COVID-19 LOCKDOWN PALLIATIVE AND HOUSEHOLDS' WELLBEING: A MICROECONOMIC ANALYSIS

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Abstract

This study investigates the impact of the COVID-19 palliative on household well-being. Data was sourced from a cross-section of household heads using a structured questionnaire and a simple random sampling method. This study used forward-backwards-stepwise binary regression. Religious palliative, income, marital status, household size, regular earnings, self-employment, energy consumed, and domestic cooking energy have significant impacts on household well-being. The palliative from the government was not significant, while the religious palliative significantly affected household wellbeing. The primary channels through which the pandemic affected household well-being are job loss and irregular earnings. The survey discovered a significant decline in households' earnings and consumption during the COVID-19 lockdown, as substantial households resorted to credit purchases and taking loans from informal financial institutions to survive the lockdown. Earnings in the informal and organized private sectors are either halted or reduced. This study recommends that the government at all levels create synergies with the religious bodies in the subsequent empowerment or welfare-enhancement schemes. This will improve the success rate of government policies, given the confidence, the average Nigerian tends to repose in religious bodies.

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Introduction

The outbreak and declaration of the novel virus (COVID-19) as a global pandemic in the first quarter of 2020 became a negative turning point for the global economy, especially for Nigeria, which had yet to recover fully from the 2016 economic recession. The pandemic that was declared a threat to global health turned out to be a severe threat to the global economy. As a sequel to the declaration of the pandemic as a global issue, governments across the globe adopted partial or total lockdown, among other measures in a chain of policy reactions to curtain and prevent human-to-human transmission of the virus. However, these measures hurt both the domestic and international economies as economic activity was halted. In most countries, key sectors were halted, which consequently resulted in an estimated 4.3 per cent of the world's GDP contraction, with relative cases of variations within and between regions and countries. Europe, for example, had the worst GDP contraction, estimated to be 7.4 per cent. In Sub-Sahara Africa (SSA), the Middle East and North Africa (MENA), South Asia, and Latin America and the Caribbean (LAC), the GDP contracted by 6.1 per cent, 5 per cent, 6.7 per cent, and 6.9 per cent, respectively (World Bank, 2020).

In Nigeria, the real and financial sectors, as well as the logistics, were halted in several ways; the supply chain was interrupted by the lockdown, consequently resulting in chain reactions such as scarcity of commodities, hiked prices, downsizing and shutdown of businesses, and loss of jobs. The non-oil sector was not immune to the contraction. Transportation, lodging and food service, construction, education, and real estate, among others, all contracted by 6 per cent. The financial, trade, and service sectors, which account for more than 30% of Nigeria's GDP, were shut down. Trade, agriculture, manufacturing, and

capital imports all fell by 15 per cent, 0.21 per cent, 0.14 per cent, and 31 per cent, respectively. The inflation rate rose to 12.8 per cent in July 2020 and to 15.8 per cent by December 2020. The unemployment rate increased to 27 per cent, with over 40 per cent of women working in the non-farming informal sector losing their jobs, while youth unemployment increased to 55 per cent (NBS, 2020).

The situation got worse when a global lockdown forced a significant decline in global oil prices by 58 per cent during the first quarter of 2020 (CBN, 2020b). At the end of the second quarter of 2020, the Nigerian economy had already entered a severe recession and contracted by 5.1 per cent. Oil revenue fell by 6.6 per cent as output fell from 2.07 million barrels per day (bpd) in the first quarter of 2019 to 1.81 million bpd in the second quarter of 2020. The loss of oil revenue was further exacerbated by the Saudi Arabia-Russia trade war oversupply quota adherence. Nigeria's oil revenue fell to its lowest level since the first quarter of 2004. Consequently, the naira's purchasing power parity fell by 15 per cent, as the exchange rate rose from ₦380 to ₦450 per dollar by August 2020. Also, the decline in federal government revenue from oil and non-oil sources compelled the federal government to review the 2020 fiscal budget to align with the current economic reality. The fiscal budget, which had previously been benchmarked at US$57 per barrel, was reduced to US$30 per barrel (CBN, 2020a).

The macroeconomic issues emanating from the outbreak of the virus resulted in a quantum of microeconomic implications at the household level in Nigeria, where over 87 million people were living below the poverty line before the outbreak of COVID-19 (United Nations Development Program, 2019). A corollary to the 5.1 per cent contraction in Nigeria's GDP and government revenue was the rise in poverty among Nigerians, the loss of jobs, and the overall decline in household wellbeing. Those that retained their jobs were either compelled to bargain for a wage cut or no-work-no pay during the lockdown. As households' incomes were halted, coupled with prevailing inflation, the wellbeing of individual households deteriorated, resulting in a rise in multidimensional poverty (NBS, 2020). Efforts were made by the federal government to cushion the devastating effect of the pandemic lockdown on vulnerable households and businesses. Thus, the federal government designed a fiscal policy-driven palliative measure. Among these measures are the Federal Government's emergency conditional budget of an estimated $300 million toward disease preparedness and response and an estimated $700 million for conditional cash transfers for vulnerable households and small-scale businesses; a per-head-physical distribution of food items and cash to the estimated 3.6 million vulnerable households; and a 3-month extension of repayment of the loan for the beneficiaries of Tradermoni, Farmermoni, and Marketmoni, anchored by the Bank of Industry (CBN, 2020).

However, the agitation from Nigerians was the rationale and parameters used to measure the vulnerable households, as many Nigerians could not access the palliatives. According to The Guardian on April 14, 2020, Nigerians alleged that the process of distribution of the palliative (cash and items) had been politicized. Many Nigerians believed that the pessimistic reaction of Nigerians to the proposed second phase of national lockdown was eloquent evidence that a greater proportion of vulnerable households were unable to access the palliative. Therefore, the questions that emanate from this research problem are: Was the wellbeing of Nigerians deteriorated during the pandemic lockdown? Were government palliative measures able to cushion the effect of the lockdown on Nigerians' wellbeing? And how did Nigerians survive during the lockdown? Answers to these questions are of paramount concern to this study.

The rest of this paper is organized as follows: The second section contains empirical studies, the third contains materials and research methodology, and the fourth contains data and discussion of results. The fifth and final section is the conclusion.

Literature review

The extant literature on COVID-19 can be viewed from different perspectives. The few empirical studies that have been conducted focus on the health and economic implications of COVID-19, as well as measures to mitigate its spillover effects. OZili (2020) discovered that weak institutions aided the spread of COVID-19 in Nigeria and other African countries. Adegboye, Adekunle and Gayawan (2020) discovered that confirmed cases in Nigeria were far lower than expected as of June 2020, when compared to some European countries. However, according to Ozili (2020), Nigeria had the highest number of confirmed cases among the 16 West African countries. The expectation of an increase in confirmed cases in Africa stemmed from the continent's poor healthcare system, high disease profile, and rising multidimensional poverty (Ohia, Bakarey, & Ahmad, 2020).

The virus's effects are felt in all aspects of life, and by drawing inference from past global pandemics, researchers began to envisage and anticipate a great deal of dynamism in the global economy. For instance, the evidence of the negative impact of the Great Influenza Pandemic (Spanish flu) on the stock markets prompted researchers to investigate whether history will repeat itself with the outbreak of COVID-19 (Barro, Ursual & Weng, 2020). According to Takahashi and Kazuo (2020) for Japanese firms, Ramelli and Wagner (2020) for American firms, and Al-Awadhi, Alsaifi, Al-Awadhi, and Alhammadi (2020) for Chinese firms, COVID-19 hurt both the stock market and the real sector. Their findings are similar to those of Barro et al., (2020), but the magnitude of impact varies between these studies. A similar study by Adenomon and Maijamaa (2020) found that the Nigerian stock market suffered losses and experienced high volatility during the lockdown.

Other empirical studies revealed that the novel virus has affected livelihoods (Ataguba, 2020), increased child poverty in North Africa and the Middle East region (Guy, Morel, Amouzou & Agbe, 2020), widened income disparities in Nigeria (NBS, 2020), reduced global investment (Tashanova, Sekerbay, Chen, Luo, Zhao, & Zhange, 2020), and disrupted Nigeria's real sector (Aifuwa, Musa, & Aifuwa, 2020). Levine and McKibbin (2020) found a rise in unemployment in the informal sector as a result of the pandemic. In Nigeria, over 32 million jobs were lost during the lockdown across the banking, transport, agriculture, and construction sectors (Ozili & Arun, 2020). During the lockdown, Ijaiya, Bello, Ijaiya, and Ijaiya (2020) discovered severe hunger, poverty, job loss, and a high prevalence of social vices such as thievery. Lancker and Paroli's (2020) findings projected 8 million and 10 million multidimensional poor individuals in Nigeria and India in 2020 as a result of the effect of COVID-19 on macroeconomic variables.

In terms of the effectiveness of measures used to prevent the spread of the virus and cushion the effect of the lockdown on affected economic agents, Ijaiya et al. (2020) discovered that the financial assistance provided by the Nigerian government to ensure compliance with the lockdown rule was less effective. The flaw was largely attributed to loopholes in government bureaucracy, ineffective coordination, and corruption. According to CBN (2020b) and Onyekwena and Ekeruche (2020), the Nigerian government granted a one-year extension of the loan moratorium through the apex bank, as well as reduced loan interest rates from 9% to 5% with effect from March 2020, when the lockdown was imposed.

COVID-19 literature is new and evolving. As a result, the emerging empirical studies on the subject matter concentrated on the pandemic's aftermath on the economy and wellbeing, as well as the policies designed to curtail the spread of the virus. To add to the emerging literature on the novel virus, this study focuses on the effect of palliatives on household wellbeing during COVID-19 lockdown. This research will provide an assessment of how effective the government's palliative measures were during the pandemic lockdown and suggest a better platform to implement welfare-enhancement policies.

Model and method

Minority group theory, as propounded by Rowntree (1941), serves as the theoretical foundation for this study. According to Rowntree, poverty, or poor wellbeing, is caused by the insufficient earnings of the household's wage-earner to maintain basic needs. According to the theory, some households remain poor because the earnings of the primary wage-earner are insufficient to support the family—the family size is larger than optimal—and, at times, the primary wage-earner dies or is unable to work due to illness or other factors. Rowntree's argument is analogous to the current COVID-19 pandemic lockdown. Mathematically, well-being is a function of earnings. That is,

$$Wellbeing = f(earnings) \quad (1)$$

Model

The model for this study is rooted in minority group theory. Thus, the modified model is specified as:

$$Wi = \beta_0 + \beta_1 DVi + \beta_2 JobVi + \beta_3 HuVi + \beta_4 OtherVi + \varepsilon i \quad (2)$$

Where *W* is a measure of household well-being; *DV* is a set of demographic variables that capture the primary wage earners in a household. *JobV* is a set of information on the jobs and wages of chief wage earners. *HuV* is a set of information about household utilities; *OtherV* is a collection of other variables.

Table 1 provides a detailed definition of all the variables for each vector as specified by the model. Furthermore, "*i*" stands for an individual home, while ε stands for the random error term.

The survey was conducted two months into the pandemic lockdown in the southern part of the Ilorin Metropolis, Nigeria. Using a well-structured questionnaire, the study elicited information on how the COVID-19 pandemic palliative affected the wellbeing of households in Ilorin Metropolis. The World Bank Living Standards Measurement (WLSM) questionnaire format was used to gauge the survey items. The lottery simple random sampling method was used to administer the questionnaire to 430 household heads, with 96.7 per cent (416) returning valid responses. The questionnaire covered socio-demographic characteristics of households and their primary wage earners, such as wellbeing, palliatives received or given, income earned, and consumption expenditure before and during the COVID-19 pandemic.

Well-being comprises both subjective and objective forms. The former comprises happiness and acceptance by family, friends, and colleagues at work. Thus, this makes subjective wellbeing rather difficult to measure and its application controversial (Benjamin, Heffetz, Kimball, & Szembrot, 2014b). The objective wellbeing index conventionally includes real economic indicators, which include GNI, human capital, the environment, and poverty. According to Popova (2016), these indexes are relatively ambiguous but better than subjective wellbeing in terms of metrics. Popova (2016) found it more logical for a higher GNI to boost a higher level of wellbeing. Also, according to Adam Smith in his book "Wealth of the Nation", as cited in Grimes and Hyland (2015) and Benjamin et al., 2014b), every individual is in a better position to assess and judge his or her wellbeing at every point in time, whether it has improved or declined. Recently, Yang (2018) proved that the "Preference Index Approach (PIA) is a better metric for measuring wellbeing. Therefore, this study presents items (questions) that allow respondents (individual households) to assess and rate their wellbeing (either increased, constant, or decreased) by comparing their wellbeing before and during the pandemic lockdown.

Individual households with access to palliative care (whether from the government, individuals, or religious bodies) are expected to have improved or experience less deteriorated wellbeing during the pandemic lockdown, compared to households without access to palliative care. Six (6) items presented in the survey instrument provide a platform for individual households to rate their wellbeing. If the wellbeing of the

respondent remained constant or improved during the pandemic lockdown as compared to the pre-COVID-19 era, it is scored one (1), and it is scored zero (0) if otherwise. The items of assessment are based on the United Nations Development Program (UNDP, 2013) which includes real income, consumption, the environment, happiness, the human capital index (health and education), and links with family, friends, and colleagues.

The dependent variable is dichotomous, whereas the predictor variables are a mix of continuous and categorical. More importantly, logistic regression makes no assumptions about the explanatory variable distributions. As a result, binary logistic regression is the best fit for this study. To avoid cases of multicollinearity, as suggested by Green (2002), and to arrive at a parsimonious model, the model is gauged using hierarchical forward-backwards selection procedures of the binary logistic stepwise regression technique. Because the study covers many variables, all of the explanatory variables are initially assumed to be equally important, and the simultaneous selection procedure was used. Thus, variables are screened at 1% and 5% significance levels.

Table1: Definition and Measurement of Variables

Variables	Definition
Wellbeing[1] (dependent variable)	Household wellbeing is measured by the quality of life. It is measured in binary form. = 1 if household wellbeing increased/constant during the lockdown, and zero if otherwise
Gender (Female*)	=1 if female and zero if otherwise
Age	Age in years
Marital status (Married*)	=1 if married and zero if otherwise
Head's education	Highest academic qualification of household chief wage-earner
Household size	Number of people directly depending on chief wage-earner
Income (Y_{-1})	Salary/wage in naira (₦) before COVID-19 lockdown
Income (Y)	Salary/wage in naira (₦) during COVID-19 lockdown
$\Delta Y = (Y_{-1} - Y)$[2]	Change in income earned during COVID-19 lockdown
Consumption (C_{-1})	Consumption spending in naira (₦) before COVID-19 lockdown
Consumption (C)	Consumption spending in naira (₦) during COVID-19 lockdown
$\Delta C = (C_{-1} - C)$	Change in consumption spending during COVID-19 lockdown
$\frac{\Delta C}{\Delta Y}$	Marginal propensity to consume
Main occupation (primary)	=1 if civil servant/private worker and zero if otherwise
Self-employed	=1 if self-employed and zero if otherwise
Secondary job	=1 if he/she has a second job and zero if otherwise
Regular earnings	= 1 if earnings were regular during lockdown and zero if otherwise
Wage-cut	= 1 if wage-cut during lockdown and zero if otherwise
Palliative (Govt.)	=1 if received palliative from the government during COVID-19 lockdown
Palliative (Religious)	=1 if received palliative from Church/Mosque during COVID-19 lockdown
Palliative (Neighbor)	=1 if received palliative from neighbours during COVID-19 lockdown
Unit EC_{-1} before lockdown	Unit (Kwh) of electricity consumed before COVID-19 lockdown
Unit of EC during lockdown	Unit (Kwh) of electricity consumed during COVID-19 lockdown
$\Delta EC = (EC_{-1} - EC)$	Change in Unit (Kwh) of electricity consumed during COVID-19 lockdown

[1] According to Adam Smith, every individual is the best judge of his/her state of wellbeing, therefore, following the methodology of Yang (2018), it is assumed one (1), if overall household wellbeing improved or unchanged during the lockdown, and zero (0) if reduced. The rating of the household heads is based on the six (6) items (questions) as used in UNDP (2013)

[2] Change in income denotes by $\Delta Y = (Y_{-1} - Y)$, change in consumption denotes $\Delta C = (C_{-1} - C)$, and marginal propensity to consumed denotes by $\frac{\Delta C}{\Delta Y}$ were constructed from survey data collected by the authors.

Domestic cooking power (t_{-1})	Ranked of types of cooking power (order preserved)
Domestic cooking power (t_{-1})	=1 if cooking gas/electricity and Zero if otherwise before COVID-19
Domestic cooking power	=1 if cooking gas/electricity and Zero if otherwise during COVID-19
Access to drinkable water	=1 if treated water and zero if otherwise before COVID-19
Access to drinkable water (t_{-1})	=1 if treated water and zero if otherwise during COVID-19
Public/private health facilities	= 1 if visited public/private health care facilities and zero if otherwise

Source: Computed by the Authors

The empirical results

Preliminary results

Table 2 shows the employment and earnings distribution of household heads. The average household size is two, with a minimum and maximum size of one and seven, respectively. About 28.4 per cent are single, while 61.8 per cent are married, with 42 per cent having a school certificate and 10 per cent having a school leaving certificate as their highest educational qualification. Only 20.6 per cent of respondents are government civil servants, while 57.2 per cent and 20.4 per cent work in the informal and organized private sectors, respectively. The informal sector employs approximately 84.2 per cent of the workforce, with the remaining 15.8 per cent either employed or apprenticed. According to the results of a survey, 19.8 per cent of people do not work outside of their primary job. By implication, if these people are not government or organized private-sector employees, their well-being is likely to have deteriorated during the COVID-19 lockdown. However, their earnings are still not guaranteed during the lockdown. Aside from primary employment, 43.2 per cent and 21.4 per cent of the respondents, respectively, are engaged in trading and farming. The latter is likely to have suffered less hunger during the pandemic lockdown because they had food to feed their families.

Table 3 presents the distribution of occupations and salary/wage regularity during the COVID-19 lockdown. According to the survey results, 31.2 per cent of households' primary wage-earners received a regular salary, 40.7 per cent had their salary stopped, and 28.1 per cent had to bargain for a wage cut. Approximately 87 per cent of self-employed people were unable to work, while a negligible (0.9%) per cent earned money because they worked from home.

Table 2: Characteristics of households and households' heads

Variables		Per cent	Mean	Std. Dev.	Min	Max
Age			28	1.2	24	61
Household size			2	0.89	1	7
Gender	Male	88				
	Female	12				
Marital Status	Single	28.4				
	Married	61.8				
	Divorced	2.6				
	Widow	7.2				
Educational Status	No formal Education	5.6				
	Quranic Education	4.4				
	Primary School	9.9				
	Secondary School	42				
	Tertiary	38.1				

Source: Computed by the Authors

Table 3: Characteristics of households' heads employment and earnings

Variables		Per cent
Primary Occupation	Unemployed	1.8
	Informal Sector	57.2
	Organized Private Sector	20.4
	Federal Civil Servant	5.3
	State Civil Servant	15.3
Informal Sector	Self-employed	84.2
	Employee/Apprentice	15.8
Secondary Occupation	Online business (POS)	13.5
	Farming	21.4
	Trading	43.2
	Transport Operator (Taxi/Tricycle/Motorcycle)	3.1
	None	19.8
Earning status (wage/salary)	Salary was regular	31.2
	Salary was 70 per cent	11.5
	Salary was 50 per cent	9.1
	Salary was less than 50 per cent	7.5
	Salary was stopped	40.7
Earning status (Self-employed)	Earnings stopped because i was unable to work	87.0
	Earnings dropped significantly though i was working from home	12.1
	Earnings did not drop because I was working from home	0.9

Source: Computed by the Authors

Table 4[3]: Income and consumption of households before and during the pandemic lockdown.

Before COVID-19 lockdown		During COVID-19 lockdown	
Income	Percent	Income	Percent
≥ ₦5000	14.4	≥ ₦5000	43.2
₦5001- ₦10000	71.1	₦5001- ₦10000	45.6
₦10001 - ₦15000	12.2	₦10001 - ₦15000	9.3
₦15001 - ₦20000	2.3	₦15001 - ₦20000	1.9
Consumption		Consumption	
≥ ₦5000	12.8	≥ ₦5000	37.2
₦5001- ₦10000	76.2	₦5001- ₦10000	58.1
₦10001 - ₦15000	8.6	₦10001 - ₦15000	4.7
₦15001 - ₦20000	1.4	₦15001 - ₦20000	-

Source: Computed by the Authors

Table 4b

Variables	Mean	Std. Dev.	Min	Max
Income earned weekly before COVID-19 (in ₦)	8449.2	4052.18	4500	40000
Weekly consumption spending before COVID-19 (in ₦)	7648.6	3456.21	3500	10000
Income earned weekly during COVID-19 lockdown (in ₦)	3873.3	2672.32	0	35000
Weekly consumption spending during COVID-19 lockdown (in ₦)	5256.3	3952.1	2500	8000

Source: Computed by the Authors

Tables 4a and 4b present the distribution of household earnings. The survey transformed data on monthly earnings into weekly form to account for daily earnings for self-employment and other non-monthly earners. According to Table 4a and 4b, before the COVID-19 lockdown, the average household chief wage-earner earned ₦8449.2, with the minimum and maximum earnings being ₦4500 and ₦40000, respectively. The standard deviation (4052.2) indicates significant income disparity among the cross-section of selected

[3] A dollar was officially exchanged for ₦450 when this survey was conducted. Naira further depreciated due to the COVID-19 pandemic, as the global price of oil worsen

households. About 12.8 per cent of the surveyed households spent ₦5,000 or less per week on household consumables, while 76.2 per cent spent ₦5001-₦10000. Before COVID-19, the average weekly household expenditure was ₦7648.4, with a minimum and maximum of ₦3500 and ₦10,000, respectively. Earnings and household expenditure statistics during COVID-19 differ significantly from those of the pre-COVID-19 period. The average, minimum, and maximum weekly earnings dropped to ₦3873, ₦0.0 and ₦35000 respectively. The setback on earnings is a reflection of those whose earnings were affected during the enforcement of pandemic lockdown. The results also revealed that the per cent of households in the earnings bracket of ₦5001-₦10000 dropped while those that earn ₦5000 or less increased. This could be attributed in part to the non-payment of salaries or the 50 per cent pay-cut model used by the majority of organized-private firms during the lockdown to cushion the revenue decline. According to the survey, the average, minimum, and maximum household expenditure on consumables are ₦5256, ₦2500, and ₦8000, respectively.

The values of the standard deviation for income and consumption spending depict the existence of welfare disparity among the households surveyed. The difference between the standard deviations of income during and before the COVID-19 lockdown shows that the drop in income is more significant to the relative higher earnings than the lower earnings. This is further justified by the fact that the standard deviation during the lockdown is less than before the lockdown. Surprisingly, the standard deviation of household spending during the lockdown rose to 3952, an indication of household welfare loss. This is further justified by 37.2 per cent of those that spend ₦5000 or less on consumption, compared to 12.8 per cent recorded before the lockdown.

Table 5: Health, cooking power and portable water of household during lockdown

Variables		Per cent
Where do you go first when any member of your family is ill before the COVID-19 lockdown	Traditional/self-medication	9.3
	Government hospital	43.2
	Private hospital	47.5
Where do you go first when any member of your family is ill during the COVID-19 lockdown	Traditional/self-medication	27.1
	Government hospital	39.6
	Private hospital	33.3
Major sources of domestic cooking power before the COVID-19 lockdown	Electricity	36.1
	Cooking gas	42.2
	Kerosene	8.3
	Charcoal	11.1
	Firewood	2.3
Major sources of domestic cooking power during the COVID-19 lockdown	Improved	3.5
	The same as the pre-COVID-19 period	23.1
	I use inferior cooking power	34.2
	Combination of old with inferior cooking power	39.2
Source of portable water before the COVID-19 lockdown	Borehole	65.2
	Public standpipe	8.3
	Protected well	26.5
Source of drinking water during the COVID-19 lockdown	Improved	7.4
	The same as the pre-COVID-19 period	75.1
	Use of inferior source	9.2
	Combination of old with inferior source	8.3

Source: Computed by the Authors

Table 5 depicts the distribution of households' access to a quality healthcare system, portable water, and domestic cooking power. Before the COVID-19 pandemic, 9.3 per cent of surveyed households used traditional or self-medication, and 43.2 per cent and 47.5 per cent, respectively, visited government and private health facilities. The outbreak of the pandemic increased the per cent of households that use traditional and self-medication to 27.1 per cent, while visits to government and private facilities have decreased. Perhaps, fear of contracting COVID-19 at both health facilities, as well as financial constraints, may have contributed to the shift toward self-medication and traditional health care. During the pandemic lockdown, only a small percentage (3.5%) were able to afford a better source of domestic cooking power. Approximately 73.4 per cent of the households sampled used less cleaned sources or a combination of cleaned and less cleaned sources. More charcoal and firewood are being consumed during the pandemic lockdown, which hurts household health and exacerbates deforestation and climate change.

Boreholes, public standpipes, and protected wells are the common sources of portable water for Ilorin residents. During the pandemic lockdown, only 7.4 per cent of households had access to potable water for domestic consumption. 75.1 per cent did not change the quality of the household's water, while 17.5 per cent used less portable water. The switch in taste could be attributed to accessibility or financial constraints. The use of boreholes by a greater percentage (65.2%) as opposed to public standpipe sources indicates that the government needs to tailor better resources toward the provision of quality portable water for the general public.

Table 6: Statistics on Electricity Tariff before Hike in Tariff

Variables	Per cent	Mean	Std. Dev.	Min	Max
Billing system					
Pre-paid metering	41.3				
Post-paid metering	47.1				
Estimated billing	11.6				
Units of electricity consumed monthly before the rise in tariff		125	8.4	46	310
Electricity bill before incrementing in tariff (₦)		3330	12000	1225	8000
Units of electricity consumed monthly after Hiked-tariff		98	12.3	59	200
Electricity bill after incrementing in tariff (₦)		6920	15000	3100	14100

Source: Computed by the Authors

Table 6 shows the distribution of the electricity billing system and the units consumed before and after the increase in tariff. Intriguingly, the tariff increment coincided with the outbreak of COVID-19. According to the survey findings, 41 per cent of households have prepaid meters, 47 per cent have postpaid meters, and 11.6 per cent have estimated bills. Before the increase in electricity tariffs, the average household consumed 125 kWh per month, with a minimum and maximum consumption of 46 and 310 kWh, respectively. Electricity expenditure appears to defy the conventional law of demand. The average, minimum, and maximum household expenditures increased to 6920, 3100, and 14100, respectively. The average, minimum, and maximum units consumed following the price hike support the negative relationship between the tariff and units consumed. There appears to be a threshold of units needed for the average household, an indication that electricity is a necessary household utility and an input for businesses. Electricity appears to be fairly elastic because the proportional decrease in the number of energy consumer households is far less than the 164 per cent increase in the tariff.

Table 7: Palliative received by household during COVID-19 pandemic lockdown

Variables		Per cent
Palliative from household to household	I gave out palliative because earnings were regular	7.6
	I gave out palliative though earnings dropped	17.1
	I didn't give out palliative because no earnings	75.3
Augmented-earnings	Received palliative from government	1.2
	Received palliative from religious centres	30.5
	Received palliative from neighbours	20.4
	Borrowed from an informal financial institution	5.2
	Credit	34.7

Source: Computed by the Authors

Table 7 depicts the distribution of palliatives received and given out by households during the lockdown. About 24.7 per cent of households distributed palliatives, while only 1.2 per cent received palliatives from the government. Aside from the palliatives provided by religious bodies and neighbours, approximately 34.7 per cent of the households lived on credit, while 5.2 per cent obtained loans from non-financial institutions to survive the lockdown. The survey results showed that nominal earnings were affected both directly and indirectly. Many people had to cut back on their spending to help extended family, neighbours, and acquaintances who had lost their jobs as a result of the lockdown.

Table 8: Effects of COVID-19 lockdown on household wellbeing

Variables		Per cent
Other effects of COVID-19 lockdown	Loss of job during lockdown	1.3
	The rise in prices of foodstuff	78.3
	Total closure of self-owned business	92.2
	Inability to renew house rent	8.5
	Reduction in quality of household consumption	74.3
Household wellbeing during COVID-19lockdown	Improved	1.8
	Unchanged	13.1
	Reduced	85.1
When a change in well-being occurred	A week of the lockdown	2.6
	2.4 weeks of the lockdown	10.3
	A month into the lockdown	89.7
	After the eased of the lockdown	0

Source: Computed by the Authors

Table 8 depicts the distribution of the effects of the COVID-19 lockdown on household well-being. Aside from the negative impact on household earnings caused by the COVID-19 lockdown, approximately 92.2 per cent of self-owned businesses were closed, and 1.3 per cent lost their jobs. Because of the rise in the cost of living, combined with irregular earnings and pay cuts, approximately 74.3 people reduced the quality of their meals. On a two-liker-scale of welfare assessment, approximately 85.1 per cent had their welfare worsened during the lockdown, with loss of welfare becoming noticeable a month into the lockdown. Despite this, some households fared better during the lockdown.

Regression results

This study captures a large number of explanatory variables, which informed the use of stepwise regression to avoid spurious regression. The results of forwarding and backward stepwise-binary regression are presented in this section. Tables 9–14 show the variables that survived the elimination model selection procedure. The selection was made at both the 1% and 5% significant levels to ensure the reliability of the

results. For both significant levels (0.01 and 0.05), the results of both forward and backward selection procedures are nearly identical across all regressions. As a result, to avoid duplication, only results estimated at a 5% significance level are discussed. Table 9 displays the results of demographic variables. Tables 10 and 11 show variables related to jobs and utilities, respectively, while Table 12 shows variables related to palliative care. Table 13 summarizes the four sets of predictors investigated in the model.

Gender, marital status, household size, and income all survived the elimination model selection procedure, as shown in Table 9. Also, the findings support the absolute income hypothesis by Keynes (1936), the life-cycle income hypothesis by Modigliani (1956), and the minority group theory by Rowtree (1941); thus, income appears to be the best predictor of wellbeing. To avoid multicollinearity, consumption is excluded from the selection process. All of the demographic predictors are significant and correspond to the a priori expectations. During the COVID-19 lockdown, male-headed households were 1.3 times more likely to have better wellbeing than female-headed households. This does not contradict expectations, as male productive capacity is assumed to exceed female productive capacity, particularly in the informal sector. The well-being of individuals that are not married is 0.706 times more likely to be less affected than married people during the lockdown. Perhaps this is because the consumption-expenditure and household size of unmarried individual households are lower than that of married people, which translates into a lower average propensity to consume.

Expectedly, larger households have a lower likelihood of experiencing better wellbeing during the pandemic lockdown than smaller households. That is, the cost of living for married people is expected to be higher than for singles, which will invariably affect their quality of life during the pandemic lockdown. The primary wage-earners' education did not make it through the selection process. This goes against the human capital theory as propounded by Becker (1964) and Schultz (1961). According to this survey, schooling has no bearing on household wellbeing, which does not rule out cases where informal sector workers' earnings are higher than formal sector earnings. For example, Obakemi (2021) discovered that the average monthly earnings of a commercial tricycle operator are equivalent to those of a level-9 Nigerian federal worker. Households with higher earnings are more likely to experience less deteriorated wellbeing during the COVID-19 lockdown. The well-being of households whose income increased significantly during the pandemic lockdown is 2.088 times more likely to improve.

As shown in Table 10, the results on job variables show that only the primary job and regularity of earnings survived the selection procedure. During the COVID-19 lockdown, households whose chief wage earner is self-employed were 1.52 times more likely to experience deteriorated wellbeing than civil servants or those working in the private sector. This does not go contrary to expectations. The total lockdown halted the activities of the self-employed, whose earnings are determined by the number of customers who patronize them. Unlike civil servants, who were paid, and some private employees, who were forced to bargain for wage cuts during the lockdown, the self-employed were forced to rely on past savings and other sources. The descriptive statistics results show several cases of earnings irregularity, such as wage cuts and no-work-no-pay. The findings show that households with regular earnings during the COVID-19 lockdown are 1.72 times more likely to experience better wellbeing than those whose earnings were cut or those that bargained for no-work-no-pay. The secondary job did not make it through the selection process. Earnings from a second job are not significant, contrary to expectations. This is unsurprising given that the lockdown resulted in the loss of approximately 65 per cent of secondary jobs.

As shown in Table 11, domestic cooking power and units of energy consumed are the only household utility variables that survived the selection phase. After a tariff increase, changes in the units of energy consumed ($EC_{-1} - EC$) are more appropriate in this model than the total energy consumed. Households are expected to consume fewer units of electricity as a result of the increase in electricity tariffs combined with the irregularity of earnings during the pandemic lockdown. The odd ratio shows a significant positive result.

One unit increase in the energy consumed by a household is 1.88 times more likely to lead to better wellbeing as the number of units of electricity consumed increases during the pandemic lockdown. More energy consumed, as expected, means better food preservation and powering household appliances. Households that use clean domestic cooking power (gas and electricity) are 1.42 times more likely to have a better well-being than those that use dirty cooking power (charcoal and firewood). Households are greatly harmed by dirty domestic cooking power. As a result, it is expected that households that can afford clean domestic cooking power will have better well-being.

Only two of the palliative variables escaped the elimination process. During the pandemic lockdown, households that received palliatives from religious groups and co-neighbours were 1.34 and 1.1 times more likely to enjoy better wellbeing than those who did not receive the palliatives, respectively. Surprisingly, government palliative care is insignificant. Despite the Federal Government of Nigeria's substantial budget for palliative care, only 1.2 per cent of households received government-provided palliative care. Perhaps the government lacks an efficient and long-term mechanism to implement the scheme.

In the model, the study controlled for all four vectors of explanatory variables. Gender, income, employment type, and regularity of earnings are all positively and statistically significant, whereas marital status and household size are negatively and statistically significant. This corresponds to the findings in Tables 9 and 10. Furthermore, the marginal propensity to consume (MPC) of households did not survive the demographical model's selection criteria. It is, however, found to be statistically significant in the combined model. It demonstrates that the income elasticity of household consumption had a positive effect on household well-being during the COVID-19 lockdown. Households with a higher MPC are 1.24 times more likely to enjoy better wellbeing than those with a lower or unchanged MPC. Tables 9, 10, and 11 show that the age and educational attainment of household chief wage-earners, as well as secondary jobs and access to potable water and health care facilities, do not survive the elimination procedure. It also demonstrates that age and education are unimportant in the well-being model. Religious palliatives, energy consumption units, and the use of clean domestic cooking power are all positive and significant. This is also consistent with the results in Tables 11 and 12. However, neighbour-to-neighbour palliative does not survive the elimination procedure.

Table 9: Demographical variables

Variables	Forward Selection (0.05)	Forward Selection (0.01)	Backward Selection (0.05)	Backward Selection (0.01)
Gender (Male*)	0.232 (0.056)*** ((1.261))	0.235 (0.058)*** ((1.263))	0.232 (0.056)*** ((1..261))	0.235 (0.058)*** ((1.263))
Marital Status(Married*)	-0.347 (0.134)** ((0.706))	-0.342 (0.135)** ((0.710))	-0.347 (0.134)** ((0.706))	-0.342 (0.135)** ((0.710))
Household size	-0.183 (0.069)*** ((0.833))	-0.182 (0.071)*** ((0.834))	-0.183 (0.069)*** ((0.833))	-0.182 (0.071)*** ((0.834))
ΔY	0.736 (0.214)** ((2.088))	0.762 (0.265)** ((2.143))	0.736 (0.214)** ((2.088))	0.762 (0.265)** ((2.143))
Constant	2.373 (0.849)*** ((10.730))	2.373 (0.849)*** ((10.730))	2.373 (0.849)*** ((10.730))	2.373 (0.849)*** ((10.730))
Observation	413	413	413	413
Pseudo R-squared	0.316	0.316	0.316	0.316

Source: computed by author, Standard errors in parentheses (), Odd ratio in double parentheses (()), *** p<0.01, ** p<0.05

Table 10: Job variables

Variables	Forward Selection (0.05)	Forward Selection (0.01)	Backward Selection (0.05)	Backward Selection (0.01)
Primary job (Self-employed*)	-0.416 (0.173)** ((1.516))	-0.409 (0.185)** ((1.505))	-0.416 (0.171)** ((1.516))	-0.409 (0.185)** ((1.505))
Regular earnings	0.541 (0.169)** ((1.718))	0.528 (0.181)** ((1.696))	0.541 (0.169)** ((1.718))	0.528 (177)** ((1.696))
Constant	2.538 (0.814)*** ((12.654))	2.538 (0.814)*** ((12.654))	2.538 (0.0814)*** ((12.654))	2.538 (0.0814)*** ((12.654))
Observation	409	409	409	409
R-squared	0.153	0.153	0.153	0.153

Source: computed by author, Standard errors in parentheses (), Odd ratio in double parentheses (()), *** p<0.01, ** p<0.05

Table 11: Utilities variables

Variables	Forward Selection (0.05)	Forward Selection (0.01)	Backward Selection (0.05)	Backward Selection (0.01)
Energy consumed (ΔEC)	0.633(0.121)*** ((1.883))	0.621(0.128)*** ((1.861))	0.631(0.121)*** ((1.879))	0.621(0.126)*** ((1.861))
DCP(gas/electricity*)	0.348(0.168)** ((1.416))	0.343 (0.171)** ((1.409))	0.338(0.168)** ((1.402))	0.343 (0.171)** ((1.409))
Constant	1.612 (0.711)*** ((5.013))	1.612 (0.711)*** ((5.013))	1.612 (0.711)*** ((5.013))	1.612 (0.711)*** ((5.013))
Observation	411	411	411	411
R-squared	0.383	0.383	0.383	0.383

Source: computed by author, Standard errors in parentheses (), Odd ratio in double parentheses (()), *** p<0.01, ** p<0.05

Table 12: Palliative variables

Variables	Forward Selection (0.05)	Forward Selection (0.01)	Backward Selection (0.05)	Backward Selection (0.01)
Religious	0.291(0.0938)*** ((1.338))	0.283 (0.0931)** ((1.327))	0.291 (0.0938)*** ((1.338))	0.282 (0.931)** ((1.326))
Neighbor	0.0734 (0.0311)*** ((1.076))	0.0658 (0.0321)*** ((1.068))	0.0732 (0.0311)*** ((1.076))	0.0656 (0.0321)*** ((1.068))
Constant	3.380 (0.803)*** ((29.370))	3.380 (0.803)*** ((29.370))	3.380 (0.803)*** ((29.370))	3.380 (0.803)*** ((29.370))
Observation	391	391	391	391
R-squared	0.258	0.258	0.258	0.258

*Source: computed by author, Standard errors in parentheses (), Odd ratio in double parentheses (()), *** p<0.01, ** p<0.05*

Table 13: All variables

Variables	Forward Selection (0.05)	Forward Selection (0.01)	Backward Selection (0.05)	Backward Selection (0.01)
Gender (Male*)	0.362 (0.127)*** ((1.436))	0.341 (0.133)*** ((1.406))	0.362 (0.126)*** ((1.436))	0.339 (0.135)*** ((1.404))
Marital status (Married*)	-0.0482 (0.0221)** ((0.953))	-0.0465 (0.0224)** ((0.955))	-0.0486 (0.0221)** ((0.953))	-0.0468 (0.0224)** ((0.954))
Household size	-0.0825 (0.0392)** ((0.921))	-0.0811 (0.0403)** ((0.922))	-0.0827 (0.0395)*** ((0.921))	-0.0.813 (0.0401)*** ((0.922))
ΔY	0.347 (0.113)** ((1.415))	0.338 (0.118)** ((1.402))	0.349 (0.116)** ((1.418))	0.336 (0.118)** ((1.399))
ΔC/ΔY (MPC)	0.213 (0.0526)*** ((1.237))	0.203 (0.0613)*** ((1.225))	0.213 (0.0526)*** ((1.237))	0.203 (0.0611)*** ((1.225))

Self-employed	0.293 (0.142)**	0.289 (0.144)**	0.295 (0.142)**	0.287 (0.143)**
	((1.340))	((1.335))	((1.343))	((1.332))
Regular earnings	0.0526(0.0214)***	0.0508(0.0217)***	0.0528(0.0214)**	0.0507(0.0217)***
	((1.054))	((1.052))	((1.054))	((1.052))
Palliative (Religious*)	0.461(0.213)**	0.443(0.217)**	0.461(0.213)**	0.443(0.215)**
	((1.586))	((1.557))	((1.586))	((1.557))
Energy consumed (ΔEC)	0.633(0.121)***	0.621(0.128)***	0.635(0.121)***	0.619(0.128)***
	((1.883))	((1.861))	((1.887))	((1.857))
Cooking(gas/electricity*)	0.348(0.168)**	0.343 (0.171)**	0.346(0.168)**	0.342 (0.171)**
	((1.416))	((1.409))	((1.413))	((1.408))
Constant	1.612 (0.211)***	1.612 (0.211)***	1.612 (0.211)***	1.612 (0.211)***
	((5.013))	((5.013))	((5.013))	((5.013))
Observation	389	389	389	389
R-squared	0.318	0.323	0.317	0.322

*Source: computed by author, Standard errors in parentheses (), Odd ratio in double parentheses (()), *** p<0.01, ** p<0.05*

Conclusions

This study examined the impact of COVID-19 palliatives on Nigerians' well-being during the pandemic lockdown. This study used a well-structured questionnaire to generate a household dataset from a cross-section of households in the Ilorin metropolis, Nigeria. The preliminary results found a significant decline in earnings and consumption during the COVID-19 lockdown. The sampled households' weekly average income was reduced by 54%, while their weekly average consumption was reduced by 31%. These two variables are important wellbeing indicators. Therefore, it is evident that households' well-being is reduced during the lockdown. To calibrate the quantum of change in wellbeing, this study adopted the Preference Index Approach (PIA) that allows households to compare wellbeing in two periods (before and during the COVID-19 lockdown). Thus, the dependent variables are presented in dichotomy form. To avoid spurious regression that is common in cases of a large number of explanatory variables, forward-backwards-stepwise binary regression was used. The empirical findings show that religious palliative has a positive and significant impact on household wellbeing. The empirical findings show that religious palliative, demographic and job variables, and domestic cooking power are all significant and consistent across all regressions. The odd ratio shows that income, regularity of earnings, domestic cooking power, and the primary occupation of primary wage-earners are the most influential predictors of household well-being.

Of much importance to this study, the religious palliatives were more accessible to Nigerians during the pandemic lockdown and therefore more impactful on Nigerian wellbeing than the government palliatives. It is an indication that many Nigerians did not benefit from the government's ostensibly palliative scheme. Perhaps the scheme was sabotaged by unscrupulous individuals for personal gain. It is a call for the government to collaborate with religious groups since it seems to guarantee the better implementation of welfare and empowerment schemes. Therefore, this study recommends that the government at all levels create synergies with the religious bodies in the subsequent empowerment or welfare-enhancement schemes. This will go a long way towards improving the success rate of government policies, given the confidence, the average Nigerian tends to repose in religious bodies.

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