entity achieves efficacy when it is able to improve the way it uses all available and essential resources for the development of the activity while meeting the demands and requirements of the organization's external partners to the best of its ability.

Domestic Airline in Nigeria
Domestic airlines are commercial airlines that operate locally by national law within Nigeria for business purposes, and they fly passengers to the main cities such as Lagos, Abuja, Calabar, Enugu, Kano, Port-Harcourt, Kaduna and Uyo, etc. (Africa-news). The Nigerian Civil Aviation Regulations (Nig. CARs) define commercial air transport and general aviation as: "an aircraft operation involving the public transportation of passengers, cargo or mail for remuneration or hire" and "an aircraft operation other than a commercial air transport operation or an aerial work operation," respectively. The Nigerian Civil Aviation Regulations (Nig. CARs)

Airline Operations
Jakada, Mohammed, and Bello (2018), defined operations as an airlines activity that involves several people doing different things and involving many parts at different times within a period of time. These activities must be accomplished in line with safety measures. According to FAA (2000), Operational Safety in Aviation covers the activities directed to aircraft performance, risk assessment as presented, and the operator's flight safety handbook (OFSH) with commonly accepted standards and best operating practices, methods, procedures, tools, and guidelines for use by safety managers.

Emerging Issues in the aviation industry
The development of COVID-19 has wreaked havoc on economies of a never-before-seen magnitude. The pandemic has had a significant impact on the worldwide economy and, in particular, the aviation industry, which has been brought to its knees. African airlines, who were already losing money before the COVID crisis, were particularly vulnerable and had to seek bailouts from governments that were already struggling financially. African airlines have responded to the crisis with a variety of measures, including layoffs, furloughs, and fleet reductions. As a result of the epidemic, global travel demand fell, forcing a number of large airlines to declare bankruptcy. Some businesses have completely shut down. As a result of the epidemic, the aviation industry has been struck the worst, and Nigerian local airlines are no exception. The airline's primary income generator, passenger service, saw most of its revenue drop, forcing it to ground numerous planes and operate at half-capacity. The airlines were forced to bear enormous financial difficulties as a result of inevitable costs such as aircraft and infrastructure payments, as well as bank loan obligations. African airlines, including Nigeria Domestic Airlines, have developed diversification strategies and agile management to keep their businesses afloat, continuing operations by shifting focus to cargo and MRO businesses, as well as cost leadership strategies to reduce expenditures while maintaining quality and efficiency.

The domestic airline's many business groups have responded to issues in diverse ways, relying on cargo, maintenance, repair, and overhaul (MRO). During the epidemic, these business segments were employed to generate money and keep the company financially solvent. Aircraft maintenance services to West African and other African carriers brought substantial money for the airlines. In the medium term, airline firms are confronted with two challenges: The price of health-related interventions. Additional health and safety standards (e.g., disinfection, PPE, temperature checks, or viral tests) are likely to increase operating costs for both airlines and airports in the short term before they can be passed on to customers. Furthermore, if implemented for air travel, social distancing measures could result in a 50 percent drop in passenger load factor (the number of seats that can be occupied during a flight)—the shape of the commercial flight recovery. Even when the country's lockdowns and domestic travel restrictions are eased, international travel restrictions, the reduction of economic activity, and changes in transportation behavior by cautious consumers may preclude a restoration to pre-crisis demand levels.

The combination of negative demand and supply shocks, as well as uncertainties about the medium-term forecast, gives airline firms a bleak outlook. This uncertainty impacts the entire aviation business due to inter-industry links. Furthermore, the business is still vulnerable to a pandemic comeback since governments may impose new air travel restrictions in response to flare-ups or a potential second wave of infections. Some companies in the industry may face extinction as a result of this, as production and revenues are expected to remain below pre-crisis levels for some years.

Nigerian airlines' domestic operations are not immune to the effects of COVID-19. The country's entire lockdown for months, the shutdown of all airports save for vital services, personnel retrenchment, and wage cuts have all had a negative impact on domestic airline operations. Local constraints, such as government-imposed quarantine orders requiring individuals arriving from overseas to self-isolate for up to 14 days, have the potential to stifle local airline operations.

The Federal Government of Nigeria, through the Presidential Taskforce on COVID-19 in Nigeria, has developed frameworks for minimizing the public health hazards of COVID-19 in the aviation sector in response to the pandemic. It stressed the importance of more uniformity in public health mitigation measures implemented by airports and airlines, as well as shared responsibilities for their implementation, as well as good coordination and communication framework. The report recommends a number of measures for airports and airlines, including requiring masks or face coverings throughout the air transportation environment, promoting social distance, improving clearing and disinfecting, conducting health assessments of passengers and workers, collecting passenger information to facilitate contact tracing, minimizing sharing common objects, documents, and surfaces, and reporting daily on public health risk-mitigating efforts. Others are bolstering their exposure reduction initiatives at security checkpoints, educating and interacting with passengers and personnel, and employing new technologies to aid mitigating efforts. These actions were implemented in awareness of the fact that the aviation sector plays a critical role in the efficient and safe transportation of people and products, making it a significant driver of economic recovery.

Impacts of COVID-19 Pandemic on Aviation Industry

To prevent the spread of the virus, many countries took some strict measures, including restrictions on incoming flights from China and other high-risk countries. This measure grossly affected the travel plan of many people. Several international programs, conferences, workshops, and sporting activities were either canceled, postponed or done virtually online (Ibeh, 2020). Significant reductions in passenger numbers resulted in flights being canceled, empty lobbies, empty check-in areas, planes flying empty between airports, or planes grounded at various airports, which in turn massively reduced revenues for airlines. Cancellations worth over $200 billion impacted the aviation industry negatively, with many airline operators declaring bankruptcy and even laying off their workers (Ozili and Arun, 2020). By October 8, 2020, 43 commercial airlines had gone bankrupt, and many more were expected to follow. In late October 2020, Europe stated that 193 (mostly regional) of the 740 airports in Europe were also risking bankruptcy (Ben, 2020; Eccles, 2020; Ng, 2020).

Last year's COVID-19 pandemic hit the global economy hard, and the aviation sector was the hardest hit, with a series of lockdowns and flight operations halted. The grounding of aircraft and the halt in operations resulted in a drop in not only in-flight activities but also in air passenger traffic. When flights resumed, these changes had an impact on passenger traffic; as a result, passengers were more health and safety-sensitive and tended to reduce their air travel. The number of domestic flights began to decline, affecting the number of air movements across Nigeria (Ojukutu 2021).The Coronavirus outbreak has wreaked havoc on Nigeria's aviation industry. The pandemic has brought the sector's activity to a halt all around the world. In 2018, the aviation industry in Nigeria contributed over 150 billion Naira to the country's Gross Domestic Product (GDP). In 2019, the figure increased by 33% to approximately 200 billion Naira. The aviation sector had the largest growth in activity in the fourth quarter of 2019 when compared to other transportation sub-sectors, according to the data (NBS, 2020). However, after the first patient of COVID-19 was diagnosed in Nigeria in March 2020, along with the subsequent closure of all of the country's airports, the sector's activity has plummeted. Revenues have also plummeted, as expected. As part of attempts to prevent the spread of coronavirus in the country, the Government closed all international airports for a one-month period on March 23, 2020. A few days later, local airports were also closed. About 120 domestic aircraft have been grounded across the country as a result of the lockdown and restrictions on airspace mobility, leaving operators with no income but recurring expenses. Since the onset of COVID-19, the Nigerian aviation sector has been losing N21 billion per month. The massive loss is due to a lack of activities in a sector whose primary source of revenue is airline operations (Sirika, 2020).

The following are some of the negative effects of COVID-19 on the Nigerian aviation industry: Airport closures and flight bans: Flights have been banned worldwide, and airports have been closed save for essential services. The travel and tourist industry has been struck especially severely by the COVID-19 outbreak (Shretta, 2020). Travel restrictions are more broad and severe than in any previous pandemic reaction, and the

combination of the economic downturn and individual aversion to travel is projected to keep international travel at a standstill for far longer than in previous pandemics. Negative tourism impact: According to the World Bank (2017), the travel and tourism sector accounts for more than 10% of global GDP, 7% of all international trade, and 30% of global service exports. Tourism contributes 4.5 percent to 6.3 percent of GDP in low- and middle-income countries (Jansen, 2013). Every country and territory in the world had imposed travel restrictions related to COVID-19 as of the end of April 2020, including completely closing borders to tourists, suspending international flights, banning entry to people arriving from or transiting through specific countries, or requiring quarantine or self-isolation measures – measures that had never been so extreme or widespread before (UNWTO, 2020a). International visitor arrivals are expected to drop by up to 30% in 2020, resulting in a loss of up to US$450 billion in international tourism receipts (UNWTO, 2020b). This is around ten times the worldwide economic impact of the SARS outbreak (Shretta, 2020). Increase in the debt profile of the aviation industry: According to the International Air Transportation Association (IATA), if the COVID-19 outbreak is not rapidly stopped, the air transport sector would lose around US$113 billion, and the industry debt overhang might exceed USD 550 billion by the end of this year (IATA, 2020a). Events have been postponed or canceled as a result of the pandemic, including the airline industry, tourism, hotel industries, and international events worth billions of dollars. All of these things wreak havoc on the aviation business. Increased pricing competition: One of the most competitive businesses in the world is the aviation industry (Armstrong, 2020). Airlines compete fiercely on pricing to guarantee that price-conscious passengers choose their airline over a competitor's. The effect of competition on fares would be more obvious with the introduction of COVID-19. Job losses: An estimated 25 million aviation employment and 100 million travel and tourist jobs are in jeopardy around the world. According to Phillips Consulting (2015), the aviation industry in Nigeria supports 254,500 employments and contributes US$940 million (N184.7 billion) to the national GDP. Due to the continued shutdown of airports in Nigeria, a quarter of a million jobs are now in jeopardy.

Theoretical Framework and Bases for the Study
The Theory of Constraints (TOC) (Goldratt and Cox, 1984; Boyd and Gupta, 2004) proposes that every system has complicated and interrelated operations and is confronted with a slew of difficulties, or at least one constraint, that obstructs its performance. As a result, the best use of limitations will result in the best performance, but the best use of non-constrained resources will result in surplus inventory. "TOC is a pragmatic and holistic approach to continuous improvement, covering disparate functionalities under a common theoretical foundation, and consists of an integrated suite of tools focused on those things that limit greater performance relative to the goal" Watson, Blackstone, and Gardiner (2007) write. According to Watson et al. (2007), managers of a number of high-profile companies have used TOC philosophy, including "3M, Amazon, *Boeing, Delta Airlines,* Ford Motor Company, General Electric, General Motors, and Lucent Technologies" (p. 388), who have publicly acknowledged that their organizations have seen significant improvements as a result of using TOC techniques.

Inventory management and operating expense are two more TOC performance measures (Goldratt and Cox, 1984). Thus, in order to succeed in a highly competitive environment, airlines must institutionalize thought processes focused on profit maximization and meeting passenger needs - by improving revenue production while reducing inventory (e.g., unbooked seats on a flight) and operational costs (Chou, Lu & Tang, 2012).

Empirical Review
The Challenges of Airlines Operations in Sub-Saharan Africa: An Empirical Investigation of the Nigerian Civil Aviation Sector was researched by Waribugo and Chiedu (2021). The complete population of the aviation sector was considered, with a sample of 222 personnel from 18 domestic airlines participating in Exploratory Factor Analysis, which resulted in the retention of 27 items representing five components. The following are the difficulties revealed by descriptive analysis (in order of relevance or severity): The study identified the study's shortcomings and recommended the creation of further items as well as investigations of postulated models on the nexus between these five components and organizational performance, or other criterion variables.

The impact of COVID-19 on the Nigerian aviation business was investigated by Siyan, Adegoriola, and Agumbiade (2020). The research's major goal is to look into the influence of the global pandemic on Nigeria's aviation industry. The study found that the COVID 19 pandemic has thrown the entire world economic, political, and social system into chaos and that the approach used was qualitative, explorative, and analytical in character, with the use of secondary data.

Xiaoqian, Sebastian, Chamghong, and Anming (2021) investigated the impact of the coronavirus disease (COVID 19) on aviation, as well as the role of aviation in the spread of COVID-19. They reviewed 110 papers on the subject published in 2020 and came to the conclusion that the COVID 19 pandemic has had a negative impact on the aviation industry, and the study recommended that future scientific direction be developed to prepare for a post-COVID-19 world.

The impact of COVID-19 on the efficiency of microfinance organizations was explored by Zheng and Zheng (2021). The study finds that the pandemic's influence reduces MFIs' financial efficiency but that the impact of COVID-19 increases their social efficiency. The study looks at both the supply and demand sides of MFI funding to see how the COVID-19 outbreak might affect efficiency. The findings reveal that the loan rate mediates the association between COVID-19 and MFI efficiency, but the funding rate has a minimal mediating function. Yusuff (2020), investigated the impact of the Corona Virus on small and medium enterprises (SMEs) in Nigeria, focusing on the post-COVID-19 economic recovery. Secondary data was employed in this study to acquire crucial information by looking through accessible materials or books in this area. The outcomes of this investigation revealed that a new study had revealed the health implications of COVID-19, which the World Health Organization has overwhelmingly explained (WHO).

Methodology
The study adopted a survey approach using both qualitative and quantitative data with a population of Six Hundred and Fifty-Five (655) respondents drawn randomly from full-time employees (Ground Staff, Senior Staff/Station Managers, and Pilots, Engineers & Cabin Crew) of five domestic airlines-Air peace, Azman, Arik Air, Aero Contractor and Dana Airlines operating at the following airports namely Nnamdi Azikiwe International Airport, Abuja and Murtala Muhammed International Airport Lagos, Mallam Aminu Kano International Airport Kano and Port Harcourt International Airport Port Harcourt Rivers Nigeria. The chosen respondents can competently comment on COVID 19 issues and the performance of the domestic airline operations in Nigeria. From the population, a sample size of Two Hundred and Forty-Eight (248) was derived by applying Taro Yamane's formula. The sampling was done in a way that every element of the population has an equal and independent chance of being included by allowing randomness to prevail in the selection process. Both primary and secondary sources of data were employed to assess the effect of COVID 19 on the performance of domestic airlines in Nigeria. The primary source involved the use of data collected from questionnaires, while the secondary data involved information obtained from various documents, including books, magazines, journals, periodicals, the company's annual reports, bulletins, articles, and internet materials. The study utilized both descriptive statistics and regression analysis to analyze the data obtained from the respondents. A time period under review of 4 years, from 2016 to 2020, was selected. It was the period that the Government implemented some far-reaching safety policy reform, including measures of COVID 19 precautions which impacted the activities of the Nigerian aviation industry.

Model Specification
The effects of the COVID 19 pandemic on the performance of domestic airline operations in Nigeria can be specified using the following Logistics Regression model: The model is given by: $Li = \frac{Pi}{1-Pi}$

Our model specifications were formulated and used to test the three hypotheses presented in the study. The models are as follows:

$$FO = \beta + \beta C + \mu \qquad \dots \qquad 1$$
$$R = \beta + \beta C + \mu \qquad \dots \qquad 2$$
$$AC = \beta + \beta C + \mu \qquad \dots \qquad 3$$
$$TSP = \beta + \beta C + \mu \qquad \dots \qquad 4$$

Where:

FO	=	Flight Operations
AR	=	Airline Revenue
AP	=	Attitude of Passengers
TSP	=	Turnover of skilled professionals
C	=	COVID-19
$=\beta$	=	The intercept
$=\beta=\beta=\beta=$	=	Coefficient of operations, Revenue, Attitude of customers, Turnover of skilled professionals
μ	=	Error term

Results and Discussion
Response Rate
Table 1 is the response rate which shows that of the 248 questionnaires distributed, 210 were returned complete, and 15 were either returned uncompleted or unusable generally because the respondents did not provide the needed information as enunciated in the objectives of the study. In total, an 85% response rate was achieved. It is acknowledged that the response rate is relatively high: this is in view of the respondent's interest in ensuring the performances of airline operations in the Nigeria Aviation industry.

Table 1: (Response Rate)

Options	Category of Respondents	No. of Respondents	Percentage (%)	Cumulative
Returned:	Ground staff	119	48%	48
	Senior staff/ Station Managers	27	11%	59
	Pilots, Engineers, Cabin Crew	64	26%	85
	Total Returned: NAIA = 89 (35.9%), MMIA = 121 (49.1%), Questionnaires	210	85%	85
Unreturned		38	15%	100
Total Distribution	NAIA = 102 (41.2%), MMIA = 146(58.8%), Questionnaires	248	100	100

Source: Field survey (2021)

From the table, the total questionnaire completed by employees of Air peace, Azman, Arik Air, Aero Contractor, and Dana Airline (Ground Staff, Senior Staff/Station Managers, Pilots, Engineers and Cabin Crew) at the Nnamdi Azikiwe International Airport, Abuja was 89 (35.9%), while the number of questionnaires completed at the Murtala Muhammed International Airport, Lagos by employees of the above-mentioned airlines was 121 (49.1%). The implication of this finding is that all the respondents were fairly targeted to avoid biases within the process.

Logistics Regression Analysis
The Logit estimate in the Table 4.2 revealed that the mean of the dependent variable is 0.681331 while the standard Error of regression is 0.550126. These suggest the adequacy of the estimated Logit model. More so, the model selection criteria such as Akaike information criterion (AIC), Schwarz information criterion (SIC), and Hannan-Quinn criterion (HQC) with respectively low values of 1.390198, 1.613561, and 1.781250 indicate that the estimated Logit model is adequately satisfied.

The likelihood ratio (LR) statistic value of 42.16413 with probability (LR stat) value of 0.000000, which is significant at a 5% level of significance, suggests the absence of autocorrelation. The McFadden R-squared value of 0.732852 implies that about 73% of

the change in the dependent variable was explained by the explanatory variables of the model. While the remaining 27%, which signifies the error term, are accounted for by other variables not captured by the model. It also shows that the model is suitable for applying in solving the problem at hand.

Table 2: Logistics Regression Analysis

Dependent Variable: L
Method: ML - Binary Logit (Quadratic hill climbing)
Date: 28/08/21   Time: 15:34
Sample: 1 210
Included observations: 210
Convergence achieved after 4 iterations
Covariance matrix computed using second derivatives.

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.625381	0.593031	0.506936	0.4000
FO	0.566384	0.091259	5.533482	0.0101
AR	0.884063	0.065601	3.478191	0.0001
AP	0.675493	0.051048	7.438912	0.0000
TSP	0.543161	0.289612	5.935782	0.0002

McFadden R squared	-0.732852	Mean dependent var	0.681331
SD dependent var	0.010986	SE of regression	0.550126
Akaike info criterion	1.390198	Sum squared resid	18.71512
Schwarz criterion	1.613561	Log-likelihood	-48.19100
Hannan-Quinn criteria.	1.781250	Deviance	111.3632
Restr. Deviance	105.6216	Restr. log-likelihood	-62.34701
LR statistic	42.16400	Avg. log-likelihood	-0.847134
Prob(LR statistic)	0.000000		

Obs with Dep=0	101	Total obs	210
Obs with Dep=1	109		

Source: Computed using E-views Version 7.0 Software

Further from the estimated Logit model above. We also observed that Flight Operations (FO) had a positive impact on the performance of domestic airlines operations (Y), influenced by COVID-19. Hence, unit changes in COVID-19 affect flight operations by 57%. On the other hand, Airline Revenue (AR) had a positive impact on the performance of domestic airlines operations(Y) influenced by COVID-19: indicating that a unit change in COVID-19 affects Airline Revenue performance by 88%. Furthermore, analysis from the results reveals that attitudes of Passengers (AP) also positively affected the performance of domestic airlines operations (Y) influences by COVID-19 as a unit change in COVID-19 will lead to a corresponding reduction in passenger numbers in airline

operations by 68%. While Turnover of skilled professionals (TSP) influences by COV-19 also has a positive impact on the performance of domestic airlines operations: signifying that a unit change in COVID-19 will lead to a corresponding lay off staff in airline operations by 54%. These are consistent with the findings of Siyan *et al*. (2020), Zheng *et al*. (2021), and Xiaogian *et al*. (2021), who found a positive relationship between the COVID-19 pandemic and the performance of airline operations.

Test of Hypotheses
The four Hypotheses of the study were tested using the Z-statistics from the logistic regression model.

Table 3: (Ho1): There is no significant relationship between COVID-19 and domestic airlines' flight operations in Nigeria.

Variable	Coefficient	Std. Error	Z-Statistics	Prob.
FO	0.566384	0.091259	5.533482	0.0101

Source: Extracted from the Logit Regression Model table 2

The Logit Estimates table 3 shows that the individual impact of COVID-19 (C) was statistically significant at a 5% level of significance. This is evidenced by the high Z-value (i.e., Z=5.535482) and its corresponding low probability value (i.e., $p<0.05$). Since the observed probability value (i.e., p=0.0101) of FO is less than the significance level, we hereby reject the null hypothesis and accept the alternate hypothesis, which says that COVID 19 has significant effects on the flight operation of domestic airlines in Nigeria. Flight operations were suspended, grounding of aircraft that reducing the number of flights as a result of lockdowns and closure of airports due to COVID-19.

Table 4: (Ho2): The outbreak of COVID-19 has not affected the revenue generation of domestic airlines in Nigeria

Variable	Coefficient	Std. Error	Z-Statistics	Prob.
AR	0.884063	0.065601	3.47819	0.0001

Source: Extracted from the Logit Regression Model Table 2

From table 4, The logit estimates reveal that the effect of the outbreak of COVID-19 on revenue generation is statistically significant at a 5% level. This is also true as the high Z-value (i.e., Z=3.47819) and probability value of observing revenue (i.e., p=0.0001) is less than the significance level. (i.e., $p<0.05$) therefore, we are hereby rejecting the Null Hypothesis and accept the alternate hypothesis, which says the outbreak of COVID-19 has affected the revenue generation of domestic airlines in Nigeria. There was a reduction in domestic airline revenue as a result of the reduction of flight operations and passenger traffic numbers.

Table 5: (Ho3) There is no significant relationship between COVID-19 health safety protocols and domestic airlines passengers' attitude to flying

Variable	Coefficient	Std. Error	Z-Statistics	Prob.
AP	0.675493	0.051048	7.438912	0.0000

Source: Extracted from the Logit Regression Model in 2

The regressions estimate in table 5 shows that the individual effect of COVID-19 (C) health safety protocols (CHSP) and on the airline safety was statistically significant at a 5% level of significance. This is evidenced by the high Z-value (i.e., Z=7.438912) and its corresponding low probability value (i.e., $p<0.05$). Since the probability value (p=0.0000) of AP is less than the significant level, we hereby reject the null hypothesis and accept the alternate hypothesis, which states that COVID-19 health safety protocols have significant effects on domestic airlines passengers' attitudes to flying. Lockdown and closure of airport significantly reductions in passenger traffic number resulted in flight cancellations.

Table 6: (Ho4) COVID-19 outbreak has not affected the domestic airlines' abilities to retain skilled professionals.

Variable	Coefficient	Std. Error	Z-Statistics	Prob.
TSP	0.543161	0.289612	5.935782	0.0002

Source: Extracted from the Logit Regression Model in table 2

Table 6 shows the effect of the COVID-19 outbreak (C), which is statistically significant at a 5% level of significance. This is represented by the high Z-value (i.e., Z=5.935782) and its corresponding low probability value (i.e., $p<0.05$). Since the probability value (p=0.0002) of TSP is less than the significant level, we, therefore, reject the null hypothesis and accept the alternate hypotheses, which states that the COVID-19 outbreak has significant effects on the domestic airlines abilities to retain skilled professionals. Some domestic airlines lay off their workers caused by series of lockdowns, closure of airports, and suspended flight operations.

Major Findings
The study revealed that the outbreak of COVID-19 has impacted the Nigerian domestic airlines' businesses. Given that the gradual public understanding that air transportation was instrumental as a medium for the spread of COVID-19, the Nigerian Government implemented a wide range of measures for the containment of the spread. These included total lockdowns, closure of airports, and suspension of both international and domestic airlines except for few exempted flights. This flight suspension has had a profound effect on the operations of Nigerian domestic airlines. This was corroborated by this study. The financial impact of COVID-19 has been huge on the Nigerian aviation industry. Passengers demand has dropped, leading to airline passengers' revenue loss. Flight operations have not resumed fully due to the grounding of aircraft that have not

gone through mandatory checks before being put to use. The study also revealed the need for the industry to carefully support the return to work process. The pandemic resulted in a global and travel shutdown, which left many forced to take leave and others without jobs. A large challenge for the airlines will include the skilled employees needed to support operations. Similarly, the study revealed health safety protocols put in place by the airlines have an effect on the confidence of airline passengers.

Discussion of Findings
From the analysis result, it is evident that the COVID-19 pandemic has significant effects on the performance of domestic airlines operations in Nigeria. This is in line with the work of Siyan *et al*. (2020), Zheng *et al*. (2021), and Xiaogian *et al*. (2021), who examined the impact of COVID-19 on the aviation industry in Nigeria and found that the COVID-19 pandemic has thrown the entire global economic, political, and social system into turmoil. On the other hand, the analysis conducted shows the positive relationship between COVID-19 and the performance of domestic airline operations. COVID-19 affected flight operations, airline revenue, the attitude of passengers, and Turnover of skilled professionals. By implication, the current issue facing the aviation industry today is the outbreak of the COVID 19 pandemic, and it has affected the revenue generation of domestic airlines in Nigeria and has called for measures to retain skilled professionals who can help within the implementation of the prescribed set protocols to control effect of the pandemic.

Conclusion
The study concluded that the Outbreak of the COVID-19 Pandemic had affected flight operations, airline revenue, and attitude of passengers, and labour turnover of skilled professionals' optimum performance in domestic airlines in Nigeria.

Recommendations
For the Nigerian domestic airlines' businesses' sustainability, the following recommendations are made:
1. The management of Nigeria domestic airlines should put up strategic measures for the management of COVID-19 since the pandemic has an effect on flight operational performance.
2. The airline operators should put up adequate publicity on implementing the COVID-19 pandemic health safety protocols since it has an impact on the confidence of the flying public.
3. The management of domestic airlines should collaborate with the Government on bailout measures as alternative means of revenue generation to meet up with their financial requirements since the COVID-19 pandemic affect the revenue base of domestic airlines in Nigeria.
4. There should be more adequate measures to retain skilled professionals since the COVID-19 pandemic has a significant effect on the ability of domestic airlines in Nigeria to retain skilled professionals.

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