COVID-19 AND POVERTY ASSESSMENT IN NIGERIA – THE VULNERABILITY APPROACH

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ABSTRACT

The aim of the study was to abstract from the vulnerability theory to predict the likelihood of more people in Nigeria falling into the poverty trap as a result of the Covid-19 pandemic. The study used a parametric technique to obtain estimates of the mean and variance of one-period ahead log-consumption. In doing this, the study hypothesized that estimating household consumption function is important in making inferences about the future and in assessing the vulnerability of household to shocks. The simulation analysis shows that of the 82 percent of the households that are vulnerable to poverty, only about 13 percent are in transitory poverty while the rest are in structural poverty. The implication of this finding is that poverty situation in Nigeria is widespread, entrenched and inter-generational. The current coronavirus pandemic has merely worsened the poverty situation and is not the fundamental cause of poverty in Nigeria. The study recommended among others, that anti-poverty intervention measures of the government, going forward, must be forward-looking and aim largely to increase the productive capacity of the populace instead of merely aiming to alleviate their current state of poverty.

Contribution/Originality: This study contributes to existing literature by providing an alternative approach at measuring poverty based on vulnerability index. The vulnerability approach is a forward-looking, ex-ante paradigm which looks beyond who is currently poor to who may be poor in the future. The study provides the necessary distributional assumptions in order to draw inference about future consumption prospect and using the estimates of household current consumption to predict their vulnerability in the face of shocks. This has implication for government anti-poverty interventions.

1. INTRODUCTION

The coronavirus pandemic which broke out in the city of Wuhan, China on December, 2019 and later spread to other parts of the world from early February, 2020 has expectedly worsened the fate of the poor in developing countries such as in Nigeria (World Bank, 2020). Even before this pandemic, Nigeria was already battling the scourge of poverty and was adjudged home to the largest number of poor black people in the world by the report of the World Economic Forum (2019). According to the International Monetary Fund (2020), the pandemic has complicated the poverty situation in Africa, and Nigeria in particular, because of the multifaceted dimensions and consequences of the pandemic. This much was affirmed by the African Union Ministers of Agriculture (African Union, 2020), when they remarked that:

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"The COVID-19 pandemic poses significant challenges to the already strained health, food and nutrition security and broad socio-economic conditions in Africa. The growing direct impact of the pandemic is affecting health, in terms of morbidity and mortality, quickly overburdening health care services with negative repercussions for non-COVID-19 related health problems. The decline in demand and production from the most economically developed countries where contagion had initially hit hardest is causing a global recession, with direct repercussions in Africa. With the spread of the virus in the continent, containment measures, including social distancing and lockdowns, closing of schools, the prohibition of public gatherings and the closure of non-essential businesses and economic activities, will have far-reaching consequences"

Indeed, one of the direct consequences of the pandemic in Nigeria is worsening poverty situation, especially food shortage and malnutrition. Prior to the onset of the pandemic, the president of Nigeria, Mohammadu Buhari, had placed poverty alleviation in the front burner of the year 2020 budget (Budget Office of the Federation, 2020). This was the fifth year in succession that the federal government of Nigeria was placing poverty alleviation in the fiscal spotlight. This underscores the magnitude of the problem and the seemingly deliberate attempt by the government to eradicate poverty with the full pledge of the national budget in line with the aspirations of the Sustainable Development Goals (SDGs) of the (United Nations, 2015).

It must be remarked that successive governments in Nigeria, post-independence, have battled with poverty alleviation from different perspectives. One notable policy in this direction, was the "Operation Feed the Nation" program of 1976-1980 under the regime of General Olusegun Obasanjo (Daneji, 2011). The programme sought to increase food production, on the assumption that if cheaper food is made available, then nutrition level will be higher and consequently, the poverty level will be reduced.

Shortly afterwards, the "Green Revolution" under the regime of Nigeria's first civilian president, Alhaji Shehu Shagari in the early 1980s was instituted. The programme was also aimed at increasing food production so as to meet the food need of the Nigerian population thereby reducing or alleviating poverty (Elemi, 2015). It must be conceded by the benefit of hindsight that this programme succeeded in increasing agricultural productivity; however, it did not solve the problem of poverty as the number of poor people in Nigeria was still unacceptably high at the end of the programme (Elemi, 2015).

When the military government took over in 1983, the military regime of General Mohammadu Buhari initiated a robust poverty alleviation programme under the "Directorate of Food, Road and Rural Infrastructure" (Daneji, 2011). Barely a year afterwards, the regime of General Ibrahim Babaginda took over governance in 1984 and also initiated its own poverty alleviation programme with the establishment of the "Nigerian Agricultural Land Development Authority (NALDA)" and "National Directorate of Employment." Both agencies were charged with increasing food production and youth employment in a bid to reduce poverty in the country (Aminu, 2019).

Furthermore, there was "Family Economic Advancement Programme (FEAP)" under the Late General Sani Abacha regime in 1994, which was also aimed at alleviating poverty through animal husbandry, garri processing and poultry farming. This programme like others before it did not succeed in eliminating poverty or even reducing it to acceptable level.

Other poverty alleviation programmes that successive governments in Nigeria have tinkered with include: "Better Life for Rural Women" in 1987, "Family Support Program" in 1994, "National Special Food Production" in 1997, "National Poverty Eradication Program" in 2001, "Presidential Initiatives on Cassava, Yam, Cocoa, Rice and Vegetable Oil" in 2002, and in year 2016 was "N500billion Social Investment Program on Poverty Alleviation" (Aminu, 2019).

Regrettably, all these programmes had minimal impact on poverty situation in Nigeria. Indeed, for the last 3 decades Nigeria has remained among the top 5 poorest countries in the world, and up to 2005 was second only to

India. However, by 2019, Nigeria had overtaken India as the country with the highest number of poor people per capita in the world (World Economic Forum, 2019).

It could be argued that one major reason for the failure of the various poverty alleviation programmes in reducing or alleviation poverty in Nigeria is on the exact measurement of poverty itself. The National Bureau of Statistics, the relevant government agency in Nigeria, have always measured poverty as an ex-post phenomenon. In other words, the current observed level of poverty is a measure of household's wellbeing or lack of it based on food consumption and minimum calorie. This ex-post approach is deemed inappropriate as poverty is largely a stochastic phenomenon and thus, the current poverty level of a household may not necessarily be a good guide to the household's expected poverty in the future (Chaudhuri, 2003). In other words, appropriate forward-looking anti-poverty interventions must go beyond the usual cataloguing of "who is currently poor and who is not", to an assessment 'who will be poor tomorrow' and 'to what degree'? In short, an assessment of household's vulnerability to poverty going forward (Kamanou & Morduch, 2002).

This approach at measuring poverty based on vulnerability has not been adopted in Nigeria by governments over the years. The vulnerability approach is a forward-looking, ex-ante perspective which looks beyond who is currently poor to who may be poor in the future. Furthermore, it also elucidates how vulnerable the current poor may be in the face of shocks occasioned by various stochastic events, such as anthropogenic outcomes like the current coronavirus pandemic. This forms the fulcrum of this research work.

From the foregoing, the rest of the paper is as follows: section 2 will explain the research context in Nigeria. A brief explanation for the choice of Nigeria as case study in the face of the coronavirus pandemic will be given. In section 3, a review of some of the literature on the concepts of poverty and vulnerability will be done to establish the link or causality between the two variables. Section 4 will present the methodology of the study focusing essentially on vulnerability framework, while in section 5, an analysis of relevant data using statistical and econometric techniques will be carried out while drawing conclusions along the line. The section will also draw conclusions and proffer relevant recommendations for policy action.

2. JUSTIFICATION FOR THE STUDY

There has been no study conducted to assess the vulnerability of the poor in Nigeria especially in the face of shocks or pandemics. This study will elucidate on this blind spot and enhance our understanding on how a forward-looking, ex-ante perspective which looks beyond who is currently poor to who may be poor in the future may yield policy-relevant insights on the type of poverty interventions that may be necessary.

Nigeria is deemed a classic *poster child* in any discussion on poverty and vulnerability. Apart from being categorized as the poorest country in the world, a position she took over from India in 2018 (World Economic Forum, 2019), the country has unique socio-economic and political characteristics that could worsen the impact of the current coronavirus pandemic (World Bank, 2020). For instance, the country has very limited fiscal capacity for economic maneuvering in a situation of sudden shock that the COVID-19 pandemic has presented. The country has very low ratio of public revenue to GDP which is estimated at 15% compared to Brazil at 30%, or the United Kingdom at 37%. At 15% public revenue/GDP ratio, Nigeria is below the African average of 19%. Again, the tax-to-GDP ratio for Nigeria has hovered between 6%-7% for over a decade as against African average of 22%. The situation is further compounded by a high debt servicing ratio which is above 22% of public revenue as against the ratios for countries such as Mexico (17%), Brazil (11%) and India (8%) (International Monetary Fund, 2020).

Suffice to also mention the preponderance of large unorganized informal sector that characterize the country's economic hub. Micro, small and medium enterprises (MSMEs) account for over 70% employment in Nigeria as against sub-Saharan African average of 55%, or 40% in Latin America and India or 15% in OECD countries (International Monetary Fund, 2020). Many of these micro and small enterprises have very limited and poor infrastructure which will make it difficult for their staff to work from home as it is the case in other countries during

the pandemic-induced lockdown (WIEGO, 2020). Even for those who could manage to put up an appearance, the problems of perennial power outages and high cost of data acquisition will make it difficult for them to achieve any significant rate of productivity.

Nigeria is also disadvantaged in terms of its young and poor demographics. Specifically, it is estimated that 50 to 70% of its urban dwellers live in slums and shanties compared to 23% in Latin America, or 17% in India. Also, Nigeria has comparatively younger population with median age of approximately 19 years, while it is 27 years in India and 43 years in Europe (World Bank, 2019). Much more, it is estimated that over 45million youths are in vulnerable employment in Nigeria, majority of which contributes very minimally to the economy, if at all (WIEGO, 2020).

Moreover, the coronavirus pandemic has led to closure of schools in Nigeria as obtained in other countries. However, it is expected that the impact of school closure in Nigeria is going to be higher due to lack of infrastructural facilities to drive virtual teaching and learning. The high cost of data acquisition to aid internet connectivity for the few schools which could afford to engage in online learning further aggravates the impact. In the long term, this could increase the number of school drop-outs, which currently is about 38% when compared with an average of 19% in OECD countries (IMF, 2020).

There is also the issue of high level of corruption and lack of transparency in public accountability. This will further deepen the problem of effective and efficient management of public funds from internal and external sources that have been coming in for the purpose of tackling the pandemic. Already, there have been accusations and claims that the funds meant for palliatives to the poorest and most vulnerable households in the country have been diverted to imaginary recipients (Coalition of Civil Organizations, 2020).

Finally, it should be noted that the coronavirus pandemic is, first and foremost, a public health issue. In this regard, Nigeria has a very poor and fragile healthcare system, even by developing countries standard (Nigeria Centre for Disease Control, 2020b; Presidential Task Force-Covid-19, 2020). The country has significantly low number of healthcare professionals and very low doctor-to-patient ratio estimated at about 1-doctor-to-1,000 patients or 30-doctors-to-100,000 patients, as against 3-doctors-100 patients in countries like South Africa and 5 in Cuba (Business Day Newspaper, 2020). There are also very limited hospital beds, testing and treatment capacity. For instance, with a population of over 170 million people, the country has only tested less than 200,000 people in the months of June and July, 2020 as against almost 800,000 tested by South Africa with a population of less than 70 million people within the same period (Department for International Development, 2020).

The foregoing portends a grim picture for the country and the millions of people living in extreme poverty whose very limited means of livelihood will be seriously affected by the pandemic. It becomes imperative to assess the country's vulnerability to poverty in the face of the current pandemic and future occurrences for policy purposes. This assessment will be carried out using the vulnerability assessment framework suggested by (Chaudhuri, 2003).

2.1. Objectives of the Study

The broad objective of the study is to estimate the vulnerability of the poor in Nigeria based on data from the 2004, 2010 and 2019 household surveys.

To achieve this, the study will:

a) Specify the data generating process for estimating poverty in Nigeria.
b) Estimate the parameters of household consumption.
c) Analyze the necessary distributional assumptions in order to draw inference about future consumption prospects (in other words, use estimates of household consumption to predict vulnerability).
d) Use the estimate of vulnerability to recommend policy actions.

3. REVIEW OF RELATED LITERATURE

3.1. Concept of Poverty and Measurements

Generally, there is no precise and acceptable definition of poverty in extant literature. This is because of the multi-dimensional nature of poverty (United Nations, 2014). It becomes obvious from the various conceptualization of poverty that how one defines poverty depends on the approach used to conceptualize and measure it. Various approaches exist in the conceptualization of poverty, namely the social exclusion approach (World Bank, 2014), the monetarist approach (Titumir & Rahman, 2013), the participatory approach (Amin, Rai, & Topa, 2003), the capability approach (Sen, 1988), and the vulnerability approach (Barrientos & Hulme, 2008).

The Nigeria Bureau of Statistics measures poverty in Nigeria using the monetarist approach. This approach measures poverty in terms of monetary value using the poverty line,[1] or the national poverty rate[2] and income or consumption measurement. In other words, those under the threshold or below the poverty line or poverty rate are said to be poor (Titumir & Rahman, 2013).

The monetarist approach sees poverty as lacking adequate income for the acquisition of basic goods and services needed for a socially acceptable minimum standard of living. Of course, possession of income is a function of education, health, life expectancy, child mortality, and a host of other variables. This approach uses an ex-post measurement of poverty and is deemed inappropriate as poverty is largely a stochastic phenomenon and thus the current poverty level of a household may not necessarily be a reliable guide to household's expected poverty in the future (Chaudhuri, 2003).

The vulnerability approach seems to be a better approach in conceptualizing poverty, especially in a developing country such as Nigeria. The vulnerability approach focuses on how people are exposed to the risk of shockswhich can be economic, unemployment, health hazard, human capital hazard, and anthropogenic shocks, and how people are affected by these events that make them susceptible to poverty. According to Barrientos & Hulme (2008), the vulnerability approach to poverty looks at how people could become poor as a result of adverse events or untoward events. The vulnerability approach is simply a forward-looking, ex-ante, and stochastic approach to poverty measurement that looks at not only those who are currently poor but those who could become poor as a result of adverse events, macroeconomic shocks, or diseases (Prowse, 2003). This approach was adopted as the appropriate theoretical framework for the study.

3.2. Poverty and Vulnerability

Poverty and vulnerability are intricately linked by risk coefficient. This intuitive appeal to associate poverty with vulnerability may not be entirely wrong. According to Chaudhuri (2003), "poverty is an ex-post measure of a household's well-being, or lack thereof" Poverty, therefore, reflects a current state of deprivation, of lacking the resources or capabilities to satisfy current needs. Vulnerability, on the other hand, may be broadly seen as an ex-ante measure of well-being, reflecting not just how well off a household currently is, but what its future prospects are (Heitzmann, Canagarajah, and Siegel, 2002). Therefore, there is a thin line between the two concepts: both may well be two sides of the same coin that are only separated by the concept of risk or uncertainty (Alwang, Siegel, & Jorgensen, 2001). For instance, poverty is certain; the number of people who are currently poor is certain and can be ascertained through surveys, but the risk (or the vulnerability) of falling into poverty in the future is, in itself, uncertain. The future cannot be measured with certainty because, according to Keynes (1936), there is no stochastic

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[1] The poverty line represents the value of basic needs (food and non-food) considered essential for meeting the minimum socially acceptable standard of living within a given society (UNDP, 2006).

[2] The national poverty rate is the percentage of the population of a country living below the poverty line (Chibuike, 2000). In Nigeria, the number of people living below the poverty line was estimated at over 70 million as of 2018 (World Economic Forum, 2019). That number represents approximately 70% of the country's population based on the 2010 population census and a 2.8% population growth rate (World Bank, 2019).

means of measuring the future with certainty. The risk concerning the future is not only uncertain but can be multi-dimensional and, thereby, defy precise measurements. Households' vulnerability to risk that could predispose them to poverty in the future could come from multiple sources, such as from harvest failures, rising food prices, declines in the main income of the household, disease and sickness, natural disasters, political upheavals, and economic downturns (Chaudhuri, 2003).

It becomes obvious that without the presence of risk or the uncertainty of the future, there will be no difference between ex-ante (vulnerability) and ex-post (poverty) measures of households' well-being.

3.3. Review of Households' Poverty and Vulnerability

In his taxonomy on household vulnerability to poverty, Chaudhuri (2003) observed that "a household's vulnerability to poverty at any point in time depends on how its livelihood prospects and well-being is likely to evolve over time". This also depends on future income prospects, the degree of income volatility the household faces, and its ability to reduce consumption in the face of income or other livelihood shocks. It should be noted that households generally operate in a complex environment that is composed of clusters—macroeconomic, institutional, social, political, physical, ecological, etc. The complex interactions of these environmental clusters could affect a household's well-being. In other words, a household could be adversely affected through exposure to shocks from environmental factors, such as commodity price shocks or pandemics.

In their study, Shepherd, Chiara, & Laura (2016) observed that households that are in transitory poverty suffer less disproportionately from exposure to adverse shocks than the structurally or chronically poor. The structural or chronically poor are households that are exposed to adverse shocks and at the same time also have limited long-term income generating capacity. These are the characteristics of the majority of the poor in Nigeria, and these are the people who successive government poverty alleviation programmes have targeted but with very little result.

Regarding mitigation measures, Prowse (2003) recommended that both the transitory poor and the chronically poor may adopt a variety of coping measures to meet basic essential needs. According to him, some of these coping strategies might help the households to meet critical short-term needs but can be costly in terms of the future well-being of the household and, in particular, may condemn the households, especially the children, to a lifetime of poverty as well. To this end, an essential component of any sustainable poverty alleviation programme must be one that can prevent the transmission of poverty from one generation to the next (Cardona, 2004). This has not been the case with the various poverty alleviation strategies adopted by Nigerian governments since the early 1980s, as poverty in Nigeria has tended towards being, in most cases, an inter-generational, vicious, and self-sustaining cycle.

In the light of the above, sustainable poverty alleviation strategies should not only aim to reduce poverty and vulnerability to poverty, or the transmission of poverty from one generation to the next, but should go beyond the proximate causes of poverty (Heitzmann et al., 2002). Such strategies should address both remote and immediate causes of poverty as well as have a predictive power on the vulnerability of people to poverty in the event of adverse shocks (Chaudhuri, 2003). In a bid to achieve this, it is pertinent to have a broad categorization of the causes of poverty. This is by no means an easy task given the complex web and interaction of factors that lead to poverty.

However, Chaudhuri (2003) provided a simple template for identifying households that are more likely to suffer from exposure to adverse events and shocks; they are as follows:

- Households that have limited earnings prospects and income generating capacity.
- Households that have low levels of human capital, know-how and access to information.
- Households that suffer from physical and psychological disabilities.
- Households with few productive and financial assets.
- Households that suffer from social exclusion or have inadequate networks of social support.
- Households that have limited access to credit and risk-management instruments.
- Households that live in a setting with adverse agroclimatic conditions and limited natural resources.

- Households that live a community where there is insufficient entrepreneurial activity and job creation.
- Households that work in a sector that is particularly sensitive to macroeconomic volatility and sectoral shocks.

This list shows the multiple interlocking paths to poverty and is typical of most of the households in Nigeria, especially those living in rural areas where the level of poverty is disproportionately higher.

4. METHODOLOGY

4.1. Research Design

The ex-post facto design was adopted using secondary data based on the 2003/04, 2009/10 and 2018/19 household surveys conducted and published by the Nigerian National Bureau of Statistics (NBS) (Nigeria Bureau of Statistics, 2006; Nigeria Bureau of Statistics, 2010; Nigeria Bureau of Statistics, 2019). Data from the surveys on household consumption expenditure and characteristics were used to estimate the relevant parameters of the consumption process and from the distributional assumptions; inferences were drawn about future consumption patterns. From these consumption process estimates, the vulnerability of households to present and future shocks, including pandemics, were estimated.

4.2. Data

Data for the study were drawn from the 2003/04 Nigerian Living Standard Survey (NLSS), the 2010 Harmonized Nigerian Living Standard Survey (HNLSS), and the Nigeria General Household Survey (GHS), Panel 2018/19, Wave 4 conducted by the NBS in collaboration with the World Bank. The 2003/04 Nigeria Living Standard Survey was institutionalized by the NBS to provide a major survey mechanism framework for regular production, management, and tracking of poverty programmes and policies. The survey provided a report on the magnitude, nature, characteristics, and dimensions of poverty in Nigeria in 2004.

The 2009/10 Harmonized Nigerian Living Standard Survey (HNLSS) was an enlarged scope of previous National Consumer Surveys, and a follow-up of the Nigerian Living Standard Survey of 2003/04. The scope of the HNLSS 2009/10 was enlarged to include demography, health, fertility behavior, education and skills training, employment and time use, housing and housing conditions, social capital, agriculture, household income, and consumption and expenditure. The survey, apart from updating the findings of the early rounds, also guided the performances of the various government programmes and policies, such as the National Economic Empowerment and Development Strategy (NEEDS), the National Poverty Eradication Programme (NAPEP), and the Millennium Development Goals (MDGs) in areas of poverty reduction and improvement in the standard of living (NBS, 2010).

The Nigerian General Household Survey, Panel 2018/19, Wave 4 was implemented in collaboration with the Bill & Melinda Gates Foundation and the World Bank Living Standards Measurement Study (LSMS) team as part of the Integrated Poverty Survey and was revised in 2010 to include a panel component (GHS-Panel). The objectives of the GHS-Panel were to develop an innovative model for collecting data on poverty, engender inter-institutional collaboration, and provide a comprehensive analysis of welfare indicators and socioeconomic characteristics of the poor in Nigeria (Nigeria Bureau of Statistics, 2019).

According to the Nigeria Bureau of Statistics (2019), the original GHS-Panel sample was fully integrated with the 2010 GHS sample, which consisted of 60 primary sampling units (PSUs), or enumeration areas (EAs), chosen from each of the 36 states and the Federal Capital Territory of Abuja in Nigeria. This resulted in a total of 2,220 EAs nationwide. Each EA contributed ten households to the GHS sample, resulting in a sample size of 22,200 households. Out of these 22,200, 5,000 households from 500 EAs were selected for the panel component and 4,976 households completed their interviews in the final Wave 4.

These household surveys were collected, analyzed, and published by Nigeria's top survey agency—the Nigerian Bureau of Statistics (NBS)—and are, therefore, deemed authoritative and reliable for the study.

4.3. Estimation Procedure

4.3.1. Estimating Household Consumption Process

Estimating household consumption is important in making inferences about the future and in assessing the vulnerability of household to shocks (Chaudhuri, Jalan, & Suryahadi, 2002).

To achieve this, we followed the approach used by Chaudhuri (2003), where the level of vulnerability at time t is defined in terms of the household's consumption prospects at time $t+1$. This is important in order to differentiate the concepts of poverty and vulnerability.

According to Deaton & Zaidi (2002), this distinction is important because while the poverty status of a household is concurrently observable (i.e., with the right data we can make statements about whether or not a household is currently poor), the level of vulnerability is not. We can estimate or make inferences about whether a household is currently vulnerable to future poverty, but we can never directly observe a household's current vulnerability level. It is, therefore, easier to assess 'who is poor and who is not' than assess 'who will be poor'. Who will be poor is futuristic and owing to the uncertainty of the future we can only make inferences rather than make a concise statement.

Following the approach by Kamanou & Morduch (2002) and Chaudhuri (2003), as a base model, the reduced form expression for the consumption function can be stated as:

$$cht = c(Xh, \beta t, \alpha h, eht) \quad (1)$$

where,

$Xh = proxy\ for\ bundle\ of\ observable\ household\ characteristics$

$\beta t = vector\ of\ parameters\ describing\ the\ state\ of\ the\ economy\ at\ time\ t$

$\alpha h = proxy\ for\ unobserved\ time-invariant\ household\ effect$

$eht = proxy\ for\ any\ idiosyncratic\ factors\ (shocks) that\ may\ contribute$

$to\ different\ welfare\ outcomes\ for\ households\ that\ are\ otherwise\ observationally\ equivalent$

According to Chaudhuri (2003), to be able to assess a household's vulnerability to poverty, we must make inferences about its future consumption prospects. In order to do that, we developed an econometric model for thinking explicitly about both the inter-temporal aspects and cross-sectional determinants of consumption patterns at the household level.

Subsequently, we abstract from Equation 1 to rewrite the expression for a household's level of vulnerability as:

$$vht = E[p\alpha, h, t+1(Ch, t+1) \mid F(Ch, t+1 \mid Xh, \beta t, \alpha h, eht)] (2)$$

Equation 2 shows that a household's vulnerability level is derived from the stochastic properties of the inter-temporal consumption stream faced by the household. Of course, the consumption stream depends on a number of household characteristics and the environment within which the household operates (Prowse, 2003).

The special appeal of the general model expressed in Equation 2 is that it makes allowance for the complex interactions between the multiple cross-sectional determinants of a household's vulnerability level. Again, the expression defines a household's vulnerability in terms of its future consumption prospects, which are anchored on its current characteristics (observed and unobserved), and the possibility of poverty traps and other non-linear poverty dynamics that are implicitly built in. Moreover, the equation makes allowance for the possible contribution of aggregate shocks and unanticipated structural changes in the macro economy that may impact on the

vulnerability of the household. This is achieved by the incorporation of the time-varying set of parameters, βt. (Chaudhuri, 2003).

4.3.2. Estimating Household Vulnerability

To estimate a household's vulnerability, it must be recalled that a household's vulnerability to poverty is a non-linear function of its future consumption levels. This is clearly shown in Equation 1. In other words, the future consumption function of a household will depend, not just on the expected (i.e., mean) consumption, but also on the volatility (i.e., the variance from an inter-temporal perspective) of its consumption stream and possibly at higher moments of the consumption process as well. For instance, a salaried, low-level government employee with an expected level of consumption roughly similar to that of a self-employed proprietor of a small business may be much less vulnerable to poverty because of the relative stability of the former's consumption stream, which could be reversed in times of macroeconomic crises that are accompanied by rapid inflation (Chaudhuri, 2003).

Consequently, the transition from estimates of the consumption process to estimates of the household's vulnerability to poverty need not only estimate its expected consumption in the future, but also to be able to draw inferences about the distribution of its future consumption. At a minimum, we can make the parametric assumption that consumption is log-normally distributed and hence the entire distribution of consumption is captured by the mean and variance. This implies that we need to estimate the variance of its future consumption.

Still following the approach taken by Chaudhuri (2003), we used a parametric technique to obtain estimates of the mean and variance of one period ahead log-consumption, where these are denoted as $\mu \ln ch, t+1$ and $\sigma 2\ln ch, t+1$, respectively. As argued by Chaudhuri (2003), if we assume that consumption is log-normally distributed, in other words, that $\ln ch, t+1$ is normally distributed, the estimates of vulnerability can be unambiguously generated by using the properties of the normal distribution.

Therefore, we assume $\varphi(.)$ denotes the cumulative density of the standard normal distribution. In this case, the estimate of $v0, ht$ (the vulnerability to poverty) is taken as the likelihood of poverty of a household; h at time, $t,$ will be given by:

$$\acute{v}0, ht = \acute{P}r\left(lnch, t+1 < 1n z \mid \mu 1nch, t+\left[1, \sigma 21nch, t+1\right)\right) = \varphi \frac{1n\ z- \mu 1nch,t+1}{\sigma 1nch,t+1} \quad (3)$$

Equation 3 captures the vulnerability to poverty in terms of the expected poverty gap. According to Harrower and Hoddinott (2002), "the expression above for vulnerability to poverty defined in terms of the expected poverty gap or the expected squared poverty gap are more complicated". In other words, even with the assumption of log-normality, these expressions cannot be evaluated analytically. However, the study estimated the two definitions of vulnerability by using Monte Carlo simulations on the parameters of $\mu 1nch, t+1$ and $\sigma 21nch, t+1.$

4.3.3. Econometric Technique for Analysis

The study estimated the parameters, the slope, and the intercept ($\beta 0$ & $\beta 1$) using a three-step feasible generalized least squares (FGLS) procedure, suggested by Amemiya (1977). The FGLS is noted for its efficiency in

yielding a consistent and asymptotically efficient estimate of β. Additionally, the standard error of the estimated coefficient $\beta FGLS$ can be easily obtained by dividing the reported standard error by the standard error of the regression.

Again, we adopted the approach taken by Chaudhuri (2003) to specify the general model of the consumption process:

$$1nCjht = \alpha j + Xht\beta j + Zh\gamma j + \Gamma jt + Jh + \mathcal{e}ht \quad (4)$$

Where $lnCjht$ is the log per capita consumption of household h in geopolitical region j in year t; Xht is a vector of time-varying household characteristics, Zh is a vector of time-invariant observable household characteristics, Γ_j is a trend growth rate common to all the households in geopolitical region j, Jh is a time-invariant unobservable household-specific effect, and $\mathcal{e}ht$ is a disturbance term capturing period-specific shocks covering both idiosyncratic and covariate shocks to household consumption as well as measurement error.

In line with the approach taken by Chaudhuri (2003), as the subscript j on the parameters indicate, we estimated Equation 4 separately for each of the six geopolitical regions in Nigeria. The study adopted this disaggregated estimation strategy because we are interested in the heterogeneity in the structural parameters underlying the consumption processes of households in the six geopolitical regions in Nigeria. The assumption is that, given the differences in the structures of local economies in the different geopolitical regions in Nigeria, it is likely that key structural parameters, for instance, the returns on education or experience, may differ across the regions. This is in line with the theoretical arguments put forward by Chaudhuri (2003) and Hoddinott & Quisumbing (2003).

5. DATA PRESENTATION AND DISCUSSION

5.1. Incidence and Dynamics of Poverty in Nigeria

Table 1. Poverty Incidence.

Residence	Incidence (a = 0)	Gap (a = 1)	Severity (a = 2)
2004			
Urban	0.75718	0.60848	0.52992
Rural	0.75245	0.60651	0.52910
National	0.75356	0.60697	0.52929
2010			
Urban	0.74307	055589	04.6395
Rural	0.84478	0.66036	0.56527
National	0.81828	0.63319	0.53895
2019			
Urban	0.7208	0.5413	0.4848
Rural	0.8662	0.6702	0.5742
National	0.8228	0.6444	0.5401

Table 1 is based on the Foster–Greer–Thorbecke poverty indices and reveals that 75.35% of Nigerians are poor; 75.24 % of rural households and 75.71% of urban households lack adequate income to meet the minimum standard of living based on non-food items in the Nigeria Bureau of Statistics (2006). In 2010, the proportion of poor urban households had reduced to 74.3% (a decrease of 1.85%), while those in rural areas increased significantly

from 75.24% to 84.4% (an increase of 12.2%) with a higher depth and severity of poverty than urban households compared to 2004. There was also increase in the number of people living in poverty in both urban and rural areas from 84.4% in 2010 to 88.2% in 2019.

Table 2. Summary of Poverty Profiles in Nigeria.

Characteristics	2004	2010	2019
National	75.4	81.8	82.3
Area of Residence:			
Urban	75.7	74.3	75.4
Rural	75.0	85.4	87.3
Zones:			
South-South	91.8	78.2	75.21
South-East	88.8	85.0	82.44
South-West	69.5	77.0	74.82
North-Central	74.2	82.7	83.42
North-East	77.2	88.0	91.49
North-West	64.0	80.9	81.20
Skilled Labor:			
Professionals	74.85	76.46	75.23
Sales	75.60	74.28	72.91
Administration	76.07	61.90	62.82
Services	75.80	71.71	69.44
Agriculture	75.21	82.95	85.02
Transportation	78.02	79.68	80.48
Manufacturing	79.84	80.56	82.24
Occupation:			
Farming	75.21	82.95	88.45
Non-farming	75.79	75.57	74.22
Education:			
None	75.05	82.95	84.01
Primary	74.86	85.43	82.48
Secondary	75.52	80.95	79.22
Tertiary	76.63	67.03	64.44
Household Size:			
1	89.13	81.72	74.44
2–4	77.33	81.46	80.02
5–9	68.89	82.01	76.88
10–14	88.13	81.69	80.33
15–19	69.56	–	72.66
20 and above	50.00	–	53.44

From Table 2, the national poverty incidence or headcount was 75.4% in 2004, which had increased to 81.8% by 2010. There had also been a further increase in the national poverty headcount by 2019 at 83.4 % from the 2010 figure. In terms of area of residence, more people live in rural areas than in urban areas. The number of poor people living in rural areas in 2004 was 75.0%, but this had increased to 85.4% by 2010, and to 86.3% by 2019.

In terms of geopolitical spread, the South-South has the highest number of poor people with 91.8%, while the North-West had the least number of poor people in 2004 with 64.0%. But all these changed had changed by 2010 as the North-East became the region with the highest number of poor people at 88.0% followed by the South-East with 85.0%. The South-West region had the least number of poor people for all three periods under review.

In terms of occupation, agriculture has the largest number of poor people for the period under review, while those in administration had the least number of poor people in the 2010 and 2019 survey periods.

From a literacy perspective using the educational attainment of the household head, those without any formal education and those with primary education only constitute the largest number of poor people for the three periods under review. Moreover, in terms of household size, families with 1014 members constitute the highest number of

poor people in 2004, while households with 59 members constitute the highest number of poor people in 2010. The position remained unchanged in 2019 with households that have 59 members still constituting the highest number of poor people.

5.3. Poverty and Vulnerability Simulation Analysis

The simulated results in Table 3 show that, approximately, 82 percent of the poor are vulnerable and about 45% of this vulnerability is due to consumption volatility. In other words, 45% of the poor will not be vulnerability if there is programme in place for consumption smoothing during period of shocks in order to maintain their mean consumption levels during and after the shocks.

Table 3. Simulation analysis based on demographic characteristics.

	Population Share	Share of Poor	Mean Vulnerability	Vulnerability to Poverty Ratio	Fraction of Highly Vulnerable
National	0.82	0.82	0.45	1.90	1.05
Location:					
Rural	0.61	0.80	0.30	1.99	0.13
Urban	0.39	0.20	0.13	1.66	0.02
Region:					
South-South	0.08	0.05	0.12	1.52	0.00
South-East	0.06	0.03	0.11	1.03	0.00
South-West	0.05	0.02	0.10	1.01	0.00
North-East	0.10	0.09	0.20	2.18	0.08
North-West	0.08	0.08	0.17	1.67	0.06
North-Central	0.07	0.07	0.15	1.55	0.04
Education:					
No schooling	0.68	0.45	0.20	2.20	0.30
Primary	0.50	0.40	0.18	2.17	0.28
Secondary	0.20	0.30	0.10	1.05	0.10
Tertiary	0.10	0.10	0.05	0.08	0.03
Employment:					
Unemployed	0.15	0.15	0.24	2.26	0.10
Self-employed	0.20	0.20	0.22	2.10	0.08
Salary (private & public)	0.09	0.22	0.17	1.08	0.03
Household Head:					
Male	0.06	0.90	0.20	2.08	0.10
Female	0.04	0.10	0.26	2.15	0.18
Household Head Age:					
< 60 years	0.95	0.88	0.20	2.05	0.08
> 60 years	0.05	0.12	0.22	2.22	0.14
Dependency Ratio:					
< 0.25 percent	0.49	0.90	0.20	1.90	0.10
> 0.25 percent	0.51	0.10	0.20	2.00	0.08
Transport Availability:					
No	0.73	0.90	0.25	2.24	0.17
Yes	0.17	0.10	0.15	0.08	0.03
Employment Opportunities:					
No	0.82	0.85	0.30	2.10	0.15
Yes	0.18	0.15	0.05	1.02	0.02
Credit Availability:					
No	0.86	0.82	0.34	2.90	0.13
Yes	0.14	0.18	0.06	1.04	0.02
Access to Clean Water:					
No	0.88	0.95	0.35	4.02	0.12
Yes	0.12	0.05	0.06	1.01	0.01
Availability of Safety Net:					
No	0.78	0.80	0.30	2.08	0.15
Yes	0.22	0.20	0.12	0.05	0.03

The table also shows that vulnerability to poverty varies according to demographic characteristics. For instance, the mean and standard deviations of consumption is not monotonic across the six geopolitical zones in Nigeria, or even within regions between the rural and urban areas. For all the regions, there appears to be a strong correlation between the estimated mean and the estimated variance of consumption, and for the rural areas there are visible instances of higher estimated standard deviations of consumption and lower estimated mean levels of consumption than for the urban areas.

Of the population sample, the simulation shows that 30% of those in rural areas are vulnerable to poverty due solely to consumption volatility compared with 13% in urban areas. Overall, the simulation shows that 47% of the population is vulnerable due to structural poverty with a mean vulnerability ratio of 1.90. Furthermore, of the 82% that are poor nationally, consumption volatility is the main source of vulnerability.

In terms of education, the simulation result shows that those with no schooling have the highest mean vulnerability (0.37), as well as a vulnerability to poverty ratio of 2.16. Moreover, 28% of this group is highly vulnerable to consumption volatility. This contrasts sharply in households with tertiary education where the mean vulnerability is as low as 0.03 and very negligible vulnerability. The implication is that education lowers the risk of vulnerability, especially due to consumption volatility.

Table 3 also shows that road availability (or higher road density) reduces the incidence of vulnerability to poverty, especially structural poverty. For instance, there is a higher vulnerability to poverty for those in rural areas (mean vulnerability = 0.28) than those in urban areas (mean vulnerability = 0.22). The explanation lies in the level of road density between the urban and rural areas. There is higher road density in the urban areas and hence lower incidence of vulnerability to structural poverty than those in rural areas.

Furthermore, Table 3 also illustrated the importance of exposure to risk for those who are vulnerable. Exposure to risk remains the primary determinant of vulnerability, especially for those who are vulnerable due to consumption volatility. This becomes more obvious in the geographic variations in the relative importance of exposure to risk. For instance, the North-East region of the country has the highest risk exposure in the country and also a higher vulnerability to consumption volatility. The North-East geopolitical zone has been the epicenter of terrorist attacks orchestrated by the Boko Haram terrorist group over the last decade. Expectedly, the vulnerability to poverty ratio here is 2.16 compared with 1.00 in the South-East and 1.52 in the North-West region of the country.

Moreover, using the estimates of the mean and variance of consumption processes at the household level, we can estimate the contribution of risk to the vulnerability levels of individual households (Chaudhuri, 2003). Consequently, we estimate the counterfactual vulnerability level of a household in the absence of risk; that is, if the household's consumption in every period were to be fixed at its mean level of consumption. In this context, vulnerability is defined in terms of the expected poverty gap, which is attributable to consumption volatility for the various geopolitical regions. The results show that the North-East has the highest mean vulnerability of 0.20 compared with 0.11 in the South-East and 0.15 in North-Central region of the country. In other words, approximately, 45% of the vulnerability level in the North-East region of the country is attributed to risk, and this is compounded by the fact that majority of the poor in this region are in structural poverty compared with transitory poverty in other regions.

6. SUMMARY OF FINDINGS, CONCLUSION, AND POLICY IMPLICATIONS

6.1. Summary of Findings

The findings of the study show that:

a) The poverty level in Nigeria is very high with approximately 93 million, or half of the country's population, living in poverty. Of this number, approximately 82% are vulnerable, especially to consumption volatility.

Poverty is higher in rural areas due to higher dependency ratio, low levels of education, and lack of access to infrastructure, especially low road density and lack of credit.

b) The coronavirus pandemic has worsened the fate of the poor in Nigeria and there is no programme in place to reduce consumption vulnerability, and hence regulate consumption within this period of the pandemic. Risk of consumption volatility is the major cause of vulnerability to poverty based on simulation estimates using the mean and variance of consumption processes at the household level.

c) Also based on the simulation, the study shows that a large number of households in Nigeria who are not currently poor face a high probability of adverse effects due to shock. The simulation shows that approximately 45% of the population who are not currently poor may become poor in the future if there are no appropriate forward-looking anti-poverty interventions in place to tackle the scourge of the current pandemic.

d) The simulation analysis of the study also shows that of the 82% who are vulnerable to poverty, only about 13% are in transitory poverty while the rest are in structural poverty. This means that the poverty situation in Nigeria is widespread, entrenched, and inter-generational. The current coronavirus pandemic has merely worsened the poverty situation and is not the fundamental cause of poverty in Nigeria.

6.2. Conclusion

The study has shown that poverty and vulnerability are not the same and their measurement will have different policy implications. For instance, the study shows that vulnerability is not only restricted to those who are already poor but extends to those who may become poor due to risk or shocks arising from adverse events such as the current coronavirus pandemic. Since vulnerability is forward-looking, it is more robust in the analysis of poverty, and efforts to reduce poverty must take into account the level of vulnerability of the households for such programmes to be effective and sustainable.

6.3. Policy Implication and Recommendations

The findings of the study have presented several policy issues, some of which are summarized as follows:

a) The growing interest in the introduction of the vulnerability concept in poverty alleviation programmes shows the recognition of the dynamic nature of poverty. This has implications for the government's efforts to alleviate poverty. For instance, poverty alleviation programmes and interventions in Nigeria have always been based on an ex-post approach, which measures poverty in the past without incorporating the ex-ante and forward-looking probabilistic measure of poverty (vulnerability). Poverty and vulnerability are mutually reinforcing and any attempt to alleviate poverty must also take into account the issue of vulnerability.

b) Our vulnerability analysis shows that certain groups in Nigeria are more susceptible to vulnerability arising from shocks that threaten their means of livelihood and survival. These groups are mainly found in rural areas and areas with high levels of insecurity. These groups are capable of perpetuating poverty to the next generation and the government must offer customized poverty alleviation interventions. To this end, the Federal Government of Nigeria (FGN) must rethink its one-size-fits-all policy for poverty alleviationto one that is customized and forward-looking in nature.

c) There is a need for a paradigm shift in poverty alleviation interventions in Nigeria, especially in this era of the coronavirus pandemic. There should be a stronger focus on the livelihood of the poor in Nigeria instead of on the pandemic itself. The poor in Nigeria are vulnerable on many fronts aside from the risk of the current pandemic. These people generally live in uninhabitable areas, have fewer assets to protect themselves, have weak governmental institutions, suffer more from health issues, have low educational standards, and have less capacity to cope with a disaster, as the current pandemic has shown. There is, therefore, the need for government, development partners, and institutions to pay greater attention to the

means of livelihood of the poor in Nigeria, especially their resilience levels, asset patterns, and income generating capacities as well as life-long skills.

d) As the vulnerability assessment has provided policy-relevant insights on the nature and extent of the vulnerability of households in Nigeria, it is pertinent that anti-poverty intervention measures of the government going forward must be forward-looking and largely aim to increase the productive capacity of the populace instead of merely alleviating their current state of poverty. To this end, the government must rethink its conditional cash grants of N5,000 (or US$13) for vulnerable households in Nigeria, as this will not alleviate current poverty or prevent poverty in the future. A policy that will increase the productive capacity of the populace or increase their access to credit and life-long training will be a better option.

REFERENCES

African Union. (2020). Meeting of African ministers for agriculture; Declaration on food security and nutrition during the COVID-19 Pandemic" Retrieved from. https://au.int/en/pressreleases/20200427/meeting-african-ministers-agriculture-declaration-food-security-and-nutrition.

Alwang, J., Siegel, P. B., & Jorgensen, S. L. (2001). *Vulnerability: A view from different disciplines, Social protection discussion paper series, Social protection unit.* Washington D.C: The World Bank.

Amemiya, T. (1977). The maximum likelihood and the nonlinear three-stage least squares estimator in the general nonlinear simultaneous equation model. *Econometrica: Journal of the Econometric Society, 45*(1), 955-968. Available at: https://doi.org/10.2307/1912684.

Amin, S., Rai, A. S., & Topa, G. (2003). Does microcredit reach the poor and vulnerable? Evidence from northern Bangladesh. *Journal of Development Economics, 70*(1), 59-82. Available at: https://doi.org/10.1016/s0304-3878(02)00087-1.

Aminu, A. (2019). Government wage review policy and public-private sector wage differential in Nigeria. AERC Research Paper No. 223.

Barrientos, A., & Hulme, D. (2008). *Social protection for the poor and poorest: Concepts, policies and politics.* Basingstoke: Palgrave Macmillan.

Budget Office of the Federation. (2020). 2020 approved budget details. Retrieved from: https://www.budgetoffice.gov.ng/index.php/2020-approved-budget details?layout=columns.

Business Day Newspaper. (2020). Nigeria lags behind SA, Ghana in COVID-19 testing after 5 weeks of lockdown", 30 May. Retrieved from; https://businessday.ng/coronavirus/article/nigeria-lags-behind-sa-ghana-in-covid-19-testing-after-5-weeks-of-lockdown/.

Cardona, O. D. (2004). The need for rethinking the concepts of vulnerability and risk from holistic perspective: A necessary review and criticism for effective risk management. In: Bankoff, G., Freks, G; D. Hilhorst (Ed.): Mapping vulnerability, disasters, development and people (pp. 37-51). London.

Chaudhuri, S., Jalan, J., & Suryahadi, A. (2002). *Assessing household vulnerability to poverty: A methodology and estimates for Indonesia," Columbia University Department of Economics Discussion Paper No. 0102- 52.* New York: Columbia University.

Chaudhuri, S., & Christiaensen, L. (2002). *Assessing Household Vulnerability to Poverty: Illustrative Examples and Methodological Issues.* Paper presented at the Presentation at the IFPRI-World Bank Conference on" Risk and Vulnerability: Estimation and policy applications," September 23-24, 2002, Washington DC.

Chaudhuri, S. (2003). *Assessing vulnerability to poverty: Concepts, empirical methods and illustrative examples" Columbia University Department of Economics Discussion Paper No. 01015-2.* New York: Columbia University.

Chibuike, U. C. (2000). The rural banking scheme in Nigeria: Matters arising. *Savings and Development, 23*(3), 215-223.

Coalition of Civil Organizations. (2020). Joint memo by civil society organizations on response to COVID-19 pandemic in Nigeria. Retrieved from: http://www.osiwa.org/wp-content/uploads/2020/05/COVID19-CSOs-Joint-Memo-final.pdf.

Daneji, M. I. (2011). Agricultural intervention programme in Nigeria (1960 to date), a review. *Journal of Agriculture, 6*(1), 34-52.

Deaton, A., & Zaidi, S. (2002). Guidelines for constructing consumption aggregates for welfare analysis. *Living Standards Measurement study Working Paper, 135*(1), 55-75.

Department for International Development. (2020). Health and socio-economic impacts of physical distancing for Covid-19 in Africa.

Elemi, G. F. (2015). Effect of national special programme on food security on cassava output among rural farmers in Cross River State, Nigeria. *International Journal of Agricultural Extension and Rural Development Studies, 1*(2), 44-65.

Harrower, S., & Hoddinott, J. (2002). *Consumption smoothing and vulnerability in the Zone Lacustre, Mali," Draft.* Washington DC: International Food Policy Research Institute (IFPRI).

Heitzmann, K., Canagarajah, R. S., & Siegel, P. B. (2002). *Guidelines for assessing the sources of risk and vulnerability social protection discussion Paper 0218.* Washington DC: The World Bank.

Hoddinott, J., & Quisumbing, A. R. (2003). *Data sources for microeconometric risk and vulnerability assessments manuscript.* Washington DC: International Food Policy Research Institute.

IMF. (2020). *Policy responses to covid-19*: International Monetary Fund.

International Monetary Fund. (2020). Policy responses to covid-19. International Monetary Fund. Retrieved from: https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19. [Accessed June 24].

Kamanou, G., & Morduch, J. (2002). Measuring vulnerability to poverty. NYU Wagner Working Paper No. WP1012. New York: New York University.

Keynes, M. J. (1936). *The general theory of employment, interest and money.* United Kingdom: Palgrave Macmillan Publishers.

Nigeria Bureau of Statistics. (2006). *Nigerian living standard survey 2003/2004*: Federal Republic of Nigeria: Government Press.

Nigeria Bureau of Statistics. (2010). *2008/2009 harmonized Nigerian living standard survey (HNLSS)*: Federal Republic of Nigeria: Government Press.

Nigeria Bureau of Statistics. (2019). *LSMS integrated survey on agriculture – Nigeria general household survey-panel wave 4*: Federal Republic of Nigeria: Government Press.

Nigeria Centre for Disease Control. (2020b). Covid-19 guidance for safe mass gatherings in Nigeria, version 1. Retrieved from https://ncdc.gov.ng/themes/common/docs/protocols/181_1584284287.pdf.

Presidential Task Force-Covid-19. (2020). Implementation guidance for lockdown policy. Retrieved from: https://nipc.gov.ng/2020/05/02/implementation-guidance-for-lockdown-policy/.

Prowse, M. (2003). Towards a clearer understanding of vulnerability in relation to chronic poverty. CPRC Working Paper No. 24, Manchester: England.

Sen, A. (1988). *The concept of development. In H. Chenery and T.N. Srinivasan (Eds.), Handbook of Development Economics* (Vol. 1). Amsterdam: North Holland.

Shepherd, A., Chiara, M., & Laura, R. T. (2016). What policy lessons can be learnt from cases of pro-poorest growth? Policy Draft No. 2, Overseas Development Institute, London.

Titumir, R., & Rahman, K. (2013). *Poverty and inequality in Bangladesh.* Dhaka: Unnayan Onneshan.

UNDP. (2006). *Human development indicators.* New York: Oxford University Press.

United Nations. (2014). Envision 2030: 17 goals to transform the world for persons with disabilities. Retrieved from https://www.un.org/development/desa/disabilities/envision2030.html.

United Nations. (2015). The 2030 agenda for sustainable development. Retrieved from https://sustainabledevelopment.un.org/sdgs.

WIEGO. (2020). COVID-19 and the world's two Billion informal economy workers. Retrieved from https://www.wiego.org/covid-19-and-worlds-two-billion-informal-economy-workers?utm_source=WIEGO&utm_campaign=93bdf9e83a. [Accessed May 1, 2020].

World Bank. (2014). Social inclusion for shared prosperity. Retrieved from https://www.worldbank.org/en/topic/social-inclusion.

World Bank. (2019). *World development indicators – poverty and inequality*. Washington: The World Bank Group, Oxford University Press.

World Bank. (2020). The global economic outlook during the COVID-19 pandemic: A changed world. Retrieved from https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world.

World Economic Forum. (2019). Three things Nigeria must do to end poverty. Retrieved from https://www.weforum.org/agenda/2019/03/90-million-nigerians-live-in-extreme-poverty-here-are-3-ways-to-bring-them-out/. [Accessed June 2 2020].