



## **IMPACT OF COVID-19 PANDEMIC ON TRANSPORTATION IN SOUTHERN KADUNA STATE OF NIGERIA**

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**ABSTRACT:** *This paper examined the impact of Covid-19 on transportation and other livelihood sources that depend on transportation in Southern Kaduna State of Nigeria, with a view to providing information for sustainable level of transportation even in the presence of any pandemic in the world. Data for this study was collected through questionnaire survey, in-depth interview and direct field observation. The result indicates that Covid-19 has led to increase in the cost of transport, restriction on movement, loss of jobs, extortion of money from the masses by the security personnel, and also loss of revenue by the government, loss of income and increase poverty to people, loss of farm produce, increased the cost of managing livestock, increased the level of insecurity and reduction in road traffic crashes in Southern Kaduna. It is recommended that workers salary should be increase to avoid the extortion of money from the masses by the security personnel, provision of nose masks at affordable prices and making it compulsory for all persons to used when travelling, encourage the use of personal vehicles, bicycle and motor cycle to decongest commercial bus stations, and finally, reduction in number of passengers for commercial vehicles to observe social distancing.*

**KEYWORDS:** Covid-19 Pandemic, Transportation, Livelihood, Revenue, Insecurity

### **INTRODUCTION**

Transportation is a vital aspect of social and economic life for any country on earth. It enhances trade needs whereby the country's manufacturing, industrial tourism and distribution needs are served. Therefore, a vibrant, responsive, effective and efficient transport system enhances economic, developmental and strategic roles in the global system/economy. The effects of Covid-19 are being felt across many aspects of the economy including the transport sector. Covid-19 has had huge implications for the mobility and connectivity of people and goods, the continuity of transport services. Many areas of economic activity have either been shut down by governments to halt the spread of the virus or have seen demand collapse (UN Office on Drugs and Crime (UNODC), 2020). For example, social distancing has a very large impact on passenger transport services and



particularly mass transit systems that are designed to move large number of people in dense urban areas (WBG, 2020). This decreased the demand for motorized trips across the world, diminishing congestion levels, reducing transit ridership, and creating a reduction in transport externalities (Arellana *et al*, 2020).

Quarantines, lockdowns and social distancing measures which are essential in curtailing the virus impede sectors that rely on social interactions such as travel, hospitality, entertainment, and tourism (Deloitte, 2020). Restrictions on travel in affected cities and implementation of stay-home policies for workers in non-essential sectors have decreased demand for public transport services by 25 percent to 50 percent in many cities and operators have begun to cut services in response to the extraordinary circumstances (WBG, 2020). With social distancing policies in place, the Covid-19 outbreak has dramatically changed travel behavior in the world (Tirachini & Cats, 2020). For example, stay-at-home order led to a decline in both transit ridership and vehicular traffic in the USA (Gao *et al*, 2020) reduce travel volume, travel times and road crashes (Tirachini & Cats, 2020).

The Covid-19 pandemic poses a great challenge for contemporary public transportation worldwide, resulting from an unprecedented decline in demand and revenue (Tirachini & Cats, 2020; Mahmassani, 2020). The economic effect of the pandemic is felt across countries and communities at global level (Cooperazione Internazionale, 2020). Many countries banned air transport for passengers which caused negative consequences for the economics of the airline industry (Arellana *et al*, 2020). The effects of the pandemic on transportation extend beyond service performance and health risks to financial viability, social equity, and sustainable mobility (Tirachini & Cats, 2020). Transport service providers faced financial crisis, deepened by the pandemic, which required government assistance for their recovery (Arellana *et al*, 2020).

The disruptions caused by the Covid-19 pandemic affected transport and mobility for much longer than the duration of the emergency (European Commission, 2020). The lockdown increased the cost of transportation there by reducing the number of persons that travelled during the lockdown in different parts of the world (Aloi *et al*, 2020). Several transport operators have lost a significant part of their income since mid-March 2020, raising worries about their financial stability and capacity to recover their services (European Commission, 2020). The pandemic has caused sharp drops in employment and economic growth and triggered widespread disruption of the economy (Falk *et al*, 2020). For example, mineral production, trade and communities' livelihoods, directly and indirectly, suffered notably albeit variously from the travel bans, border closures and other preventive measures put in place (inter) nationally to curb the spread of the virus in Tanzania (Thierens & Mawala, 2020). Travel restrictions led to a reduced workforce across all economic sectors and caused many jobs to be lost (Nicola *et al*, 2020),

In Nigeria, about 50% of the population utilizes public transport or shared taxis (John, 2020). Transportation cost increased across the country in the year 2020. The increased in the cost of transportation is associated to the lockdown measures and movement restriction caused by the pandemic (Mogaji, 2020; Tirachini & Casts, 2020). The measures include prohibition of movement outside homes, a ban on inter-state travel, closure of roads and international borders, institution of a curfew, orders for civil servants to no longer come to the office, shutting of schools and religious spaces, and restrictions on passengers keke NAPEPS



(commercial tricycle operators) and private and commercial vehicles carry (World/Traore, 2020).

Business owners who involved in trading, transportation, construction, food vending, fashion design and hair dressing were unable to travel for their activities that require a human presence (Mogaji, 2020). Movement restriction was imposed by government at all levels in order to curtail the spread of the virus has affected the income and livelihood of people and consequently their wellbeing (United Nations High Commissioner for Refugees [UNHCR], 2020). This impacted negatively on the economic and transportation in Nigeria as it led to the loss their jobs (Mogaji, 2020; United Nation Development Programme [UNDP], 2020). Many citizens in Nigeria were subjected to all forms of social ill treatment like extortion among others (UNHCR, 2020).

In Kaduna State, internally generated revenue grew from #13bn in 2015 to #44bn in 2019 (Oxford Business Group, 2020). But the State lost about #6bn due to the pandemic as major revenue sources such as markets and transport sectors were shutdown (Bayero, 2020). This made the Kaduna State government to device another medium of revenue generation by impounding and auctioning of vehicles of those who did not adhere to the rules of the Covid-19. Not much has been documented on the impact of the pandemic in Kaduna State. Studies that have been conducted in Kaduna State on Covid-19 are environmental effects of Covid-19 (Mshelia *et al*, 2020), effects of Covid19 on agriculture (Zankan *et al*, 2020), impact of Covid-19 pandemic lockdown on distribution of inorganic pollutants (Fuwape *et al*, 2020). Unfortunately, these studies dwelled more on the effects of Covid-19 on agriculture and environment leaving out its impact on transportation in the study area. As such, this study examined the impact of Covid-19 on transportation and other livelihood sources that depend on transportation in southern Kaduna State of Nigeria, with a view to providing information for sustainable level of transportation even in the presence of any pandemic in the world.

## MATERIALS AND METHODS

### Study Area

Southern Kaduna is located between latitudes 10° 0' 00" to 10° 39' 00"N and longitudes 6° 40' 00" to 8° 27' 00" east of the Greenwich Meridian (figure 1). It has AW type of climate, as classified by Koppen which is characterized by two distinct seasons: wet and dry. The wet season begins in April and end in October with a peak of rainfall in August, while, the dry season begins from November to March. These seasons are influenced by the tropical maritime and tropical continental air masses. The mean annual rainfall decreases from about 1659.44mm in Kafanchan to about 1245.97mm in Kaduna, and the average minimum and maximum temperature are 15.1°C and 35.18°C, while relative humidity is about 62% (Ishaya and Abaje, 2008; Abaje, *et al.*, 2018). The vegetation of the study area is a Guinea savanna type (Udo, 1970; Buba, 2015). It is savanna woodland characterized by tall trees of about 20-40m high. Shrubs and tall grasses up to 3m tall also found. The natural plant covers of the study area have been greatly modified by human activities such as bush burning, woodfuel harvesting, farming, timber extraction and overgrazing (Abdul, 2010; Isma'il *et al.*, 2015; Dabo, 2016; Zankan, 2019). Some of the tree species found in the study area includes: *Ceiba petandra*, *Parkia biglobosa*, *Khaya senegalensis*, *Mangifera indica*, *Vitex doniana*, *Anogeissus*



leiocarpus, Borrassus aethiopum, Piliostigma thonningii, and Prosopis africana and grasses like Pennisetum purpureum, Andropogon gayanus and Tridax procubens are common. The relief influences the drainage pattern. Most of the study area lies within the Mada, Okawa and Gurara River basin (Udo, 1970). The Okawa and Mada systems flow into the River Benue, while the Gurara flows into the River Niger. There are several streams and rivers, among them are rivers Kogum, Matsirga and Kaduna

### **Type and Sources of Data**

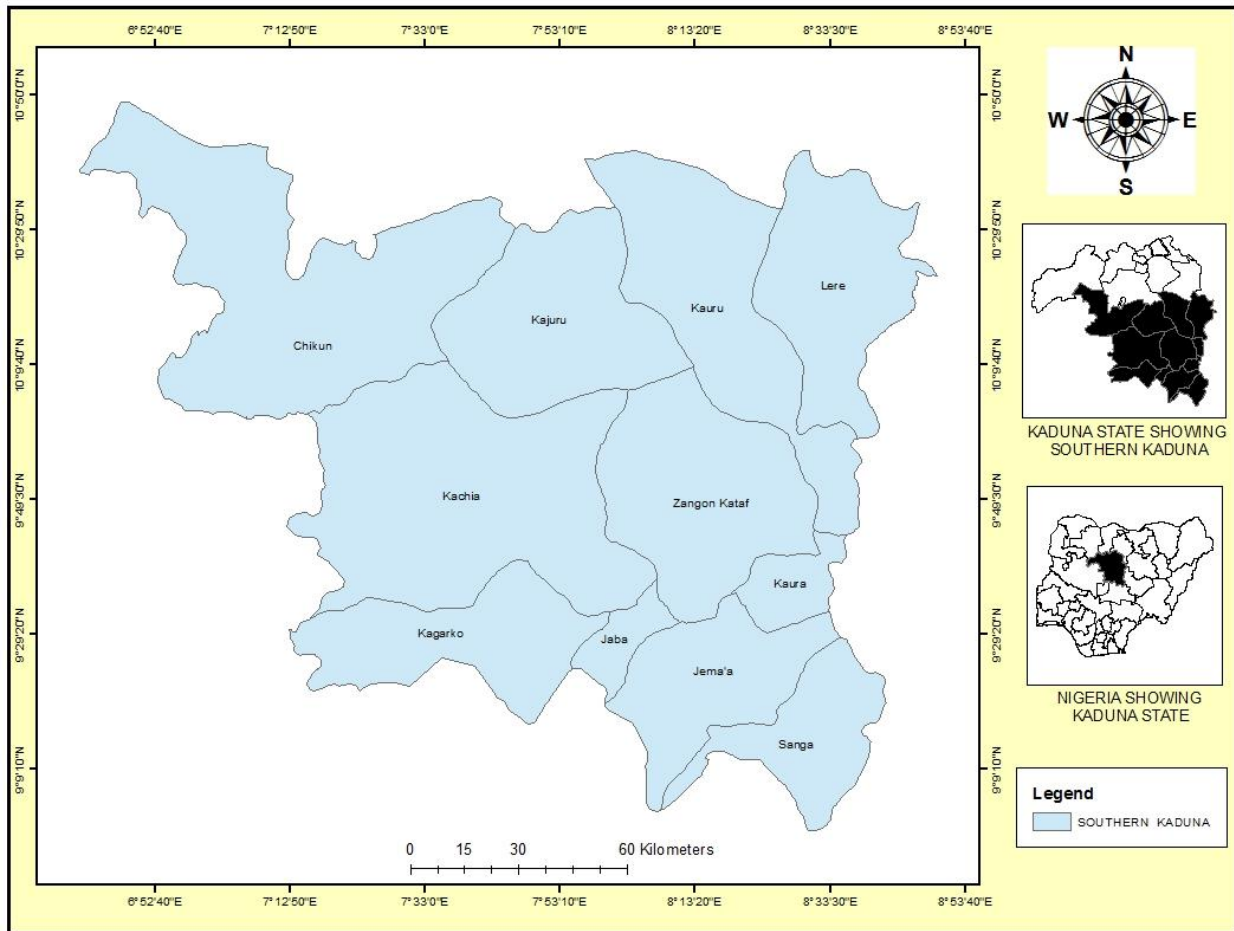
The primary data for this study was collected through the questionnaire survey, in-depth interview and direct field observation. The targeted population for the study includes transport workers (drivers, road transport union workers and okada riders), petty traders at bus stop and fuel stations and farmers across the study area who had knowledge about the impact of the Covid-19 lockdown on their life. The questionnaire consisted of close and open ended questions. The information obtained from the questionnaire includes demographic characteristics of the respondents, impact of Covid-19 on transportation and other livelihood sources that depend on transportation and ways that may sustain transportation even in the presence of the pandemic in the study area. The documentary source was obtained from journals, newspapers, unpublished dissertations and theses.

### **Sampling Technique**

A field survey was carried out in the study area to obtain the primary data for the study. The study area has eleven local governments that include Sanga, Jema'a, Jaba, Zangon-Kataf, Kaura, Kauru, Kachia, Lere, Kajuru, Kagarko and Chikun. To collect the data for the study, 60% (seven {7}) local government areas were selected at random. They include Jema'a, Zangon-Kataf, Sanga, Lere, Kachia, Jaba, and Chikun. Self-administered questionnaire to 384 respondents (Krejcie and Morgan, 1970) was conducted across the study area using availability sampling procedure. In-depth interview was done with some stakeholders (officials) that were not included in the questionnaire survey. Direct field observation was also carried out to have firsthand information on the impact of Covid-19 on transportation among the populace. The in-depth interview and direct field observation were carried out in order to complement the result obtained from the questionnaire survey.

### **Data Analysis**

The data obtained from the field survey were in two categories: qualitative and quantitative data. The quantitative data collected through questionnaire was analyzed using descriptive statistics such as, tables and percentage, while the qualitative data obtained through in-depth interview was subjected into transcription and represented in narrative format to further strengthen the quantitative data.



**Figure 1: The study Area**

*Source: Gis Lab Buk*

## RESULTS AND DISCUSSION

### Demographic Characteristics of the Respondents

In this study, about 20.8% of the study population was people who combine farming and civil service work as their occupation, 46.6% farmers, 1.6% artisan, 1.8% traders, 5.5% students and 23.7% civil servants. Most of those who claimed not to be farmers also engaged in little agricultural activities such as keeping of livestock and cultivation of crops around their homes to provide food for the family. About 71.6% was males while, 28.4% females. 62.0% married, 28.6% single, 9.4% widows, and 9.6% fall below 20 years, 59.9% fall between 30 to 39 years, 25.8% fall between the age of 40 to 59 years, while 4.7% falls between the age of 50 years and above. In terms of education, 18.5% have had primary education, 48.4% secondary education and 29.2% tertiary education while 3.9% have had different kind of education and knowledge such as Qur'anic education and blacksmithing.

**Table 1: Covid-19 increased the cost of transport in Southern Kaduna**

SA	A	SD	D	Total
293	56	17	18	384
76.3%	14.6%	4.4%	4.7%	100%

Concerning the effects of Covid-19 on transportation, 76.3% and 14.6% strongly agreed and agreed that Covid-19 led to increase in the cost of transportation in the study area (table 1). The cost of transportation increased rapidly especially when the lockdown and restriction on movement was imposed by the federal government of Nigeria (Mogaji, 2020). Some transport workers took advantage of that to enrich their pockets by collecting huge amount of money from passengers for a short distant journey due to the lockdown. Nigeria as a country depends on crude oil for its revenue generation. The Covid-19 pandemic did not allow the government to supply the crude oil to the international market which affected its level of revenue generation. As a result, the government increased the prices of some commodities such as electricity, petrol and Value added Tax (VAT) in the country. This increased hardship in the country including the cost of transportation. Meanwhile, immediately after the lockdown, drivers and transport companies were asked to reduce the number of passengers in their vehicles to observe the social distancing measure (Muley *et al*, 2020). This also forced them again to increase the cost of transportation in Nigeria. This is in line with Tirachini and Cats (2020) who associated the high cost of the transportation to hygiene and cleaning standard.

**Table 2: Covid-19 restricted people from movement in Southern Kaduna**

SA	A	SD	D	Total
201	129	0	54	384
52.3%	33.6%	0%	14%	100%

Majority of them (52.3% and 33.6%) strongly agreed and agreed that Covid-19 pandemic restricted many people from travelling (table 2). The lockdown and restriction on movement prevented many people from travelling for their businesses during the pandemic. Even some bereaved families or those who were on emergency (sickness or labour) were prevented from travelling by the security personnel. This caused serious problems to many families that didn't have access to visit their relations to solve one problem or the other or go the market to buy food stuff and other family needs. Women and girls were not freely attending clinics due to movement restrictions, reduction in transport, harassment by security agents and community militia members, fear of going to health centres, and increased care burdens in many part of the world more especially developing countries (World Bank/Traore, 2020).

The number of persons that travelled during the lockdown declined drastically in many part of the world. For example, the overall mobility fall, public transport users dropped and traffic accidents were reduced in relative terms in many parts of the world due to the restriction on movement (Aloi *et al*, 2020; Muley *et al*, 2020; Tardivo *et al*, 2020; Mahmassani, 2020; Gao



*et al*, 2020; and Cats, 2020). The drop in transportation was associated to the recommendations of health authorities to avoid using public transport as much as possible, recommending the use of individual means of transport such as private cars and bicycles (Aloi *et al*, 2020; Muley, *et al*, 2020). In most of the remote villages in the study area, movement was freely due to the absence of security personnel.

**Table 3: Covid-19 led to the Loss of jobs in Southern Kaduna**

SA	A	SD	D	Total
220	130	16	18	384
57.3%	33.8%	4.2%	4.7%	100%

Most of them (55.3% and 33.8%) strongly agreed and agreed that Covid-19 led to the loss of jobs by people (table 3). Many transport workers were prevented from their job. The lockdown forced many of them to park their vehicles in order to prevent the spread of the virus among individuals in Nigeria. This made some transport companies that didn't have the capacity to have regular payment of their workers salary to terminate/suspend some of them or reduce their salaries. Several public transport agencies were struggling financially due to the pandemic (Tirachini & Cats, 2020). Social distancing, security measures, self-isolation and travel restrictions led to a reduced workforce across all economic sectors and caused many jobs to be lost (Thierens & Mawala, 2020; Nicola *et al*, 2020; European Commission [EC], 2020). Movement was allowed just twice a week after several weeks of total shut down, which did not give them the opportunity to generate money as they use to do before the lockdown in order to maintain their staff.

Road transport union such as National Union of Road Transport Workers (NURTW) whose members' livelihood depends on vehicle owners and the passengers were negatively hit by the pandemic. They could not go out to look for what to feed the family, more especially to those who do not combine their occupation with agriculture that have to buy feed on daily basis. There are certain group of people who are indirectly employed by the transport sector such as petty traders who sell food items such as yam, sachet water, banana and oranges at the bus stop, fuel stations and traffic junctions were hit harder by the pandemic as they lost their means of livelihood (Mogaji, 2020; Cooperazionale Internazionale, 2020). The pandemic caused sharp drops in employment and economic growth and triggered widespread disruption of the economy (Falk *et al*, 2020).

**Table 4: Covid-19 has led to the extortion of money by the security personnel in Southern Kaduna**

SA	A	SD	D	Total
213	163	5	3	384
55.5%	42.4%	1.3%	0.8%	100%



Nigeria is characterized by high level of corruption where people take advantage of an event to cheat on others. Most of them (55.5% and 42.4%) strongly agreed and agreed that Covid-19 led to the extortion of money from people by the security personnel (table 4). The lockdown was imposed during the peak of the pandemic to curtail the spread of the virus among the populace which affected the transport sector. People were restricted from movement. But there were a number of people who were forced to travel due to certain conditions such as illnesses and death of relations or women who were on labour. Different security checking points were manned on the high ways to prevent the movement of people. These securities ranged from vigilante groups, task force, Nigeria Security and Civil Defence Corps and police and the military who deviated from their duty of restriction on movement to forceful collection of money (extortion) from road users (drivers and passengers) to allow them go to wherever they were going (Ibekwe *et al*, 2020).

The use of nose mask was made mandatory to all citizens in the country. But travelers who did not have it during the pandemic were forced to buy it at high amount. For example, the nose mask was sold at the rate of #100 in the market but travelers were forced to buy at the rate of #500 at the checking points. Many citizens in Nigeria were subjected to all forms of social ill treatment like extortion among others (UNHCR, 2020). This situation increased the cost of transportation across the country. Even though the federal government of Nigeria later reduce the pump price of fuel from #140 to #125 during the pandemic, yet the cost of transportation was still higher due to so many reasons such as the reduction in the number of vehicles on the high way, too many security checking points that extorted money from travelers, and low level of passengers (Ibekwe *et al*, 2020; Sunday, 2020). This situation increased the level of hardship in the country more especially to the low income families.

**Table 5: Covid-19 led to the loss of revenue by government in Southern Kaduna**

SA	A	SD	D	Total
255	104	11(2.9%)	14	384
66.4%	27.1%		3.6%	100%

Most of them (66.4% and 27.1%) strongly agreed and agreed that Covid-19 led to the loss of revenue by the government (table 5). Crude oil is the major source of revenue generation in Nigeria which was hampered by the coronavirus. Most of the sources of revenue generation in Nigeria were shut down due to the pandemic. The Kaduna State government has different sources of revenue generation such as tax collections from markets, shops, super markets and vehicles owners through Kaduna State Traffic Law Enforcement Agency (KASTLEA). These were shut down during the pandemic making the government to lose lot of revenue for the State. Markets were closed, buyers and sellers could no longer go out to buy or sell their goods which diminished internal generated revenue of the State. Government also generates its revenue through transportation (transport workers) but the pandemic restricted many of them from movement which also affected the revenue generation from that sector. For example, the State lost about #6bn due to the pandemic as major revenue sources such as markets and transport sectors were shutdown (Bayero, 2020). In the board of internal generated revenue where people used to go for renewing of drivers license, vehicle particulars or new registration had low turn-out due to the pandemic. This affected their





means of revenue generation and as a result, forced the Kaduna State government to devise another means of generating revenue by deducting from workers salaries across the 23 local government areas of the State. In South Africa, the pandemic reduce total revenue by around R310.6bn to R1, 127trillion from the original R1, 438 trillion (Makananisa, 2020). Even the most advanced countries in the world were hit harder by the pandemic in terms of their level of revenue generation.

**Table 6: Covid-19 has led to the loss of income and increase poverty in Southern Kaduna**

SA	A	SD	D	Total
218	146	12	8	384
56.8%	38.0%	3.1%	2.1%	100%

High number of them (56.8% and 38.0%) strongly agreed and agreed that Covid-19 led to the loss of income and increase poverty (table 6). The pandemic forced many people who were employed by the transport sector such as drivers, vehicle owners, and those who indirectly depend on transportation such as food vendors at the bus and fuel stations to lose their means of income generation. This is because the lockdown restricted people from movement as such many vehicles were parked which affected most of the transport workers and vehicle owners including the petty traders who could not go out to sell their goods to earn a living as such, creating serious hardship and poverty among the populace. Business owners who involved in informal businesses like trading, transportation, construction, food preparation, mechanical and electrical work, fashion design and hair dressing were not able to travel and carry out their activities which require a human presence (Mogaji, 2020; Cooperazionale Internazionale, 2020).

Most of the petty traders who sell food items such as bread, banana, oranges and mangoes in bus stop, fuel stations and road junctions or at the traffic did not have access to do so which affected their means of income generation. The lockdown restricted the movement of vehicles which also caused serious impact on the petty traders because many of them could not move their goods to the market where some of the goods got spoilt especially the perishable goods or consumed by the family. Several transport operators have lost a significant part of their income since mid-March 2020, raising worries about their financial stability and their capacity to recover their services (European Commission, 2020). In developing countries, public transport is largely informal and privately owned. Bus owners and drivers earn income only if they carry passengers. These groups are, therefore, very vulnerable to the pandemic (WBG, 2020).

**Table 7: Covid-19 led to the Loss of farm produce in Southern Kaduna**

SA	A	SD	D	Total
187	191	4	0	384
48.7%	50.3%	1.0%	0%	100%



High number of them (48.7% and 50.3%) strongly agreed and agreed that Covid-19 led to loss of farm produce in the study area (table 7). The lockdown and restriction on movement prevented the movement of goods from the source regions to the destination regions. This led to the loss to farm produce more especially the perishable goods such as tomatoes, spinach and pepper. Those who buy and sell the agricultural produce in the market loss them due to the restriction on movement which prevented people from going out to sell their goods. Many farmers were not allowed to go to their farms especially those who live in the urban centres and doing their farming activities (irrigation) in the rural areas that have to travel everyday to take care of their crops. This stopped some of them from weeding of the crops or harvesting the mature ones which led to the spoilage of the agricultural produce/crops. With the huge amount of money span by farmers in the farm, Covid-19 forced them to run their business at lost because the farm produce were not allowed to move to the market for sell.

**Table 8: Covid-19 increased the cost of managing livestock in Southern Kaduna**

SA	A	SD	D	Total
198	174	8	4	384
51.6%	45.3%	2.1%	1.0%	100%

There is increase demand for meat in Nigeria due to increase in human population. This has encouraged people to engage in livestock farming to earn a living. Most of them (51.6% and 45.3%) strongly agreed and agreed that Covid-19 led to increase in the cost of managing (feeding and medicine) livestock more especially the poultry farmers in the study area (table 8). Most farmers ran their businesses at lost during the pandemic because the matured livestock (chicken) that were supposed to be disposed to buyers especially in the urban centres were not allowed to do so because of the restriction on movement. Buyers could not travel to the source regions to buy the chickens which made farmers to feed them continually in order to keep them alive. This forced them to span a lot of money to manage them where their prices even depreciate during and immediately after the lockdown because people were not having the capacity to buy meat due to hardship. High levels of those who consume chicken in Nigeria are the hotels and restaurants and schools and most of them were not allowed to operate in the country which also discouraged their suppliers to travel to the source regions for the animals and their products (egg). There were certain groups of people who bought chickens even before the lockdown to be transported to the destinations regions for consumption. But the lockdown and restriction on movement prevented them from moving them which also increased the cost on managing these animals. This is in line with Mahmassani (2020) who noted that the travel banned prevented the movement of goods from existing warehouse mostly by truck, train or intermodal rail to the market leading to supply shortage.

**Table 9: Covid-19 increased the level of insecurity in Southern Kaduna**

SA	A	SD	D	Total
167	205	5	7	384
43.5%	53.4%	1.3%	1.8%	100%



Nigeria is characterized by high level of insecurity such as bokoharam, banditry/kidnapping and armed robbery. 43.5% and 53.4% strongly agreed and agreed that Covid-19 increased the level of insecurity in the study area (table 9). The level of insecurity increased during the lockdown when many people lost their jobs in Nigeria more especially the transport workers whose source of livelihood was hampered by the pandemic. Some of them engaged in burgling of houses and stealing of properties, kidnapping and armed robbery to survive. This posed serious security threat to the life of the masses across the country. Palliative was shared to people in some urban centres. The palliatives were not even enough to satisfy those that collected it. Violence against civilians and agitations by residents were high during the pandemic in Nigeria than before as a result of restriction on movements imposed by government, and inadequate provision of succor and palliatives to residents (Nwaogu *et al*, 2020). The prevailing threats were violence against civilians (rape, abduction and sea piracy), agitations (protests and riots), battles (clash by armed gangs /government forces) and bomb explosions (Nwaogu *et al*, 2020).

Many people use transportation (vehicles and Okada riders) as their means of survival in Nigeria but the lockdown hit many of them harder to the point where they could not find food for consumption in their homes and this led to snatching away of food even while cooking. This was well illustrated by a woman at Kafanchan:

*The pandemic forced many people to involve in criminal act in our communities. This is because people lost their jobs and as result increased the level of bugling and stealing in our communities. In fact, I was cooking food when someone entered the kitchen and snatched away the food while I was in the living room to pick something (Mrs James, Per. Com, October, 2020).*

Businesses in the transport, hospitality, arts, retail, and beauty sectors are particularly vulnerable to infiltration by organized criminal groups (OCGs) (UNODC, 2020). The stay at home policy caused serious problems to many families in the urban centres that could not withstand the hardship. Lack of food to many families forced some of them to go out to look for food which caused the clashed between the civilians and the police that led to the loss of lives of innocent civilians in Kaduna town.

**Table 10: Covid-19 led to a reduction in road traffic crashes (RTC) in Southern Kaduna**

SA	A	SD	D	Total
172	200	8	4	384
44.8%	52.1%	2.1%	1.0%	100%

High number of them (44.8% and 52.1%) strongly agreed and agreed that Covid-19 led to reduction in road traffic crashes (RTC) in Southern Kaduna (table 10). Road traffic crashes occur due to different factors such as wrong overtaking, over speeding, bad condition of the vehicle, or motor cycle, carelessness and the condition of the driver. Road traffic crashes used to be very high during the months of December and January across the country when people are going for Christmas festival in their villages or returning to the cities after the new year break due to high level of vehicular movement on our high ways. But during the pandemic, the road traffic volumes reduced drastically in the study area due to the lockdown and



restriction on movement imposed by the government of Nigeria. Low traffic flow occurred across the country as people were not allowed to move out for their daily routine and this reduced the RTC in the study area. For example, the road traffic crashes in Southern Kaduna reduced by 36% during the pandemic when the lockdown was imposed as compared to the same period in 2019. In the USA, the overall crash rate decreased in the first three months of 2020 compared to 2019, the decrease after March 16th lockdown was more significant. Police data shows that motor vehicle collisions were down by an average of 50% in March (8,629 events), compared to the same period in 2019 (17,308 events). Between March 25th and 30th, the number of reported crashes was down by 70-77%, likely due to the reduction in vehicle trips Gao *et al*, 2020).

## CONCLUSION

Transportation is one of the key aspects of life that encourages economic development of many societies and supports the livelihood of millions of people in the world. The spread of diseases cause serious effects on transportation in a manner that affects the economic development of those places it occurs as it restricts the movement of goods and people from one place to another. No society can develop when its citizens are ill-health due to different kind of diseases. Human beings have suffered from different pandemic in the recent years such as Ebola and Covid-19. This has affected transport sector in different ways such as loss of jobs, restriction on movement, and extortion of money from the masses by the security personnel, loss of farm produce and income. These problems have caused a reduction in national revenue of many countries and have increased the level of poverty in the world especially the developing countries that are more vulnerable to the effects of the pandemics. It is recommended that workers salary be increase to avoid the extortion of money from the masses by the security personnel, provision of nose masks at affordable prices and making it compulsory for all persons to be used when travelling, encouraged the use of personal vehicles, bicycle and motor cycle to decongest commercial bus stations, and finally, reduction in number of passengers for commercial vehicles to observe social distancing.

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## APPENDIX

### QUESTIONNAIRE ON THE IMPACT OF COVID-19 PANDEMIC ON TRANSPORTATION IN SOUTHERN KADUNA STATE OF NIGERIA

Kindly respond to the questions below as that will help us to generate data for the research. All responses shall be treated confidentially and information obtained shall be use for the purpose of this work only.

Thanks

INTRODUCTION: Please fill in or tick the right option in the space provided below.

#### Section A: Personal information

1. Sex (a) Male ( ) (b) Female ( )
2. Age (a) Less than 20 years ( ) (b) 20-39 years ( ) (c) 40 -59years ( ) (d) 60 years above ( )
3. Marital status (a) Married ( ) (b) Single ( ) (c) Widow ( ) (d) Divorce ( )
4. Level of education (a) Primary ( ) (b) Secondary education ( ) (c) Higher education ( ) (d) Others specify.....
5. Occupation (a) Farmer ( ) (b) Artisan ( ) (c) Trader ( ) (d) Civil servant ( ) (e) Others specify.....

#### Section B: Impact of Covid-19 pandemic on Transportation and other livelihood Sources

**Note: AS-Strongly Agreed, A-Agreed, A-Strongly disagreed, D-Disagreed**

S/N	Questions	SA	A	SD	D
1	Covid-19 increased the cost of transport in Southern Kaduna				
2	Covid-19 restricted people from movement in Southern Kaduna				
3	Covid-19 led to the Loss of jobs in Southern Kaduna				
4	Covid-19 led to the extortion of money by the security personnel in Southern Kaduna				
5	Covid-19 led to the loss of revenue by government in Southern Kaduna				
6	Covid-19 led to the loss of income and increase poverty in Southern Kaduna				



7	Covid-19 led to the Loss of farm produce in Southern Kaduna				
8	Covid-19 increased the cost of managing livestock in Southern Kaduna				
9	Covid-19 increased the level of insecurity in Southern Kaduna				
10	Covid-19 led to a reduction in road traffic crashes (RTC) in Southern Kaduna				

11. What ways may ensure sustainable level of transportation and other livelihood sources that depend on transportation even in the presence of any pandemic in the study area?