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Impact of Covid-19 on Supply Value Chain in Nigeria

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Abstract: *The emergence of Coronavirus popularly known as COVID-19 pandemic globally has adversely effected businesses, households and the entire global economy. The pandemic has directly affected international trade and global supply chains (GSCs) that link production in multiple locations across the world. The aim of this paper is to discuss impact of COVID-19 on supply value chain in Nigeria. This paper is predicated on secondary sources of data collection through content and documentary analyses from textbooks, journal articles, official government and institutional documents and reports, newspapers and the Internet. Data were analyzed descriptively. Theoretically, the paper depended on the Risk Society Theory. The results showed that the impact of COVID-19 on supply chain operations in Nigeria could be observed in the following aspects: transport, production capacity of local production, import dependence, delays in port clearance, and foreign exchange challenges. The findings of the paper further revealed that the pandemic adversely affected supply chain operations in every sector of the economy but focus was on the following selected sectors namely: renewable energy sector, food and beverage industry, manufacturing sector, and oil and gas industry etc. In conclusion, the impact of COVID-19 on supply value chain have effected many companies and in almost all the sectors of the Nigerian economy. It is therefore recommended that due to the current situation as a result of the COVID-19 pandemic, businesses should strategically adopt a more dynamic working plans trough the instrumentality of information and communications technology platforms for electronic meetings and teleworking.*

Keywords: COVID-19, Pandemic, Supply Chain, Value Chain, Lockdown

1 INTRODUCTION

The COVID-19 pandemic had plunged the world into broken supply chain, of which, Nigeria is not an exemption. Many manufacturers and service providers in the country are experiencing severe shortage of essential and non-essential raw materials including medical and pharmaceuticals products, in addition to intermediate inputs. This has implications for capacity utilization, employment generation and retention and adequacy of products' supply to the domestic market, it appears that nobody seems to know where to get these supplies from, nor do they understand what the real demand and supply actually is (Ibrahim, 2020).

The emergence of Coronavirus popularly known as COVID-19 in Nigeria has adverse effects on businesses, households and the entire economy. One of the effects is the slowdown in retail and trade activities, as most finished goods flow from the manufacturers and dealers to the final Manufacturers and distributors during the period, according to PricewaterhouseCoopers (2020), have found it difficult to replace or replenish their inventory and equipment or machinery, due to supply-chain disruptions globally. Importers and exporters have also found it challenging to deliver or bring in goods across most international borders, as the seaports, which is the main route for international exchange of goods, have been impacted by restrictions and the slowdown of industrial activities of major trading partners.

According to Ibrahim (2020), global impact experienced suspended operations, flight delays and cancellations are contributing to air freight capacity constraints. The disrupted global supply network has reduced some ocean capacity for pharmaceuticals. Although Global supply chain professionals are tracking the rapidly changing status of origin and destination airport, sea port and land options in real time to propose the best delivery option. Re-rerouting of shipments, consolidating airfreight to ocean freight or changing transit countries to catch "cargo-only" aircraft are increasingly necessary. Sand Mba Kalu, Executive Director Africa International Trade & Commerce Research observes that "the pandemic is undoubtedly affecting people's lives and its impact on social-economic life and livelihood is currently reverberating across all industries with virtually all the countries of the world getting a bitter share of the disruption in the supply chain" (Kalu, 2020, p. 14).

According to Jackson, Etti, and Edu (2020, p. 7) report that a CNN reporter stated recently: "this pandemic has caused an economic tsunami", causing businesses to close and triggering devastating disruptions to global supply chains". The Nigerian economy is largely dependent on the international supply chain. Nigerian businesses rely on the efficiency of international supply chains to reduce cost, increase revenue and improve their bottom line. The effect of such global disruption on Nigeria cannot be quantified. Local supply chain and distribution networks are not left out with lockdown in certain parts of the country. In the view of Sasakawa Africa Association (SAA) (2020), the global impact of the COVID-19 pandemic is expanding rapidly, and has severely disrupted supply chains, created significant volatility in global financial markets, as well as changing the communication and business landscape. Governments across the globe are tasked with minimizing the impact of the pandemic, whilst also protecting human lives, livelihoods, and ensuring sufficient food availability along the entire food supply chain.

The pandemic has directly affected international trade and global supply chains (GSCs) that link production in multiple locations across the world. GSCs often rely on specialized suppliers, sometimes clustered in specific locations, and use just-in-time production techniques that minimize inventories and produce goods only when needed. Thus, production disruptions related to COVID‐19, emanating originally in one location, are having ripple effects throughout supply chain networks, with widespread global intra- and inter-industry impacts. With the enactment of global lockdown measures, what were initially supply-side constraints have quickly evolved into a demand-side issue. Consequently, all tiers of supply chains, from industries engaged in raw materials extraction to those involved in assembly, and ultimately distribution and sales, are experiencing the economic and social effects of COVID‐19.

The objectives of this paper therefore are one, to discuss the impact of Covid-19 on supply value chain with focus on Nigeria. Two, the effects of COVID-19 on Supply Chain in selected sectors of Nigerian economy. In Nigeria, during the COVID-19 pandemic, states like Lagos and Ogun, which are major production hubs were shut down by the government to effectively curb the spread of the virus. Organisations and other state government needed to work in line with the government to ensure that any stimulus or actions are aligned (KPMG, 2020). At a point in time, the lockdown affected all the states and the Federal Capital Territory as inter-state restrictions were imposed by different state governments. One major impact of this general lockdown of the economy was on supply chain operations, which affected the free movement of goods and human except those goods and services classified as 'essential'.

2 LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 The Concept of COVID-19

Coronavirus is a Severe Acute Respiratory Syndrome (SARS), which was first reported in Wuhan, China, in December, 2019. World Health Organization (WHO) renamed it Coronavirus Disease-19 (COVID-19). The name "coronavirus" was coined in 1968, because of the "corona"-like or "crown" -like morphology in the viruses when observed in the electron microscope during a study

(Etukudoh, Obiora, Adeyemi et al., 2010). The history and taxonomy of Coronavirus is as old as virus in its entirety. Coronavirus just like other viruses are surrounded by lipid envelope that is used to bind to plasma membrane of target cells by attaching to specific proteins on the cell surfaces (Robert, 1984). History of coronavirus is traced to Great Flu Pandemic and have lasted 102 since discovery and documented evidence of 1918 (Brown, 2020).

Nigeria's Federal Ministry of Health (FMoH) (2020) announced her first case (index case) of COVID-19 on 27th February 2020 to have come from an Italian doing a business with Ogun State. The coronavirus is believed to have come from Hunan Seafood Market in Wuhan China. This was based on Chinese Health Authority report of a type of pneumonia that could not be understood as at 31st December 2019 (Nassiri, 2020).

2.1.2 The Concept of Pandemic

The word "Pandemic" originates from the Greek word *pan* meaning "all" and '*demos'* meaning "the people". The word is commonly taken to refer to a widespread epidemic of contagious disease throughout the whole of a country or one or more continents at the same time (Honigsbaum, 2009). Nevertheless, in over the past two decades, the term has not been failed to be defined by many modern medical texts. Even authoritative texts about concerning pandemics do not list it in their indexes, including such resources as comprehensive histories of medicine, classic epidemiology textbooks, the Institute of Medicine's influential 1992 report on emerging infections (Morens, Folkers, & Fauci, 2009).

The Pandemic has a long history, but the term itself is yet to be defined by many medical texts. There have been a number of significant pandemics recorded in human history where pandemic related crises have caused enormous negative impacts on health, economies, and even national security globally (Qiu, 2016-2017). However, the internationally accepted definition of a pandemic as it appears in the Dictionary of Epidemiology is straightforward and well-known: "an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people" (Harris, 2000).

According to the WHO (2011), there have been a number of significant pandemics recorded in human history, including smallpox, cholera, plague, dengue, AIDS, influenza, severe acute respiratory syndrome (SARS), West Nile disease and tuberculosis.

There are some seven key features of a pandemic, which help us to understand the concept better. These include:

- **Wide Geographic Extension:** The term pandemic usually refers to diseases that extend over large geographic areas—for example, the 14th-century plague (the Black Death), cholera, influenza, and human immunodeficiency virus HIV/AIDS. In a recent review of the history of pandemic influenza, pandemics were categorized as trans-regional and global (Taubenberger & Morens, 2009). There were 178 countries involved during the H1N1 outbreak in 2009 (Rewar et al., 2015). The report of John Hopkins Coronavirus Recourses Center (2020) shows that as at December 3, 2020, the geographical spread COVID-19 is 219 countries and territories worldwide.

- **Disease Movement**: In addition to geographic extension, most uses of the term pandemic imply unexpected disease movement or spread via transmission that can be traced from place to place (Barrelet et al., 2013).

- **Minimal population immunity:** Although pandemics often have been described in partly immune populations, it is clear that in limiting microbial infection and transmission, population immunity can be a powerful anti-pandemic force (Taubenberger & Morens, 2009).

- **Novelty**: The term pandemic has been used most commonly to describe diseases that are new, or at least associated with novel variants of existing organisms—for example, antigenic shifts occurring in influenza viruses, the emergence of HIV/AIDS when it was recognized in the early 1980s, and historical epidemics of diseases, such as plague (Morens et al., 2009). COVID-19 is also new.

- **Severity:** The term pandemic has been applied to severe or fatal diseases (e.g., the Black Death, HIV/AIDS and SARS) much more commonly than it has been applied to mild diseases. "Global pandemics with high mortality and morbidity occur when a virulent new viral strain emerges, against which the human population has no immunity" (Rewar et al., 2015).

- **Minimal Population Immunity**: Although pandemics often have been described in partly immune populations, it is clear that in limiting microbial infection and transmission, population immunity can be a powerful anti-pandemic force (Taubenberger & Morens, 2009).

- **High attack rates and explosiveness:** Pandemics are characterised by high rates of attack and by explosive spread. Examples are influenza H1N1 or Ebola. However, if the transmission is non-explosive, even if it is widespread, this is not classified as a pandemic (Barrelet et al., 2013).

2.1.3 The Concept of Supply Chain

A supply chain is a network between a company and its suppliers to produce and distribute a specific product to the final buyer. This network includes different activities, people, entities, information, and resources. The supply chain also represents the steps it takes to get the product or service from its original state to the customer. A supply chain involves a series of steps involved to get a product or service to the customer. The steps include moving and transforming raw materials into finished products, transporting those products, and distributing them to the end-user. The entities involved in the supply chain include producers, vendors, warehouses, transportation companies, distribution centers, and retailers (Kenton, 2020 as cited in Nwankwo, 2020).

Analytically, in the view of Cloutier et al (2010), a typical supply chain is simply a network of materials, information and services processing links with the characteristics of supply, transformation and demand. It is the collection and interaction of these elements that impact system-level qualities, properties, characteristics, functions, behavior, and performance. Investopedia (www.investopedia.com/terms/s/supplychain), sees supply chain as the network between a company and its suppliers to produce and distribute a specific product, and the supply chain represents the steps it takes to get the product or service to the customer. According to Mentzer et al. (2001) supply chain (SC) is defined as a set of three or more entities directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer.

2.1.4 The Concept of Supply Value Chain

The term value chain refers to the process in which businesses receive raw materials, add value to them through production, manufacturing, and other processes to create a finished product, and then sell the finished product to consumers. A supply chain represents the steps it takes to get the product or service to the customer, often dealing with Original Equipment Manufacturer (OEM) especially in the automotive sector in and aftermarket parts. While a supply chain involves all parties in fulfilling a customer request and leading to customer satisfaction, a value chain is a set of interrelated activities a company uses to create a competitive advantage. Competitive advantage refers to factors that allow a company to produce goods or services better or more cheaply than its rivals. These factors allow the productive entity to generate more sales or superior margins compared to its market rivals. Competitive advantages are attributed to a variety of factors including cost structure, branding, the quality of product

offerings, the distribution network, intellectual property, and customer service (Twin, 2020). These are the added values (value chain) derived in the supply chain operations.

Michael Porter was the first person who introduced the term "Value Chain' in his book Competitive advantage: Creating and Sustaining Superior Performance (Porter, 1985). Michael Porter defines "Value Chain'' as a representation of a firm's value-adding activities, based on its pricing strategy and cost structure. The ability of any firm to understand its own capabilities and the needs of the customer is crucial for competitive strategy to be successful. According to Porter (1985), the idea of the value chain is based on the process view of organisations, the idea of seeing a manufacturing (or service) organisation as a system, made up of subsystems each with inputs, transformation processes and outputs. Inputs, transformation processes, and outputs involve the acquisition and consumption of resources - money, labour, materials, equipment, buildings, land, administration and management. How value chain activities are carried out determines costs and affects profits. Most organisations engage in hundreds, even thousands, of activities in the process of converting inputs to outputs. These activities can be classified generally as either primary or support activities that all businesses must undertake in some form. As shown in Figure 1.

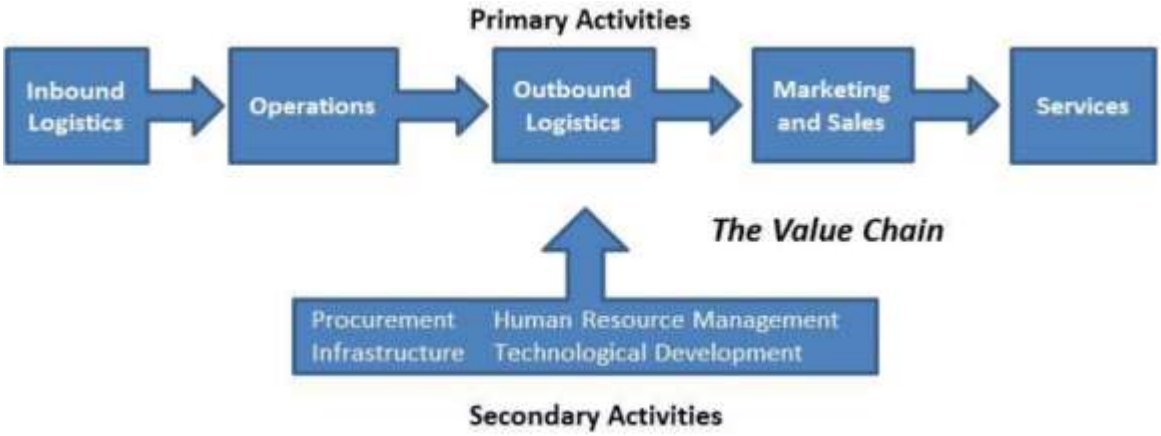

Figure 1: Michael Portal's Model of Value Chain (1985)

Value chain is a process through which, we can look up each and every steps from the procurement up to the end users of goods or services. It investigated that value as the base of the value chain and has explored several perspectives of value and delivered superior value, customer's perceived value and life time value of the customers to the firms are three most important elements for value chain. The value chain concept is originated from supply chain but it elucidates the value that is created at each stage of the chain which has vital role to satisfying consumers (Kumar & Rajeev, 2004).

According to the United Nations Environmental Programme (UNEP) and the United Nations General Council (UNGC) (2008), supply chains and value chains have clear definitions in business literature and operational thinking. Where a supply chain typically refers to the chain of suppliers inputting to a final product, value chain also encompasses thinking about the value created by the chain, particularly for end-use customers. In reflecting on how sustainability is incorporated into conventional supply chains, (we need to consider the wider context of the value of that activity — to the suppliers themselves, but also to the end-use customer and a range of other stakeholders, including communities and governments. This sits in the overlapping zone between supply chain and value chain — it draws from both concepts and hopefully also adds new dimensions that draw them closer together.

2.2 Theoretical Review: Risk Society Theory

The Risk Society Theory was propended by Beck (1992, 1999) and Giddens (2002). The central thesis of the theory is that there are unintended and unforeseen side effects of modern life, which backfire on modernity (itself) (Wimmer & Quandt, 2006). These side effects according to the theory change human society as it was exemplified in health risk on COVID-19 in Wuhan (China) in December 2019. The disease becomes a pandemic, through human migration, affecting all countries of the world, with several thousands of deaths. As the world is being de-territorialized, facilitating trade, communication, and information, it is also prone to (health) risks (Amzata, Aminub, Kolob et al., 2020).

Beck (1992) noted that the world reflects the creation of health hazards, which jeopardize human living conditions at a global level. According to the theory, modern advancements also come with a reproduction of risks: in this case, manufactured risks that lead to the gradual creation of risk society (Giddens, 2002). "Manufactured risks" are exacerbated and controllable by human interventions. A risk society is "a systematic way of dealing with hazards and insecurities induced and introduced by modernization itself" (Beck, 1992, p. 21). For Beck, "risk" is used in the contexts of hazard and vulnerability. The spread of

COVID-19 has shown how the world is vulnerable to risks through social connectedness due to advancements in transport technology. This theoretical background about pandemic-induced disruption and risk explains the globalization of COVID-19. It is, therefore, not surprising that COVID-19 has engulfed the world with the resultant socio-medical impairments. Nigeria also faces the growing burden of COVID-19.

2.3 Empirical Review

Historical Background of COVID-19 in Nigeria

The coronavirus began in Wuhan, Hubei Province, China. Residents who lived in Wuhan had some link to a large seafood and live animal market, which suggest that the mode of transmission of coronavirus was from animal to person. The virus has been named "SARS-CoV-2" and the disease it causes has been named "coronavirus disease 2019" (abbreviated "Covid-19").

Globally, the first known patient of Coronavirus started experiencing symptoms in Wuhan, China on 1 December 2019 (Ozili, 2020). In Africa, the first case of COVID-19 was confirmed in Egypt on February 14, 2020 (African News (2020). In Nigeria, the first confirmed case of Covid-19 was on February 27, 2020, when an Italian citizen on a business trip from Milan who had arrived in Lagos on February 25 tested positive for the virus (Nwaka, 2020). There are several conspiracy theories exist as regards to the origin of the virus, with some speculations of the virus being a biological weapon from China, amid many other unsubstantiated claims especially those linked with the 5G network being developed from China (Rincon, 2020).

On March 22, the Federal Ministry of Health announced in a television broadcast that there were twenty-seven confirmed cases of Covid-19 with the following breakdown: Lagos State (19), Federal Capital Territory/Abuja (4), Ogun State (2), Ekiti State (1), and Oyo State (1) (Adepoju, 2020). Symptoms of COVID-19 according to the World Health Organization include bot not limited to "loss of smell and taste, fever and cough which may resolve after some days, some other patients may develop more serious complications such as severe acute respiratory disease" (Obioma, Reuben & Elekwachi, 2020, p. 1).

The World Health Organisation (WHO), regional and national health bodies have adopted measures to stop the further spread of the disease, and has also tasked the public and the leadership of various countries to enforce the measures necessary to limit the spread of the virus such as social distancing, regular hand washing, lockdown and closing of borders (WHO, 2020). In response for the global outcry and demand for response actions on COVID-19, the Nigerian government in conjunction with the Federal Ministry of Health established Federal Task Force (PTF) on COVID-19 in collaboration with the National Centre for Disease Control (NCDC) with the mandated for critical preparedness, readiness, and response actions for the pandemic in Nigeria.

3. METHODOLOGY

This paper relied on secondary sources of data collection through content and documentary analyses from textbooks, journal articles, official government and institutional documents and reports, newspapers and the Internet. The research design was descriptive with qualitative research method.

4. DISCUSSIONS

4.1 Impact of Covid-19 on Supply Chain Operations in Nigeria

The COVID-19 pandemic brings global unprecedented challenges. Demand for many goods and services has fallen dramatically, whilst some manufacturers either have shortages or are overwhelmed. In Nigeria and around the world, borders are being closed and societies are having to change the way they live. As entire countries come under quarantine orders and consumers around the world try to reduce human contact, manufacturers need to recognize that their response to the novel COVID-19 Pandemic will have a significant impact on their business. Those that respond by rising up to the occasion would seek innovative ways of dealing with the situation while those who react may struggle with adapting to the changes they need to make to remain profitable and resilient in these times (KPMG, 2020). The pandemic has spread across countries and regions at a rapid pace. Lockdowns, border closures and restrictions on the movement of people and goods have caused a huge impact on the value chain of production and consumption across different economic sectors

According to the United Nations Development Programme (UNDP) (2020), countries have shut down the economy to slow the spread of the coronavirus. Supermarket shelves remain stocked for now. But a protracted pandemic crisis could quickly put a strain on the food supply chains, a complex web of interactions involving farmers, agricultural inputs, processing plants, shipping, retailers and more. The shipping industry is already reporting slowdowns because of port closures, and logistics hurdles could disrupt the supply chains in coming weeks (Cullen, 2020).

Pandemic is not a new event encountered in the history of humanity because mankind has faced various pandemics in history. The common point of pandemics is their serious negative effects on the global economy. Considering the food supply chain, one of the most important sectors of the economy, it has been seen that COVID-19 has an impact on the whole process from the field to the consumer. In the light of recent challenges in food supply chain, there is now considerable concern about food production, processing, distribution, and demand (Aday & Aday, 2020). COVID-19 resulted in the movement restrictions of workers, changes in demand of consumers, closure of food production facilities, restricted food trade policies, and financial pressures in food supply chain.

The areas the COVID-19 pandemic impacted negatively on the supply chain in Nigerian business are as follows:

4.1.1 Impact of Transport

It should be noted that supply chain can only be effective if the type of transport system is chosen properly. This is because, without transportation, logistics supply chain operations cannot be achieved by any organization. Therefore, the importance of transport in supply chain operations cannot be overemphazed. In line with this fact, Alexandra (2020) avers that from time immemorial, transportation services have been an absolute necessity for businesses and governments to operate successfully. Businesses rely on transport systems to fulfill purchase orders, likewise people who need to move from one place to another in a timely fashion. Consisting of several sectors, from airlines, to marine and logistics, the industry is ultimately the backbone of any economy. On the 27th of February 2020, Nigeria's first Covid-19 case came into the country through the Murtala Muhammed International Airport. This is not surprising considering how the airport is a foremost transport hub in the country. Since that first case, the country has witnessed a surge in Covid-19 cases, two phases of lockdown in metropolitan areas like Lagos State, Ogun State and the Federal Capital Territory, Abuja which spanned five weeks. Railway services have also been suspended and major international airports in Kano, Enugu, Port-Harcourt, Abuja and Lagos were closed to international flights.

Towing the line of empirical evidence, Babatubde (2020) explains that the COVID-19 crisis starkly demonstrated underscored the importance of economic activity in terms of generating the derived demand for movement. It's easy for planners and operators alike to forget this lesson in normal times when demand seems secure and growing. The effect of COVID-19 represents an opportunity for professional to recalibrate our understanding of the drivers of demand for transport and to think more carefully about the effect of health, economic and climate shocks on our industry. One of the first pieces of theory that transportation students are taught is that transport is a derived demand, in that people only use transport as it provides access to some other activity. The best that transport planners and operators can do is to provide opportunities for movement; professionals can encourage use of those opportunities through factors like pricing, speed, frequency and service quality. However, no one can force people to travel. According to Biodun Otunola, the Managing Director and Chief Executive of Planet Project Limited, in his interview with THISDAY, Nigeria has over 80 million people utilizing public transport daily. He explained that if the impact of the lockdown is assessed on the average national fare of N150 per day, it amounts to a total of N3 trillion for the period of five weeks. He stressed that the public transport sector and supply chains linked to transportation have been the most affected by the pandemic and the lockdown.

4.1.2 Production Capacity of Local Production

Almost all non-food manufacturing activities in the lockdown zone were shut down during the lockdown period. The Lagos and Ogun state industrial clusters account for about 60 percent of manufacturing in Nigeria, according to some estimates, and the Apapa Port in Lagos serves as the point of entry for primary and intermediate manufacturing inputs. There was a major negative shock for the manufacturing sector who could not carry out their supply operations from their warehouses to the middlemen and even to the final consumers. Affected industries include manufacturers of cement, basic and fabricated metals, plastics, glass, and furniture products. While port and cargo operations are exempt from movement restrictions, port operators and manufacturers complained that the lockdown almost immediately resulted in a backlog of containers and increased congestion at the port, as interstate movement restrictions and fear of harassment led to reduced trucking services. Moreover, although manufacturers of food, drugs, pharmaceuticals, among others, are exempt from restrictions, anecdotal evidence suggests that security concerns and supply chain disruptions have already resulted in companies operating below capacity (Andam et al., 2020)

As a result of this situation, Jackson et al. (2020) explain that local manufacturers were hugely exposed to external shocks. Only a few Nigerian companies could achieve end-to-end capacities across their supply chains. The infrastructural deficit, low or limited technological efficiency, storage, transportation, and manpower challenges contribute to the inability of local manufacturers to optimize the local supply chain. The fast-moving consumer goods (FMCG) and the pharmaceutical sectors were mostly under pressure to supply essential medical and food items. The Central Bank of Nigeria (CBN) introduced a special stimulus facility for the pharmaceutical industries to cushion the financial pressure on these companies and enhance their ability to scale local production during this period. KPMG (2020) observes that the COVID-19 Pandemic placed certain restrictions on the flow of both

people and goods across international borders and even locally in Nigeria. People and goods are the lifeblood of all businesses and disruption of these flows, even for a short period, can have a rapid and severe impact on the immediate condition of a business.

4.1.3 Import Dependence: Most Nigerian manufacturers depend mainly on raw material imports from countries like China, India, USA, France Netherlands, etc. A major disruption in the supply chain in these countries has a significant ripple effect on the supply chain in Nigeria. Apart from raw materials, the country also depends on imports for most of the intermediate and finished goods distributed in the country. Supply chain disruption is already triggering delays and the inability to meet supply obligations across the world. Many Nigerian manufacturers and suppliers may not be able to meet their contractual obligations. This raises concern about a breach of contract, the invocation of force majeure and possible litigation (Jackson et al 2020). There were supply shocks in the global supply chain as many importers shut down their factories and closed their borders particularly China. Nigeria was severely affected because Nigeria is an import-dependent country, and as a result, Nigeria witnessed shortage of crucial supplies like pharmaceutical supplies, spare parts, and finished goods from China (Ozili, 2020).

4.1.4 Delays in Port Clearance

Jackson et al. (2020) further explain that Nigeria is a classic case of how inefficiency at seaports can lead to disruption of supply chains. Protracted delays at the seaports are due to congestion, inefficiency, and lack of infrastructure. As a result of the ongoing quarantine efforts, and reduction of manpower, the situation is likely getting worse and imports are being channeled to the airports. Many raw materials, intermediate and finished products would be trapped at the seaports, as preference would be given to essential goods like pharmaceuticals and medical devices. There is also a concern that the implementation of the VAT increase to 7.5% will be counterproductive as the government would try to cushion the effect of the pandemic through tariff reduction.

Commercial vessels have stopped calling, with port calls falling by an estimated 30 per cent in February and container throughput estimated to decline by between 20 and 30 per cent, according to Clarkson, (a shipping research company), seven of the world's 10 largest container ports are in China, including Hong Kong. Many of the world's largest container shipping lines, including the Mediterranean Shipping Company (MSC), AP Moller Maersk, CMA-CGM and Hong Kong's own OOCL, have all cancelled their cargo routes from Asia to Europe and North America in recent weeks (Adekoya, Adepetun & Alade, 2020).

4.1.5 Foreign Exchange Challenges

The effect of COVID-19 pandemic on global crude oil prices has heightened fears of a foreign currency crisis, possibly worse than that of 2016. Currency devaluation is now imminent as the recent currency adjustment by the Central Bank of Nigeria indicates its inability to continue to defend the Naira. The increased cost of obtaining foreign currency for imports will lead to an escalation of cost for manufacturers and suppliers of goods. Although some companies have since taken a long-term view of the volatility of the Naira after the 2016 crisis and hedged their foreign exchange risk through the purchase of derivative products, so many still rely on the spot market (Jackson et al., 2020). The fear of financial and economic collapse during the pandemic led to panic buying, hoarding of foreign currency by individuals and businesses mostly for speculative reasons, flight to safety in investment and consumption, households stocking up on essential food and commodity items, businesses asking workers to work from home to reduce operating costs (Ozili, 2020). This cause increase in the foreign exchange rate to Naira. The impact of the diminishing value of the Naira on manufacturers and suppliers were and still significant.

4.2 Effects of COVID-19 on Supply Chain in Selected Sectors of Nigerian Economy

During the COVID-19 lockdowns, supply chains across the country was considerably affected. While the easing of the various weeks of lockdown of Lagos and other parts of the country granted measureable flexibility for the movement of essential goods and services, it was believed that there were other negative effects on supply chains across the country especially with more states effecting quasi-lockdowns. For instance, many State closed their land borders with all their neighbouring states. On the other end, the lockdowns of several other western and emerging market economies also implied that import-dependent supply chains in Nigeria would also be severely disrupted. Global linkages imply that Nigeria is increasingly aligned with trends and risks outside its shores. Thus, sectors in Nigeria that depend significantly on foreign input will be negatively impacted. Generally, these supply chain disruptions altered production and manufacturing, and general trade and commerce and other import dependent industries in the country (Agusto & Co., 2020).

This section of the study looks into how COVID-19 lockdown affected supply chain operations in some selected sectors of the Nigerian economy.

4.2.1 Renewable Energy Sector

The COVID-19 pandemic slowed down the global energy transition. Analysts forecast disruptions in the global supply chain of both solar and wind technologies due to the lockdowns in China and other economies (Isah & Jelilov, 2020). While a lot has been written on the effects of the COVID-19 outbreak on energy markets, little is known about how the pandemic is disrupting the decentralized clean energy sector in sub-Saharan Africa (SSA), where around 600 million people lack access to electricity. During

this period of lockdowns, access to reliable and clean electricity is extremely important not only for households' wellbeing but also for powering healthcare centers at the forefront of responding to the pandemic (Ogunbiyi, 2020).

In Nigeria, the immediate impact of the pandemic comes from the supply side of the decentralized sector. Due to lack of domestic capacity to produce clean energy technologies, the Nigerian off-grid businesses rely on the importation of solar components from China, Europe, and the U.S. Given that production has been affected in major economies over the past several months, the supply chain of clean technologies in Nigeria has been significantly disrupted. The survey results indicate that about 88% of solar off-grid operators have experienced delays while trying to import solar components (such as panels, batteries, etc.) during the period of lockdown because of the pandemic. This was likely to result in a shortage of solar products that would worsen unless countries adopt a coordinated response to ensure global trade continues smoothly (Isah & Jelilov, 2020).

4.2.2 Food and Beverage Industry

A major concern shared by all food companies is preserving the employee's health and the provision of sufficient workforce due to those who do not want to work because of sickness or coronavirus fear. It is very important to protect and maintain the health of people working in the food supply chain during this time of crisis (Food and Agriculture Organization of the United Nations, 2020; World Health Organization, 2020). Consumer Product companies especially those in food and beverage sector faced serious disruptions in the supply of raw and finished materials as well as critical components given that COVID-19 crisis started in China, the world's production hub for electronics, footwear, apparel, and other non-food products (Isah & Jelilov, 2020).

However, due to the pandemic, governments around the world have made significant restrictions in the transportation (land, water, and air transport) of goods, as well as in the migration of labour. Reports showed that using the trucks for food distribution was declined to 60% since the restrictions in France which was 30% before the pandemic (FAO, 2020; Bakalis et al., 2020). In developing and underdeveloped countries, temporary or seasonal employment is common, especially for planting, sorting, harvesting, processing, or transporting crops to markets. Therefore, the supply chain is significantly affected as a result of the absence of local or migrant workers due to sickness or travel restrictions imposed by lockdown.

The COVID-19 Pandemic has seen certain restrictions placed on the flow of both people and goods across international borders and even locally in Nigeria. People and goods are the lifeblood of all businesses and disruption of these flows, even for a short period, can have a rapid and severe impact on the immediate condition of a business (KPMG, 2020). Nigeria is import-dependent and has felt the impact of the disruptions in global supply chains. Over the last few weeks, there has been a visible scarcity of some non-food and beverage products. There has also been a scramble by Nigerian food and beverage companies to switch supply chains and build new supplier networks. As (and when) manufacturing capacity returns to normal levels, a backlog of orders will need to be cleared, putting further pressure on supply chains (Isah & Jelilov, 2020).

In the grocery and food retail sub-sector, some retailers are running out of stock of imported products due to disruptions in global supply chains. Local supply chains have also been disrupted resulting in product delays and artificial scarcity. Immediate effects are product scarcity, price hikes and inflation. The sudden shift in channel preference coupled with stock-outs and a lack of capacity from e-commerce grocery players have created an environment poised for innovation, disruption and new entrants. Supply chains will need to be realigned as longer-term changes settle in post-pandemic (Deloitte, 2020).

4.2.3 Manufacturing Sector

Almost all non-food manufacturing activities in the lockdown zone were shut down during the lockdown period. The Lagos and Ogun state industrial clusters account for about 60 percent of manufacturing in Nigeria, according to some estimates, and the Apapa Port in Lagos serves as the point of entry for primary and intermediate manufacturing inputs. As such, we anticipate a major negative shock for the manufacturing sector. Affected industries include manufacturers of cement, basic and fabricated metals, plastics, glass, and furniture products. While port and cargo operations are exempt from movement restrictions, port operators and manufacturers have reported that the lockdown almost immediately resulted in a backlog of containers and increased congestion at the port, as interstate movement restrictions and fear of harassment led to reduced trucking services. Moreover, although manufacturers of food, drugs, pharmaceuticals, among others, are exempt from restrictions, anecdotal evidence suggests that security concerns and supply chain disruptions have already resulted in companies operating below capacity (Andam et al., 2020).

4.2.4 Oil and Gas Industry

There was serious supply glut, which affected the prices of crude oil at the international market and consequently brought about dwindling government revenues. Oil is Nigeria's top foreign exchange earner and contributes nearly 90% in revenues to the government. As one of the leading producers (number 4 within the OPEC group and 11th in the world), Nigeria has both benefited and felt the adverse effects of these oil price cycles. Substantial savings where made into the Excess Crude Account (ECA) during surplus which stands at only about US$71 million today (Daily Trust Newspaper, 2020). The country now faces not just a direct

loss of revenue from oil that will lead the country into a recession, it may also be forced to another devaluation of the Naira as it runs out of foreign cash reserves. The lockdown also impacted negatively in the projected earnings from local taxes set for the Federal Inland Revenue Service (FIRS) as businesses and citizens were be on lockdown for most of March and June.

This situation impaired on the supply chain operations in the sector. As KPMG (2020b) observe that the major downstream projects under construction potentially experienced some delays in execution due to the disruption in supply chains. The significant slow-down being experienced in the oil & gas industry supply chain also led to staff redundancy in the short to medium term. The foregoing poses a long-term existential threat to businesses in the midstream/oilfield services sector as a number of the participants in the sector have seen their contracts terminated.

5. CONCLUSION AND RECOMMENDATIONS

COVID-19 will have a differing impact on different supply value chains, as well as within each individual value chain. The impact of the pandemic on the supply values chain led to inadequate delivery of consumable and non-consumable goods to the final consumers. In another part, the pandemic impacted on demand, which ultimately affected producers in the value chain. The financial burdens were substantially bore by the producers across the chain. This came inform of delayed payment, no reinvestments, inability for further production. On investment there were little or total lack of capital gain. All these adverse conditions do not promote business continuity and sustainability.

In every adversity there is are opportunities. Micro, small and medium enterprises should be flexible to explore deliverables of sectors made active by the pandemic. Some sectors whose goods and services were in active demand throughout the period of the pandemic are healthcare, e-commerce businesses, agriculture, telecommunication etc. Deliverables from these sectors were in high demand.

It is therefore recommended that companies and businesses should leverage and diversify into pandemic made active sectors (Kalu, 2020). It is also recommended that due to the current situation as a result of the COVID-19 pandemic, businesses should strategically adopt a more dynamic working plans trough the instrumentality of information and communications technology platforms for electronic meetings and teleworking.

References

Alexandra, M. O. (2020). Covid-19 Outbreak and the Transportation Industry – Effects, Challenges and Prospects. Retrieved from https://www.tekedia.com/covid-19-outbreak- and-the-transportation-industry-effects-challenges-and-prospects/

Aday, S., & Aday, M. S. (2020). Impact of COVID-19 on the food supply chain: Review. *Food Quality and Safety*, 2020, XX, 1–14

Adekoya, F., Adepetun, A., & Alade, A. (2020). Economic impact of COVID-19 hits Nigeria's trade, supply chain. Guardian newspaper on 21st march. Retrieved from https://guardian.ng/news/economic-impact-of-covid-19-hits-nigerias-trade-supply-chain/

Adeniran, A. (2020). Covid-19 Pandemic and the Likely Consequences on the Oil and Gas Sector on Nigeria: Any Feasible Options? Retrieved from http://cpparesearch.org/nu-en-pl/covid- 19-pandemic-likely-consequences-oil-gas-sector-nigeria-feasible-options/

Adepoju, P. (2020). Nigeria Responds to COVID-19; First Case Detected in Sub-Saharan Africa. *Nature Medicine* 26, no. 4 (2020): 444-48. Retrieved from https://doi.org/10.1038/641591-020-0004-2.

African News (2020). COVID-19: Egypt confirms first coronavirus case in Africa.

Agusto & Co. (2020). COVID-19 in Nigeria: Economic Perspectives and Mitigating the Risks. Retrieved from https://www.agusto.com/publications/covid-19-in-nigeria-economic- perspectives-and-mitigating-the-risks/

Amzata, J., Aminub, K., Kolob, V. I., Akinyele, A. A., Ogundairo, J. A., & Danjibo, M. C. (2020). Coronavirus outbreak in Nigeria: Burden and socio-medical response during the first 100 days. *International Journal of Infectious Diseases*, 98; 218–224. Retrieved from www.elsevier.com/locate/ijid

Andam, K., Edeh, H., Oboh, V., Pauw, K., & Thurlow, J. (2020). Estimating the Economic Costs of COVID-19 in Nigeria. Strategy Support Program.

Babatunde, A. I. (2020). Impacts of COVID 19 on supply chain operations in Nigeria. *International Journal of Business and Management Invention (IJBMI)* ISSN (Online): 2319-8028, ISSN (Print):2319-801X www.ijbmi.org || Volume 9 Issue 4 Ser. I, April, PP 43-52. Retrieved from www.ijbmi.org 43 | Page

Bakalis, S., Valdramidis, V. P., Argyropoulos, *et al.* (2020). Perspectives from CO+RE: how COVID-19 changed our food systems and food security paradigms. *Current Research in Food Science*, 3: 166–172.

Beck, U. (1992). Risk Society: Towards a New Modernity. New Delhi: Sage.

Beck, U. (1999). World Risk Society. Malden, MA: Polity Press.

Brown, J. (2020). The Coronavirus Is No 1918 Pandemic; The differences between the global response to the Great Flu Pandemic and today's COVID-19 outbreak could not be more striking. *The Atlantic*. March 3.

Daily Trust Newspaper. (2020, March 10). How Excess Crude Account was depleted to $71.8m in 2020 – Accountant General. Retrieved from https://www.dailytrust.com.ng/how-excess- crude-account-was-depleted-to-71-8m-in-2020-accountant-general.html#

Deloitte (2020). Understanding the sector impact of COVID-19 on Nigeria Consumer Products.

Etukudoh, N. S., Obiora, E. R., Adeyemi, O. F., et al (2020). Coronavirus (*COVID-19*); Review from A Nigerian Perspective. *American Journal of Biomedical Science & Research*

Federal Ministry of Health (FMOH) (2020). First case of Coronavirus disease confirmed in Nigeria.

Food and Agriculture Organization of the United Nations (FAO). (2020). Policy responses to keep input markets flowing in times of COVID-19. Retrieved from http://www.fao.org/3/ca8979en/CA8979EN.pdf.

Food and Agriculture Organization of the United Nations (FAO), World Health Organization (WHO). (2020). COVID-19 and Food Safety: Guidance for food businesses: Interim guidance. Retrieved from http://www.fao.org/3/ca8660en/CA8660EN.pdf.

Giddens, A. (2002). Runaway world: How Globalization is shaping the World. London: Profile Books.

Harris, S. S. (2000). A Dictionary of Epidemiology, Fourth Edition.

Honigsbaum, M. (2009). Historical keyword Pandemic. The Lancet, 373.

Ibrahim, A. B. (2020). Impacts of COVID 19 on supply chain operations in Nigeria. *International Journal of Business and Management Invention (IJBMI)* Volume 9 Issue 4 Ser. I, April, PP 43-52. Retrieved from www.ijbmi.org

Isah, A., & Jelilov, G. (2020). The Impact of COVID-19 on the Off-grid Renewable Energy Sector in Nigeria. *IAEE Energy Forum*, Covid-19 Issue 2020

Jackson, Etti & Edu (2020). COVID-19 Pandemic and Impact on Business in Nigeria: No Longer Business as Usual

John Hopkins University (2020). U.S.A: John Hopkins Coronavirus Recourses Center.

Kalu, S. M. (2020). National Survey Report on the Impact of Covid-19 on Nigeria Private Sector

KPMG (2020A). Impact of COVID-19 on the Nigerian Consumer and Industrial Market.

KPMG (2020B). The Twin Shocks and the Nigerian Energy & Natural Resources Industry: An Analysis of the Challenges, Consequences and Cure.

Kumar, D., & Rajeev, P. V. (2004). Value Chain: A Conceptual Framework. *International Journal on Engineering and Management Sciences,* VOL.7 (1) 2016: 74-77.

Mentzer, J. T., DeWitt, W. K., James S., Min, S., et al. (2001). Defining supply chain management*: Journal of Business Logistics*: 1-25.

Morens, D. M., Folkers, G. K., & Fauci, A. S. (2009). What is a pandemic? J Infect Dis, 200(7), 1018-1021. doi: 10.1086/644537

Nassiri, N. (2020). Perspective on Wuhan Viral Pneumonia. Adv in Pub Health, Com and Trop Med: APCTM-106. Kosmos Publishers.

Nwankwo, S. I. (2020). The Role of Outsourcing Supply Chain Management: A Study of Nigerian Breweries PLC. *International Journal of Academic Management Science Research (IJAMSR).* Vol. 4 Issue 10, October - 2020, Pages: 8-15. Retrieved from www.ijeais.org/ijamsr

Obioma, A., Reuben, A. A., & Elekwachi, A. B. (2020). Potential Impact of COVID-19 Pandemic on the Socio-Economic Situations in Nigeria: A Huge Public Health Risk of unprecedented Concern. *Journal of Quality in Health care & Economics* 3(4): 000175.

Ogunbiyi, D. (2020). Here's why energy security is a vital tool in tackling a pandemic. Retrieved from https://www.weforum.org/agenda/2020/04/pandemic-energy-access-coronavirus/

Ozili, P. K. (2020). COVID-19 Pandemic and Economic Crisis: The Nigerian Experience and Structural Causes.

Porter, M. E. (1985). Competitive Advantage. 1985, pp 11-15. New York: The Free Press. Available at http://www.ifm.eng.cam.ac.uk/research/dstools/value-chain-/ drawing on., "

PricewaterhouseCoopers (2020). Impact of COVID-19 on Supply Chain Industry

Qiu, W., Rutherford, S., Mao, A., & Chu, C. (2016-2017). The Pandemic and its Impacts. *Health, Culture and Society*, Vol 9–10. Retrieved from http://hcs.pitt.edu

Rewar, S., Mirdha, D., & Rewar, P. (2015). Treatment and Prevention of Pandemic H1N1 Influenza. Annals of Global Health, 81(5), 645-653. doi: Retrieved from http://dx.doi.org/10.1016/j.aogh.2015.08.014

Robert, G. P. (1984). Harrison;s Principle of Internal Medicine (6th Edn): 477. NY.

Rincon, P. (2020). Coronavirus: Is there any evidence for lab release theory? Science and environment.

Sasakawa Africa Association (2020). Assessment of the Impact of COVID-19 on Food Systems in Africa and Recommended Mitigation Measures. *Summary Findings.*

Taubenberger, J. K., & Morens, D. M. (2009). Pandemic influenza - including a risk assessment of H5N1. *Revue Scientifique Et Technique-Office International Des Epizooties*, 28(1), 187- 202.

Twin, A. (2020). Competitive Advantage. Retrieved from https://www.investopedia.com/terms/c /competitive_advantage.asp

United Nations Development Programme (UNDP) (2020). COVID-19 pandemic: humanity needs leadership and solidarity to defeat the virus. Retrieved from https://www.undp.org/content/undp/en/home/coronavirus.html.

WHO Director-General. WHO Director-General's opening remarks at the media briefing on COVID-19: 11 March 2020. Geneva: World Health Organization; 2020. Retrieved from: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarksatthe- media-briefing-on-covid-19—11-march-2020

World Health Organisation (2020) Critical preparedness, readiness, and response actions for COVID-19.