EFFECTS OF INCOME SHOCK ON CONSUMPTION AMONG PUBLIC WORKERS IN SOUTHWEST NIGERIA: EVIDENCE FROM THE 2016-2018 ECONOMIC CRISIS

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Abstract

Theoretically, consumption is linked to income; when shock impinges on income, consumption is likely to be impacted. This paper investigates the severity of income shock in Southwest Nigeria. It also examines consumption response to income shock and identifies various coping strategies among the people during the shock. Primary data using self-administered questionnaires and focus group discussions collected from three selected states—Ekiti, Ondo and Osun were used. The sample population consists of workers on the payroll of the state governments during the period. Both descriptive and OLS methods were employed to achieve the set objectives. The finding shows that total consumption declines across the states and irrespective of the income group. The result also indicates that 89 per cent, 81 per cent and 94 per cent of the people were greatly affected in Ekiti, Ondo and Osun state respectively. Assistance from relatives and friends, self-adjustment, cutting of expenses and farming were among the coping strategies adopted during the shock. Personal savings was insignificant as a coping strategy against income shock due to the low saving habit of the people before the shock, thus violating the standard theories of consumption. The study, therefore, concludes that the unexpected and untimely nature of the income shock makes the workers vulnerable to a decline in consumption with negative impacts on their health.

Keywords: Income shock, Consumption, Coping strategies, Public workers, Southwest, Nigeria

JEL classification: D12, E21

Introduction

Analysis of the effect of income shock on consumption has long been an interesting issue in the literature. This is particularly important where welfare loss and poverty associated with income shock is critical. Besides, consumption is typically linked to income (Arellano, Blundell & Bonhomme, 2017). When shock impinges on income, consumption is likely to be impacted. It is argued that unexpected negative income shock disrupts consumption smoothing of the vulnerable consumer (Jappelli & Pistaferri, 2010; Gelma, Kariv, Shapiro & Tadelis, 2020; Bunn, Le Roux, Reinold & Surico, 2018) and if it persists, the ability of such consumer to smooth consumption may be difficult (Dercon, 2002). This is because income has a significant influence on consumption (Friedman, 1957; Parkin, 2010).

Studies such as Krueger and Perri (2011), Celidoni, De Nadai and Weber (2016), Ogasawara (2018), Bunn et al. (2018), Christelis, Georgarakos, Jappelli, Pistaferri and van Rooij (2019) affirm that income and consumption choices are strongly correlated. The recent event in Nigeria during the period 2016 to 2018, where most state governments were unable to pay workers' salaries for months (Ayodele, 2017; Adedoyin, 2019) could be explained within the context of income shock which serves as a reminder that public workers are also exposed to financial risk asides dismissal from work or job loss. The income shock is not unconnected to the falling global crude oil prices of mid-2015 which launched the country into economic recession in 2016Q1, with significant contraction in the gross domestic product (GDP) from 2.11 per cent

in 2015Q4 to -0.36 per cent in 2016Q1 as well as a significant reduction in the country's foreign earnings from crude oil from ₦830.81B in 2015Q4 to ₦666.13B in 2016Q1 (Central Bank of Nigeria, 2016). The overall effect of the falling crude oil prices was a reduction in the country's oil revenue and monthly federal allocations to the state and local governments. Most of the state governments in the Southwest thus suffered fiscal distortions and found it difficult to pay workers' salaries because over the years the state governments rely on shared revenue from the federal government for their statutory obligations.

As a survival strategy, the Osun state government adopted 'Modulated Salary Structure (MSS)' in July 2015 (Donald, 2018). Under this new salary structure, workers' salaries were pro-rated; those between grade levels 1and 7 received full salaries, those between grade levels 08 and 12 received 50 per cent at the initial period of the crisis and were later paid 75 per cent, while those on levels 13 and above received 50 per cent of their salaries monthly.

Despite the new salary structure in the state, salaries were inconsistently paid. Total income shock was witnessed in both Ekiti and Ondo states. The states were unable to pay salaries and owed workers for months (see Table 1). Lagos state consistently paid their workers during the periods. Shock is considered bad when it impacts negatively on incomes and becomes very worrisome if they are severe, persistent and requires immediate strategies to cope with it (Soludo, 1993).

However, from the perspective of this study, income shock is the sudden cut and inconsistent in the payment of workers' salaries in the states. Because the shock was unanticipated, its negative effect on the affected workers cannot be ruled out especially on their consumption choices, health and sources of livelihood. Thus, the study is motivated by the devastating effects of the income shock on the public workers in the states.

Table 1: Workers' Outstanding Salaries in the Southwest States

State	Ekiti	Ondo	Osun*	Ogun	Oyo**	Lagos
Number of months outstanding	4	3	29	0	1	0

*Source: Vanguard, Nigeria (January 19, 2018), Note: *Accumulation of half salary from 2015 till 2018 (for 30 months). ** local government workers in the state were owed six months*

Despite the severity of the income shock on the workers, empirical studies during the period are scarce. Extant studies in Nigeria have only focused on idiosyncratic income shock (e.g. climate change, crop losses) mostly faced by farmers (Olawuyi, Olapade-Ogunwole & Raufu, 2011; Abdulaziz & Shaufique, 2015; Ajefu, 2017), and others have used aggregate economy data (e.g. GDP as a measure of income, household final consumption expenditure) (Akekere &Yousuo, 2012; Onanuga, Oshinloye & Onanuga, 2015; Ayeni & Akeju, 2017) which do not reflect individual income level. Besides, these studies were conducted before the shock and therefore do not capture the shock experienced in the states by the government's workers.

However, given the unexpected and untimely nature of the income shock, the impacts may be deleterious, much higher and more distressing among the public workers who in their working life have relied on salaries for survival. Besides, unexpected negative income shock is costly especially when it results in consumption decline, emergence auction of assets and property, low/negative savings and assets accumulation (Modena, 2008) which could leave consumers vulnerable to poverty. It could inhibit economic growth through unemployment due to low/negative savings and investment. Therefore, an analysis of the effects of income shock is thus crucial because of the importance of income in consumption choices which in turn is germane for the determination of economic activities and aggregate demand, especially in this century where every nation is striving to achieve sustainable consumption for every citizen.

Due to the suddenness of the crisis, it is essential to investigate the coping ability of the workers during the crisis because there are conventional coping strategies that are peculiar to some groups of consumers during unexpected negative income shocks which depend on their geographical location, exposure, employment type and level of education. In reality, individuals and households differ in terms of demographic, social and overall characteristics. Thus, when faced with uncertainty such as income shock, the coping ability would also vary greatly from household to household or individual to individual, depending on the intensity of the shock, *ex-post* and *ex-ante* assets (Udry, 1995).

Studies have identified various coping strategies including savings, borrowing and other informal methods such as loans, assistance from friends and relatives, sales of properties, self-insurance and reduction in consumption (Gourinchas & Parker, 2002; Frankenberg, Smith & Thomas, 2003; Mu, 2006; Skoufias, 2003; Morduch, 2005; Kozel, Fallavier & Badiani, 2008; Wainwright & Newman, 2011; Vihriala, 2017; Pradhan & Mukherjee, 2018; Ogasawara, 2018). A study by Morduch (2005) suggests that informal arrangements made within the family and/or religious affiliations to support each other similarly cushion the effects of an income shock.

Gelma et al. (2020) reveal that people used unconventional means like mortgages, low liquidity (reduction of savings) and credit card balances as coping strategies during the US economic shutdown. The identification of coping strategies during the shock is essential for governments and policymakers to design appropriate fiscal policies and social welfare packages that can aid workers against future re-occurrences.

More so, the coping strategy available to the workers in the states during the crisis may be different from the above mentioned. For instance, some workers may have had low liquid assets before the crisis due to multiple responsibilities in the family. Besides, payment of salaries was consistent before the crisis. The life cycle model suggests that individuals should save when income is high to finance consumption during low or uncertainty in income. Some workers may not see the need to save for income shock due to consistent payment of salary, family circumstances; insufficiency of the salary itself to meet immediate contingencies, thus savings may not be available as the perfect coping strategies to smooth consumption during the shocks. Even if available, it may not be adequate because of the persistence of the shock. Also, borrowing may be difficult because of economic recession, low deposits, huge collateral demand from the customers; high interest rate and lack of means of repayment on the part of the civil servants would worsen the situation.

Against this backdrop, the research questions are as follows: To what extent did the income shock affect the workers? How sensitive is their consumption expenditures to the income shock? What are the adopted strategies to attenuate the shock? In providing answers to the questions, the study contributes to the extant studies on the effects of income shock while focusing on three states in the Southwest of Nigeria—Ekiti, Ondo and Osun—using self-administered questionnaires and focus group discussions (FGDs). The study is unique because it uses survey data at the individual level and focuses on civil servants rather than farmers or using aggregate economy's data like the existing studies in the country. Besides, the study is carried out during the crisis which makes it unique. An investigative analysis of the effects of income shock is essential for several reasons. First, because income is the main driver of consumption decisions which in turn determines economic activities and aggregate demand. Second, private consumption is the leading part of GDP in any country, and an essential factor for stable business activities and growth. Further, this is crucial at this time as the region advocates for southwest regional integration and recently launched a Development Agenda for Western Nigeria (DAWN) to achieve healthy economic activities and advancement of their people (Salaudeen, 2017). The state is made up of civil service states in which their consumption expenditures accounts for about 50% to 70% of aggregate spending. A study such as this is thus useful for designing the kind of forward-looking fiscal policy required to achieve sustainable private consumption.

The rest of the paper is structured as follows; section two presents a review of related literature, followed by the methodology in section three. Section four reports and discusses the results, and finally, conclusions and recommendations from the findings are presented in section five.

Literature Review

Theoretical foundation

The theoretical framework of the study is anchored on the permanent income hypothesis (PIH) and random walk (Friedman, 1957; Hall, 1978). PIH asserts that consumption is linked to the permanent income of individual agents, which suggests that individual consumption is affected by changes in his permanent income. Transitory shocks in income do not affect consumption because the household has different strategies to cope with the shock. This theory was built on the idea that a forward-looking consumer plans his consumption decision not only on current income but also on the entire income (permanent and transitory) and that people spend at a level consistent with their expected long-term average income which is the level of permanent income. An individual will save only if their current income is higher than the anticipated level of permanent income. The main tenet of PIH is that consumption does not respond to the anticipated change in income, only unexpected change in permanent income would change consumption. This implies that consumption is more sensitive to unexpected shock to permanent income. Thus, consumers during uncertainty cope using accumulated wealth and assets. Previous studies have found mixed results on the validity of the PIH proposition. Some studies found excess sensitivity of consumption to income shock (Hall & Mishkin, 1982; Campbell & Mankiw,1990; Stuart, 2017; Baker & Yannelis, 2017; Gelma *et al.*, 2020), whereas some do not (Browning & Collado, 2001; Attanasio, Kovacs & Molnar, 2020).

Hall (1978) assumes that an individual is rational and forward-looking, always wanting to smooth present consumption rather than future consumption in a time of income uncertainty. Hall argued that change in consumption is unpredictable because consumers change their consumption only when they receive news about lifetime resources. An unexpected shock to permanent income could also cause a proportional change in consumption. The theory explained that consumers approximate their lifetime resources and then distribute those resources over the remaining years of their lives. Hall (1978) therefore proposes a random walk consumption model in which future consumption is a function of present and future lifetime resources. These models provide an analytical framework to explore the degree of consumption response to income uncertainty and the coping strategies during the shock.

Empirical literature

The empirical literature on the effects of income on consumption is mixed. This depends on whether the shock is anticipated or unanticipated, positive or negative. However, this paper only focused on unanticipated income shock and consumption. Hall and Mishkin (1982), in a panel study of 2,309 US households show that consumption is more sensitive to permanent income shock, and that consumption does not change relative to every change in income. Rather, consumers visualise the major source of the change and strongly react only to those changes that can cause a major shift in consumption during 1969-1975. Campbell and Mankiw (1991) employed instrumental variable (IV) approach, examine the response of consumption to change in income in US., UK, France, Canada, Sweden and Japan over the periods 1957-1988 for UK and 1972-1988 for other countries. The authors argued that consumption response to change in both permanent and current (transitory) income and that any factor that change income could as well change consumption. This finding contradicts that of Hall and Mishkin (1982) for the US.

Krueger and Perri (2011) use a panel of 14,272 households from 1987-2008 sourced from the Italian Survey of Household Income and Wealth (SHIW) and Panel Study of Income Dynamics (PSID) during 2004-2006 respectively to show that a large percentage change in income is associated with a relatively smaller per cent change in consumption than wealth and that a 10 per cent change in income causes a 1.7 per cent change in non-durable consumption.

Ludwig (2015) finds that consumption of poor households over the period 1998-2012 responds more to all kinds of income shocks than rich households. Arellano *et al*. (2017), in a panel of 5,000 US households between 1999 and 2009, observed that for low-income earners, negative income shock causes a small change in their consumption, whereas, a significant decrease is observed for high-income earners. This suggests that poor households have coping strategies (*post-ante or ex-ante)* to attenuate the effect of an income shock. The authors conclude that asset plays a significant role in consumption smoothing during the shock. These findings agree with the permanent income hypothesis by Friedman that high-income families have a lower average propensity to consume than low-income earners.

Stuart (2017), in a study over the period 1944–2014 in Ireland, shows that consumption responds positively to every change in income in the short run, while the long-run response is one-on-one. The result further show that consumption and disposable income are linearly correlated and stable over the study periods. Study by Kukk, Kulikov and Staehr (2012) test the predictive power of the permanent income hypothesis on the response of consumption to income shock using a sample data of 2,351 interviewed households and Estonian Household Budget Surveys (EHBS) for the period 2002–2007. Kukk et al decomposed household's income shocks into high-persistent and low-persistent temporary shocks for both positive and negative income shocks. The temporary income shock is derived from temporary income defined as the difference between the current and regular income. The results show that consumption is more sensitive to regular (persistent) income shocks than temporary shocks. Also, when positive and negative income shocks were included separately into the model, the result shows a symmetric response of consumption to persistent income shocks, while the response of consumption to temporary income shocks was highly asymmetric, shock.

Baker and Yannelis (2017) addressed two issues during the US 2013 economic shutdown: (i) the sensitivity of consumption to a temporary change in income with 'no drop' in permanent income or wealth; and (ii) the effect of time allocation of federal government workers' salaries on their consumption. The authors observe that delay in the payment of workers' salaries causes a decline in consumption expenditure. It thus causes extra sensitivity of consumption to change in income. Bunn *et al*. (2018) show that consumption response to temporary and unexpected income shocks is larger than positive income shocks in Britain over the period 2011-2014. Christelis *et al.* (2019), in a panel study of 1,543 households in the Netherlands, show that consumption declines due to recession.

Studies by Crossley, Low and O'Dea (2013), Meyer and Sullivan (2013), and Gelma *et al.* (2020) assess the response of consumption and income during an economic downturn in the US and conclude that economic crises lead to a sharp drop in income and significantly reduce consumption. Celidoni *et al*. (2016) analyse consumption behaviour during relative stability and great recession over the period 1995-2006 and 2008-2012 respectively in Italy, and finds that; (i) the consumption of young households drops due to unemployment at the beginning of the recession compared to the period of stability, (ii) the consumption of households with larger family sizes reduces significantly during the economic recession compared to the period of economic stability, (iii) for house owners and renters, the recession affects their non-durable consumption positively compared to the households in rent-free houses, and (iv) the young households sell their wealth to offset income loss and cut consumption in the long-run.

In Nigeria, a study by Abdulaziz and Shaufique (2015) uses survey data of rural farmers to examine the effect of both idiosyncratic shocks (death, illness, livestock, price change) and covariate shocks (climate change) on consumption. The result shows that idiosyncratic and covariate shocks have no significant effect on consumption.

Ajefu (2017) uses the Nigerian Household Panel Survey Data of 2010/2011 and 2012/2013 respectively to examine the response of consumption to idiosyncratic and covariate self-reported income shocks by farmers

and shows a heterogeneous response of consumption to shock due to differences in socioeconomic and demographic characteristics of the household heads.

Agarwal and Qian (2014) use the panel dataset of more than 180,000 consumers in Singapore covering the period April 2010 and March 2012 to examine how consumers respond to an exogenous unanticipated (increase) income shocks and fiscal policy program announcement during 2011 and find that consumption rose significantly after the announcement of the fiscal policy program and that consumer spent averagely $0.80 for each $1 increase in their earnings.

On coping strategies, Frankenberg *et al*. (2003) reveal that households who hold more wealth before income shocks are better off and able to smooth consumption at the onset of the crisis, implying that wealth/assets play a significant role in consumption smoothing. This is the central message of the life cycle hypothesis (LCH). Other strategies include family arrangement; engagement in extra jobs; increase in hours of work, reduction of durable and semi-durable expenditures.

Rashid *et al.* (2006), in a study of 1,600 households in Northern Bangladesh, find that coping strategies adopted by people vary depending on the type and causes of shocks, household characteristics and several income sources, access to consistent income source, ownership of assets, and household head's education.

Jappelli and Padula (2016), using data from a total of 28,665 households of workers aged between 20-55 years employed in either the public or private sector, excluding the self-employed and those approaching retirement over the period 1989-2010, show that their consumption reduces significantly by 4 per cent. Skoufias (2003) observes that food consumption is better smoothed during inconsistent wage payments, forced leave or unemployment rather than non-food consumption affected by shock. The author notes that borrowing, labour supply outside formal work, assets, farming and informal risk-sharing arrangements within the community (such as community clubs and societies) are used to smooth consumption.

Morduch (1995) points out the importance of income smoothing in consumption smoothing and the various mechanisms employ by households to smooth income and consumption. The empirical finding reveals that consumption is insensitive to change in income. Morduch discovered that households in low-income countries insured themselves against adverse income; engaged in conservative production, diversify their economic activities, borrowed, deplete and accumulate nonfinancial assets, and adjust labour supply etc. Further, Morduch noted that households faced the problem of an imperfect market thus making credit and borrowing from financial institutions impossible.

Mu (2006) observes that individuals with greater assets before income shock have the opportunity of smoothing consumption by selling part of their assets, and also that education plays a significant role in choosing coping strategies. Wainwright and Newman (2011), in a study of 12 rural provinces of Vietnam covering 2006, 2008 and 2010, found that 54 per cent of the households were able to smooth consumption by reducing spending, while 26 per cent borrowed. Savings, sales of assets, livestock and private/public transfer arrangements were also used as coping mechanisms.

Baez (2007), in a study of developing countries, confirms that rural households smooth their consumption by reducing schooling, nutrition and health, selling their assets, using labour service in non-farm sectors, as well as community-based insurance arrangements. Jha, Kang, Nagarajan and Pradhan (2020) note that Indian households coped with income shock using savings, cash transfers and auction their assets.

According to Pradhan and Mukherjee (2018), rich households use savings as their main coping strategy, while government palliatives, relatives' and friends' support, borrowing from formal and informal institutions, and meal skipping are adopted by poor households. Vihriala (2017) finds that a household's assets play an important role in financing consumption. Ogasawara (2018), in a study of 237 households in

Japan during the Japanese interwar, observes that people prioritised spending on children's education, food, rent, transportation and utilities, and use personal savings, loans from microfinance, gift items from people and also reallocate their resources to finance their consumption.

Methodology and Data

Research design and data

Primary data was collected from Ekiti Ondo and Osun states in Southwest Nigeria. Two local governments are selected from each of the three senatorial districts (based on Federal government distribution) in the states, making a total of six local government areas from each of the states, including their capital cities, with a total of eighteen in all (see, Appendix I).

The study population is made up of workers on the state governments' payroll during the study. A random sampling technique is employed to choose respondents from schools, local governments, hospitals and ministries. Both quantitative and qualitative data are collected. The quantitative data is obtained through questionnaires administered at the individual level, while the qualitative data is collected through focus group discussions (FGDs).

Sampling and sample size

Samples for the study were calculated using the Yamane (1967) method. It is a suitable formula for calculating sample size in a finite population when the original sample collected is less than 5 per cent of the entire population size. Also, if the population size is known, under the Yamane equation there is no need for mean and standard deviation. The Yamane approach is given by:

$$n = \frac{N}{1 + Ne^2} \tag{1}$$

Where n = sample size (unknown), *N* = is given as the estimated population of the selected three study states, including a total of 52,197 workers in Ondo state, 47,132 workers in Ekiti state and 65,000 workers in Osun state (There is no definite number reported for the total workers of Osun State, but the report showed it is less than 70,000 workers) (Tolu, 2017). Hence, the total population size is 164,329. *e* = 3.5 per cent desired level of precision or error margin which equals 0.035
Therefore,

$$n = \frac{164329}{1+164329(0.035)^2}$$

$$n = \frac{164329}{1+(164329\times 0.001225)}$$

$$n = \frac{164329}{1+201.303025}$$

$$n = \frac{164329}{202.303025}$$

$$n = 812.29 \approx 812 \tag{2}$$

Since *n* is approximately to be 812, 10 per cent (81.2) attrition can be added in case of no response, this makes the new sample size for the study to be 812 + 81.2 which is summed up to be 893. Hence, to the nearest tens, the sample size becomes n = 890 approximately rounded up to 900. However, to adequately utilize the sample size determination, the study adopted Multi-stage sampling finalising with Stratified Random Sampling formula. 270, 300 and 330 questionnaires were administered in Ekiti, Ondo and Osun states respectively. Of these, 266 (Ekiti state), 293 (Ondo state) and 298 (Osun state) making a total of 857 questionnaires were valid and analysed. Also, two FGDs were held, men and women separated in each of

the states. The participants of the FGDs were selected randomly among the workers in the locations. Thus, a total of six FGDs were conducted in the states and each FGDs comprises 6 discussants, making a total of 36 discussants. Questions on the causes of income shock, the extent of the shock, and the coping strategies during the shock were discussed.

Model specification

Following the work of Newhouse (2001), the study determines the path of income that maximizes household consumption during the shock. Income shock is determined by predicting the income of the households during the shock. Consider a household *i* in location *j* that faces unexpected income fluctuations:

$$Y_{i,j} = \alpha Z_{i,j} + \varphi W_{i,j} + \varepsilon_i \qquad i=1....N \qquad j = 1-3 \tag{3}$$

In equation (3), *Y* is the vector of household income *i* before the shock, *Z* represents a matrix of the observed characteristics of the household, including education, number of working years, salary grade level and place of work of the respondent. *W* represents the unobserved income of the household. ϵ is the error term drawn from a distribution with zero mean and variance i.e. $\varepsilon_i \sim \mathrm{N}(0, \delta_\varepsilon^2)$

It is assumed that both household characteristics *Z* that affect income and the household unobserved income Y^* are unobserved. Hence, the unobserved income of household *Y* is assumed to be equal to the actual income minus the observed and error term. Thus, the equation of income shock is written as:

$$incsk_{i,j} = Y_{i,j} - \hat{Y}_{i,j} + \mu_{i,j} \tag{4}$$

The equation (4) is re-defined to incorporate the determinants of income as:

$$incsk_{i,j} = \phi Y_{i,j} + \phi edu_{i,j} + \phi plw_{i,j} + \phi wkyr_{i,j} + \phi incgrp_{i,j} + \mu_{i,j} \tag{5}$$

Where *Y*=initial income, *edu*=education of the respondent, *plw*=place of work, *wkyr*=year of work experience, *incgrp*=income grade level.

According to standard theory of consumption, consumption is a function of income:

$$Cons = f(Y) \tag{6}$$

For a working-age individual, the most important source of uncertainty is his labour income. If labour income is the only source of uncertainty, any change in *Y* may as well lead to a change in current consumption, *C*. Accordingly, the model implies that consumption should respond to an unexpected change in income. In reality, household characteristics such as the number of dependent children, spouse employment status and family size are included in the model because they have direct or indirect effects on the consumption pattern of a typical household and can be written in the economic model as:

$$Cons = F(incsk_{i,j}, Ø_{\mathrm{i,j}}) \tag{7}$$

Where *Cons* is the total consumption expenditure, *incsk*=income shock, and Ø denotes specific individual respondent characteristics.

Method of analysis

To achieve the objectives, descriptive statistics and the OLS method are employed. OLS method is used to determine the linear relationship between income shock and consumption response on the data from the questionnaires, while descriptive statistics are used to analyse the extent of the shock and the coping strategies adopted. Content analysis was used to analyse the discussions through the FDGs.

Following the work of Celidoni *et al*. (2016) which involves examining the response of consumption *C* to shocks in income *incsk*, the estimated equation is presented as equation (8)*:*

$$Cons_{i,j} = \alpha_0 + \partial_1 incsk^{-}_{i,j} + \partial_2 Ø_{i,j} + \mu_{i,j}, \quad (8)$$

Equation (8) states that consumption, *C*, is a linear function of income *Y*. Ø denotes household characteristics that have a significant impact on consumption, such as family size, several dependents, spouses employment status (if the respondent is married) and spouses' employer(if he/she is working). Expressing change in consumption as a function of income shock and factors influencing consumption, equation (8) is re-specified as given below:

$$\Delta InCons_{i,j} = \alpha_0 + \partial_1 \ln incsk^{-}_{i,j} + \partial_2 dpc_{i,j} + \partial_3 hsize_{i,j} + \partial_4 spoc_{i,j} + \partial_3 spey_{i,j} + \mu_{i,j} \quad (9)$$

$$\text{i.e}\ \Delta C / \Delta Y > 0\ ,\ \text{i} = 1, \ldots \text{N and j}=1-3$$

Where Δ*InCons* is household consumption and *lnincsk* is the logarithm of an income shock. Following the work of Newhouse (2001), this study measures income shock as the residual from the regression of household income and the factors determining individual income in the workplace such as education, years of work experience, salary grade and place of work. This is only computed for workers in Ekiti and Ondo states. In the case of Osun state, since the workers experienced partial income shock, that is, they received a certain percentage of their salary during the crisis, income shock is measured as the difference between the actual salary before and during the crisis (i.e. the percentage of income received during the crisis). *dpc*= number of dependent children. It is included in the model because an increase or decrease in the number of dependents may influence household consumption which can either increase or decrease consumption level. *hsize* = household size of the workers. This is included because household size may influence consumption choices in terms of quantity and quality. A small household size, such as a family of 2 members, may smooth consumption better than a family of 5-7 members. Frankenberg *et al*. (2003) report a negative relationship between consumption and household size.

Celidoni *et al*. (2016), on the other hand, observe a positive correlation between household size and consumption decline in the US. *spoc*= spouse employment status. Spouses employment status may as well contribute to an increase or decrease in consumption during the crisis. *spey*= spouses' employer. This is included in the model because respondents whose spouses are employed by the state government will also fall victim to a total or partial income shock, and since the majority of the spouses are state government employees, the variable may influence consumption as well. The variable takes values from 1 to 3. є is the stochastic error term. Equation (9) is disaggregated to assess consumption response to income shock among different income groups. This is necessary because the analysis will help to distinguish between the consumption behaviour of high, middle and low-income workers. Besides, the response of consumption to changes in income might differ across different salary grade levels of the respondents. The disaggregation of equation (9) is specified thus;

$$\Delta Cons_{i,j} = \beta_0 + \beta_1 X(\beta_i incsk_{i,j}) + \varepsilon_{i,j} \quad (10)$$

Equation (10) can be re-specified as:

$$\Delta InCons_{i,j} = \beta_0 + \beta_{1,j}(\ln incsk_i) X_{i,j} + \beta_2 dpc_{i,j} + \beta_3 hsize_{i,j} + \beta_4 spoc_{i,j} + \beta_5 spey_{i,j} + \mu_{i,j} \quad (11)$$

Where subscripts *i* and *j* indicate an individual respondent *i* in location *j*, *X* is the consumption of a particular income group (using the salary grade level). If a particular income group can smooth consumption, $\beta_1 = 0$. This means the response of consumption to income shock is negative, violating the standard consumption

theory. If otherwise, $\beta_1=1$, implying that the response of consumption to income is positive, thus supporting the standard theory of consumption.

Measurement of data

In literature, several approaches were used to measure income shocks. For instance, Kochar (1995) measures income shock as the residual from a regression of crop profits in variables determining the expectations of the household's profits (i.e. a set of household dummy variables, reflecting all time-invariant factors and set of time-varying demographic variables). Agarwal and Qian (2014) use bank dividends and Krueger and Perri (2011) use labour income residual and log of labour income. Jappelli and Pistaferri (2010) measured income shock as the deviations from observable income determinants. Newhouse (2001) measures income shock as the residual from the household income regressed on the household characteristics such as education.

Therefore, the study adopts the work of Newhouse (2001) with little modification by adding salary grade level, year of work experience and place of work to the model. Thus, income shock is measured as the residual from the regression of household income before the shock and the income determinants such as education, year of work, salary grade level and place of work.

For Ekiti and Ondo states, income shock was measured as the residual from the regression result of income of the respondents and the factors influencing individual income such as education, salary grade level and years of work experience. In the case of Osun state, because the workers' salaries were pro-rated, the difference between the actual salary and the salary received during the shock was treated as a shock. Consumption is the difference between total consumption expenditures of the respondents before and during the shock. Other incomes of the respondents, such as transfer payments, bonuses and allowances, were held constant because no allowances or bonuses were paid during the periods.

Table 2: Measurement of Variables

Symbol	Description	Measurement
ΔlnCons	Change in consumption expenditures. It is the difference between the monthly household consumption expenditure before and during income shocks *Δlogcons=f(conbf-condr)*	Continuous
lnincsk	Log of an income shock. Measured as the residual of regression of household income and set of characteristics factors that determine income	Continuous
incgrp	The current salary grade level of the respondent	Categorical
educ	Highest educational qualification of the respondents during the study. Takes the values from 1-8	Nominal
spoc	Employment status of the respondent's spouse. Measured as: unemployed=1, self-employed=2, salary employed=3	Categorical
spey	Spouse employer. Takes the values from 1-3	Nominal
dpc	The number of dependent children.	Nominal
hsize	Family size. All people living in the family	Nominal
Plw	Respondent's place of work. Takes the values from 1-8	Categorical
Wkyr	Work experience.	Continuous

Source: Authors' compilation

Results and Discussion

Demographic characteristics of respondents

The characteristics of the respondents in each of the study areas (Ekiti, Ondo and Osun states) vary widely. Table 3 presents the summary statistics.

Table 3: Background Information of the Surveyed Respondents

	Ekiti State (n=266) %	Ondo State (n=293) %	Osun State (n=298) %	Total (n=857) %
Variables				
		Gender		
Female	64.29	60.41	55.37	59.86
Male	35.71	39.59	44.63	40.14
		Age (in Group)		
18-35	-	1.02		0.35
36–60	100	98.29	95.64	97.90
60 and above	-	0.43	0.34	0.23
Mean	43	43	46	44
No response	-	0.34	4.03	1.52
		Religion Affiliation		
Christian	91.73	95.22	81.88	89.50
Islam	7.52	4.44	17.45	9.92
Tradition	0.75	0.34	0.67	0.58
		Educational Qualification		
Primary school cert	0.38	-	0.67	0.35
Secondary	3.76	3.07	1.68	2.80
OND/NCE/Diploma	25.56	9.56	18.79	17.74
HND	6.02	7.17	13.09	8.87
BA/BSc/B.ed	52.63	61.09	43.29	52.28
Postgraduate	10.90	14.68	19.46	15.17
Others	0.38	2.39	1.34	1.40
No response	0.38	2.05	1.68	1.40
		Marital Status		
Single	1.70	8.57	3.31	4.52
Married	94.47	84.49	89.34	89.36
Widow/widower	3.40	4.90	5.51	4.65
Single Parent	0.43	1.22	0.74	0.66
Separated	0.43	–	0.37	0.27
No response		0.82	0.74	0.53
		Spouse Employment Status		
Unemployed	8.51	9.39	4.04	7.18
Self-employed	11.91	30.20	27.21	23.40
Salaried-employed	79.57	53.47	62.13	64.76
No response		6.94	6.62	4.65
		Spouse Employer		
Private sector	10.21	8.98	10.29	9.84
State government	60.85	60.82	54.78	58.64
Federal government	5.96	8.98	8.46	7.85
No response	22.98	21.22	26.47	23.67
		Household Head		
NO	58.72	55.92	41.54	51.60
YES	40.95	43.27	55.88	47.07
No response	0.43	0.82	2.57	1.33
		Family size		
2-4	27.66	29.39	30.88	29.39
5-7	68.51	53.06	61.76	61.04
8-10	3.83	3.27	2.21	3.06
No response	-	14.29	5.15	6.52
Mean	5.17	4.99	5.00	5.06
		No of Dependent Children		

1-3	50.21	47.92	57.35	52.66
4-6	30.64	26.56	34.56	30.72
>7	1.28	1.04	0.74	1.06
No response	17.87	24.48	7.35	15.56
		Year of Work Experience		
Below 10	29.70	26.62	27.52	27.89
10-25	59.02	57.00	45.64	53.68
26-35	5.26	6.83	24.16	12.37
Above 35	-	-	0.34	0.12
No response	6.02	9.56	2.35	5.95
		Salary Grade Level		
1-7	8.09	4.51		3.99
8-12	66.81	43.03	65.07	58.46
13-17	25.11	52.46	34.93	37.55
		Other Sources of Income before the Shock		
NO	72.34	73.06	73.53	73.01
YES	27.66	26.94	26.47	26.99
		Other Sources of Income during the Shock		
NO	70.64	76.73	72.43	73.27
YES	29.36	23.27	27.57	26.73

Source: Authors' computation

The results in Table 3 show that the majority of the respondents are female and married, with 90 per cent, 84 per cent and 89 per cent in Ekiti, Ondo and Osun states respectively. The majority of the workers are in the middle-aged group of 36-60 years in all the study states, while the mean age varies across the states. Most of the respondents are first degree holders, a considerable number of them are HND holders or having postgraduate certificates, while the rest possess OND/NCE/Diploma certificates. The results in Table 3 shows that more than half of the respondents' spouses are salary earners, a good number of which are state government employees, while a few of them work with the federal government and in the private sector. This tells the extent to which the households are affected by the shock since both spouses are victims of an income shock. This further justifies the fact that both spouses are victims of unexpected income shock and so may be vulnerable to declined consumption and welfare loss.

The results in Table 3 also show that the household size of the respondents varies from 5 to 7, meaning that each family has at least 5 members and at most 7, including the children. With respect to heads of households, in Ekiti and Ondo states, more than half of the respondents are not the heads of their families, as against 56 per cent who are household heads in Osun state. The result also shows that out of 5 members in the households, 1 to 3 do not earn an income. This may further aggravate the effect of the income shock on the respondents as they depend on the monthly income of the household heads. Besides, two-third of the respondents is without other sources of income and so relied on salary for daily survival before the shock.

The reason for this total reliance on salary is because the workers' salaries were consistent, regular and paid as and when due before the non-payment of salaries crisis. Thus, there was no need to get income from other sources. However, to mitigate the adverse effect of the shock on consumption during the income shock, some ventured into other sources of income such as farming, petty trade and other professional practices such as tailoring, catering, photographing, printing press and transport services. In addition, the income shock might have affected the respondents who had businesses before the shock and had spent both profit and capital on consumption due to the inconsistency of salaries. Besides, the statistics show that the proportion of workers who had other sources of income apart from salaries before the income shock is insignificant compared to those who relied on salary every month for survival.

The extent of income shock on the respondents

The respondents were asked to indicate the extent to which they were affected by the salary cuts, cessations and inconsistencies in payment. Figure 1 presents the summary of their responses which varies across the states under study. Ninety-nine per cent of the respondents in Ekiti and 95 per cent in Ondo claim to be vulnerable and greatly affected. In Osun state, 97 per cent of the workers were greatly affected. Overall in all the states, over ninety of the respondents were affected by the income shock. The above result helps to conclude that since the workers depend on salary for survival, unexpected distortion could have proportional large effects on their livelihoods. Besides, the results generally show that the majority of the workers were vulnerable to the negative income shock because it was unexpected and met them unprepared with low savings. This is an eye-opener for workers to form a savings habit and have other sources of income that have comparatively low degrees of uncertainty, such as agriculture and handicraft businesses. In Osun State particularly, the longer-term reduction in salary would have exhausted the initial savings of the workers, or limited the chances of saving, or reduced the available or accumulated liquid assets of the people during the period, further aggravating the negative effect on the workers.

> *"My provision shop folded up during the crisis". - Female discussant, Ondo State*
> *"My business collapsed due to bad debts during the shock". - Male discussant, Osun State*
> *"Some committed suicide because they couldn't feed their families". - Male respondent, Ondo State*
> *"The women among us turned to harlots just to feed the family". - Male discussant, Osun State*

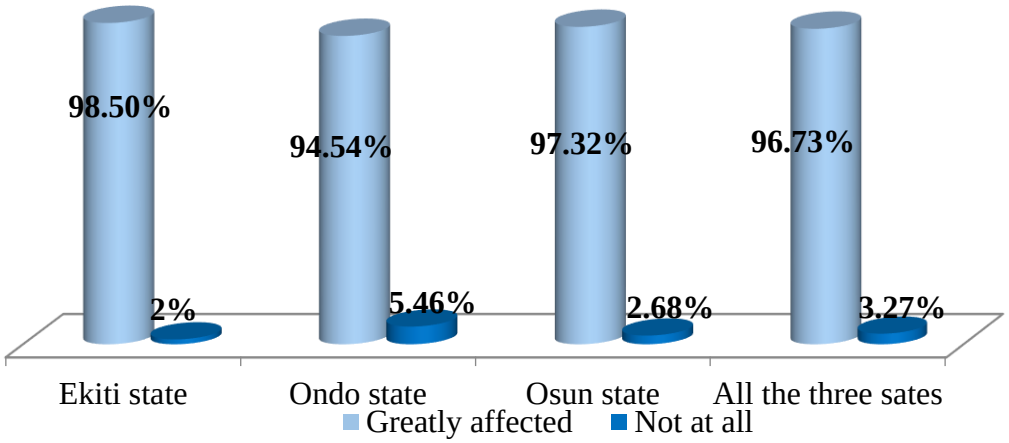

Figure 1: Extent of Income Shock (source: computed by authors)

Effect of income shock on respondents' health

The important components of human resources are not only their skills, talents or abilities but also their health status. Living healthy is the bedrock of full labour participation and productivity. However, the emergence of negative income shock resulted in terrible illnesses, ill-health and death of some workers in the states who would have contributed immensely to the output of the states. From the FGDs, some reports that most workers, especially teachers, slumped and died in the classroom during the crisis. Those that had health challenges such as cancer, stroke and hypertension before the crisis died due to a paucity of funds and inability to access hospitals for treatment. Unexplained conditions and sicknesses such as suicide and insomnia are mentioned as part of the health effects of the shock. Figure 2 depicts the effects of the income shock and the health status of workers in the states based on the FGDs.

"I was on medication before the shock, I have to run to my relatives to get money, if not, I would have died." - Female discussant, Ondo state
"Many of us suffered unexplained diseases such as going out of the mind, insomnia, and stroke" - Male discussant, Osun state
"Some of the workers died because of this incidence of an unexpected income shock."- Female discussant, Ondo state
"Most teachers died due to health challenges and paucity of funds to buy medication and access routine treatment". - Male discussant, Osun State

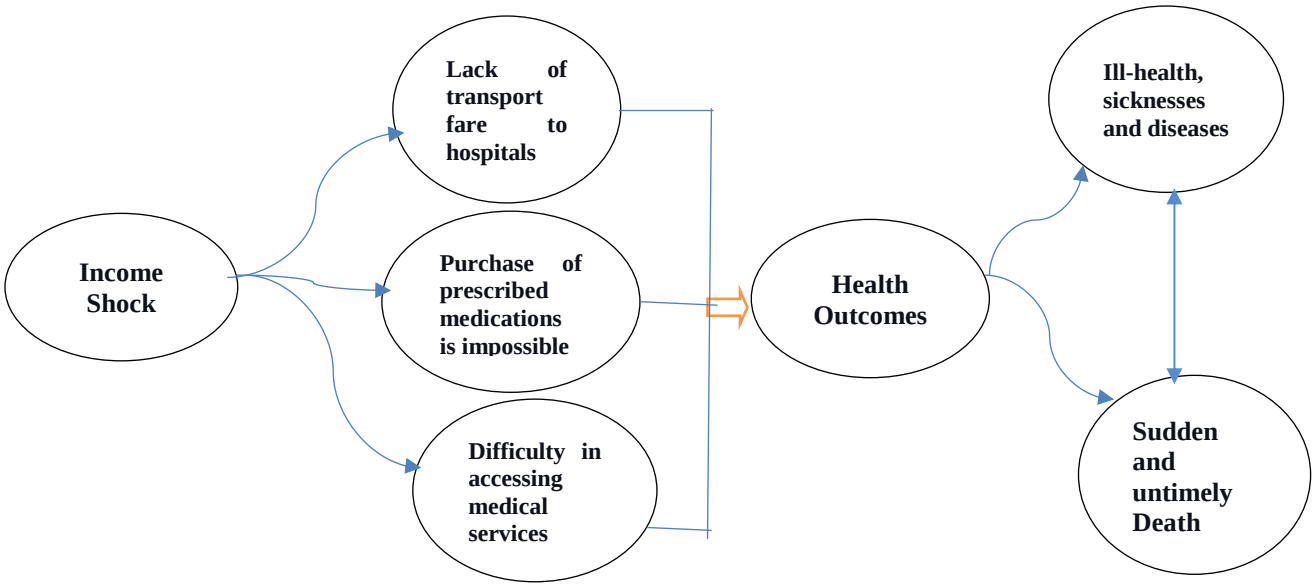

Figure 2: Effects of Income Shock on Workers' Health (source: authors)

Income shock and consumption: An empirical analysis

This section presents the estimated OLS result from the questionnaires. The regression result is presented in Table 4. A total number of 418 questionnaires were used for this analysis due to the large number of non-response. In Ekiti state, 125 respondents out of 266 were used, in Ondo state, 141 respondents are used out of 293 surveyed respondents, while in Osun state, 152 respondents are used out of 298. These numbers are the respondents with complete information on income and consumption expenditures.

Table 4: Regression Results of Consumption Response to Income Shock
Dependent Variable: *ΔINCONS*

Independent variable	Ekiti state		Ondo state		Osun state	
	Coefficient	t-stat	Coefficient	t-stat	coefficient	t-stat
Lnincsk	0.342**	4.18	0.516***	6.39	0.946***	15.35
	(0.000)		(0.000)		(0.000)	
Dpc	-0.478***	-1.85	-0.411*	-1.73	-0.029	-0.23
	(0.069)		(0.086)		(0.821)	
Hsize	0.768**	3.53	0.721**	3.24	0.043	0.37
	(0.001)		(0.002)		(0.710)	
Spoc	1.414**	5.31	0.729***	3.33	-0.069	-0.39
	(0.000)		(0.001)		(0.701)	
Spey	-0.075	-0.30	0.366	2.04	-0.054	-0.49
	(0.763)		(0.044)		(0.624)	
R^2	0.98		0.98		0.98	
F-stat	0.000		0.000		0.000	

*Notes: P-values are in parentheses. ***, ** and * denote statistical significance at 1% and 5% and 1% respectively. lncons = log of change in consumption; lnincsk = log of income shock; dpc = dependent children; hsize = family size; spoc = spouse employment status; spey = spouse employer.*
Source: Authors' computation

The results in Table 4 show that there are significant differences in consumption response to income shock in all the states. In Ekiti state, there is a positive and significant but weak impact of income shock on consumption. The result shows that income shock contributes about 34 per cent variation in consumption, which implies that other strong factors determine consumption in the state. The positive result suggests that household consumption is indeed linked to income and that permanent income plays a significant role in current consumption choices. In Ondo state, the result is positive and highly significant, indicating a covariate relationship between change in consumption and income shock, and that 1 per cent change in income causes 52 per cent variation in consumption. Also, this result is consistent with the permanent income hypothesis which states that household consumption is influenced by permanent income. Similar results have been reported by previous studies such as Jappelli and Pistaferri (2010), Krueger and Perri (2011), Bunn *et al*. (2018) and Christelis *et al*. (2019).

The coefficients of spouse's occupation and household size in both states are generally positive and significant, implying that the variables may also influence household consumption patterns contributing to the recent change in consumption. In Ekiti state, consumption is less likely to respond to change in the number of dependent children and spouse's employer due to a negative and insignificant relationship, whereas, spouses' employer contributes 37 per cent variation in consumption in Ondo state. According to the LCH, an increase in family size and dependent members reduce total savings and increases consumption expenditures. The coefficient of dependent children contradicts that of Modigliani and Brumberg (1954). However, the coefficient of the number of dependent children is surprising. The increase in the number of dependents in the family is expected to increase consumption expenditures, especially if they are underage and unemployed, but the sign of the variable shows that the number of dependent children in Ondo and Ekiti states does not affect the change in consumption during the fluctuation in income.

In Osun state, the coefficient of income shock is also positive and highly significant, suggesting that income shock accounted for a 95 per cent variation in consumption. This result corroborates the standard theory of consumption which states that consumption depends on permanent income, and variation in income will also cause a change in consumption (Friedman, 1957). Baker and Yannelis (2017), Gelman *et al*. (2020) and Christelis *et al.* (2019) likewise observe that consumption responds more to unexpected income shocks in such a way that when there is a shock (positive or negative) in income, consumption will be highly affected. Similar to Ekiti and Ondo states, the coefficient of family size is positive and significant but weak,

implying that family size contributes to the variations in consumption by 4 per cent. This result contradicts the theory of life cycle hypothesis which states that an increase in dependent children increases consumption expenditures. The analysis shows that the response of consumption varies across the states. In the case of Ondo and Ekiti states, it is partial. Whenever one month's salary is paid, the workers manage it until the next one is paid, whereas Osun state workers receive less than their initial salaries every month. Since the people had already formed a consistent consumption pattern before the salary cut, the sudden change and stop would have had a large impact on consumption and depleted initial savings. Table 4 shows an R^2 of 0.98, implying that about 98 per cent of variations in consumption are explained by the variables in the model. The sign and significance of the F-statistic also show the overall significance of the model.

Income shock and consumption across income groups

Table 5 presents the regression result of the consumption' response among different income groups. The table shows a positive and statistically significant response of consumption to income shock in all the income groups, implying that all the income groups are vulnerable to the income shock. The coefficient of the number of dependent children (*dpc*) in all the three income groups is negative and insignificant, whereas, the response of consumption to family size (*hsize*) in all the groups is positive but differ in statistical significance. In the case of groups 1 and 3, which are the lower-income groups and high-income earners (13+) respectively, the coefficients are positive but not significant. This indicates that consumption in the groups is independent of family size. For income group 2 (8-12), the coefficient of family size is positive and significant

Table 5: Consumption response across income groups in Southwest Nigeria

Dependent variable = *ΔLNCONS*						
Independent variables	Income group 1		Income group 2		Income group 3	
	coefficient	t-stat	coefficient	t-stat	coefficient	t-stat
Lnincsk	7.5295***	7.24	0.3438***	9.89	0.5804***	13.57
	(0.000)		(0.000)		(0.000)	
Dpc	-0.1509	-0.31	-0.0738	-0.19	-0.759	-1.21
	(0.758)		(0.848)		(0.228)	
Hsize	0.3079	0.72	1.5153***	4.45	0.4533	0.70
	(0.480)		(0.000)		(0.486)	
Cons_	-8.8836**	-3.46	4.1071***	6.02	4.1389***	3.25
	(0.003)		(0.000)		(0.001)	
R^2	0.8398		0.3486		0.3742	
Obs	16		209		132	
Prob>F	0.0000		0.0000		0.0000	

*Notes: *** and ** denote statistical significance at 1% and 5% respectively. P-values are in parentheses. Income group 1 excludes Osun state.* Source: Authors' computation.

Descriptive analysis of income shock and consumption: Further evidence

Besides the empirical analysis, the study also looked at the response of consumption to income shock descriptively to provide further evidence on the extent of income shock on the workers. Respondents were asked about the regularity of their food intake per day before and during the income shock (e.g. how many meals do you take daily before and during the shock) as well as their perception of their consumption before and during the shock. Their responses are analysed in each of the study states using bar charts. Figures 3 and 4 present the findings respectively. Following the income shock, most workers (75%) reported a decrease in their consumption, as opposed to 19 per cent and 5 per cent who reported a constant and an increase respectively in their consumption. Furthermore, meal intake during the shock declined from three to two times per day. Figure 4 shows that only 31 per cent of the respondents were able to maintain three square meals per day, with the majority (56%) eating twice per day due to income shock. This result reveals that the workers reduced their food intake as a survival strategy against income shock. This is consistent

with the conclusion reached by Hall (1978) that consumption is expected to fall when unpredictable income shock is experienced. Similarly, the result substantiates the works of Nguyen, Nguyen and Grote (2020); Petev, Pistaferri and Eksen (2011).

> *"I don't eat a balanced diet. I ate the food I don't wish to eat." - Discussant, Ekiti State*
> *"Insufficient food is one of the adverse effects of the income shock." - Discussant, Osun State*
> *"It affected me seriously. Eating was a serious issue for my family." - Discussant, Osun State*
> *I cooked food without meat, just for me to take-in something." - Discussant, Ondo State*

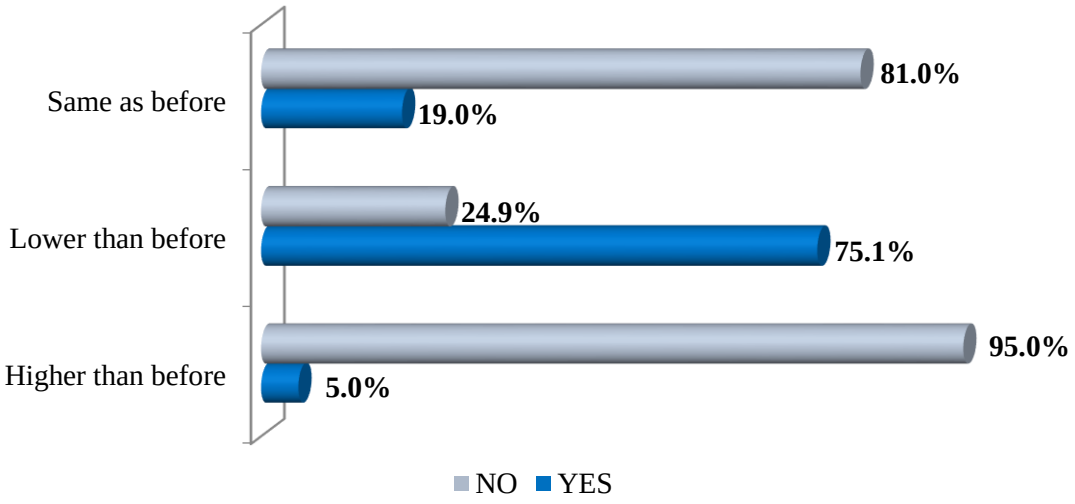

Figure 3: Consumption during the Income Shock(source: computed by authors)

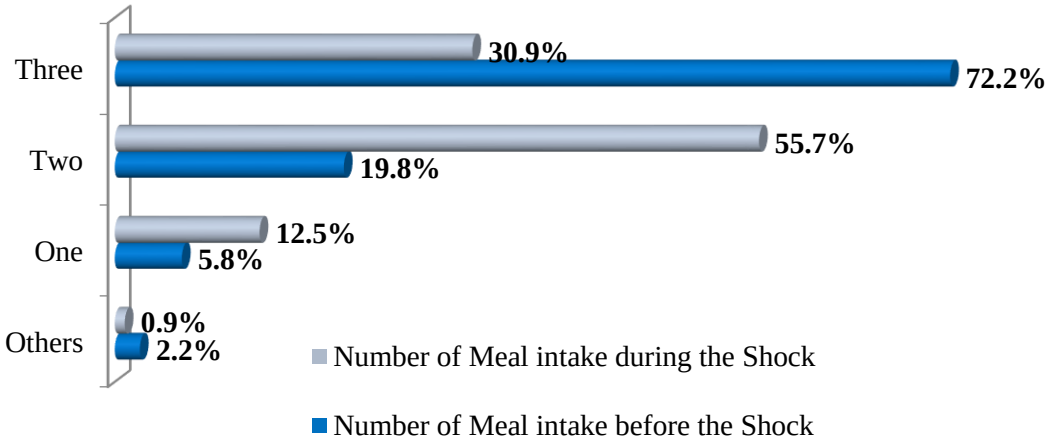

Figure 4: Number of Meal per Day(source: computed by authors)

Income shock and coping strategies

The paper identifies the coping strategies of the people during the crisis. Questions about their coping strategies were asked. Their responses are presented in Table 6. Because the income shock was unexpected and caught the people unprepared, most of the respondents could not save adequately to attenuate the effects

of the crisis and that resulted in self-adjustment and management. This corroborates the findings of Attanasio, Kovacs & Molnar (2020) and Ayeni and Akeju (2017) who observe that a typical Nigerian household can adjust to uncertainty in income. It is therefore obvious from the table that most of the respondents use more than one strategy. Prudence is the main formula for most of the respondents as 23 per cent of them adjusted their scale of preference and reduced consumption of durables, semi-durables and regular services. This implies a reallocation of resources during the shock to achieve daily food consumption.

This finding also corroborates the work of Frankenberg, Smith and Thomas (2003). More so, 11 per cent of the affected respondents were assisted by relatives and friends, whereas, only 4 per cent of the respondents have their businesses or cultivate their foodstuff. According to the standard theory of consumption, savings, borrowing and sales of assets play a significant role during income uncertainty. Table 6 however shows that savings, borrowing and assets have less impact during the crisis. This may be due to the following reasons; (i) poor saving habits of the respondents before the crisis, (ii) borrowing from friends and loans are less efficient during the crisis because financial institutions were affected by the economic recession, besides, salaries are inconsistent and paying back increasing interest rates on the loans collected would be a burden to the workers, and (iii) most of the workers belong to cooperatives/clubs in their workplaces, all of which have become difficult to fund since the crisis, thus affecting their ability to assist members by giving loans. Besides, lack of accumulated illiquid assets by the workers may be the reason for negligible impact of the assets on consumption smoothing during the shock.

“I borrowed to feed the family”. - Discussant, Osun State.
“I went into farming” - Discussant, Ekiti State
"I used my savings to finance consumption” - Male discussant, Ekiti State
“I went into farming and also managed what I had during the period” - Female discussant, Ondo State
“I prioritised food and children’s school fees and paid bills in the instalment” - Male discussant, Ondo State
“I engaged in farming, buying and selling of farm produce and my spouse, in petty business” - Discussant, Ekiti State
“I got assistance from friends and family members and I took cooperative loans.” - Male discussant, Osun State
"I devised my formulae to cope during the period." - Discussant, Ondo State
“I reduced food consumption, provisions, junk food and snacks.” - Discussant, Ondo State

Table 6: Coping strategies during the Income Shock

Coping Strategies	Percentage (%)
Assistance from cooperative societies	0.12
Assistance from relatives & friends	11.09
Assistance from relatives & friends, private teaching	0.12
Borrowing	2.33
Borrowing reduced consumption	0.12
Borrowing, buying on credit, reduced consumption, assistance from relatives & friends.	0.12
Borrowing, cut expenses	0.12
Buying on credit	1.98
Buying on credit, assistance from relatives & friends	0.12
Cut expenses	22.99
Cut expenses, assistance from relatives & friends	0.12
Farming	6.07
Farming, assistance from relatives &...	0.23
Farming, borrowing	0.47
Farming, loans	0.12
Farming, menial job	0.23
Farming, personal business	0.47
Farming, transport services & borrowing	0.12
Loans	1.52
Loans, reduced consumption	0.23
Loans, assistance from relatives & friends.	0.12
Loans, borrowing	0.12
Loans, personal business	0.23
Menial job	1.40
Personal business	3.73
Personal business reduced consumption	0.12
Personal business, assistance from relatives & friends	0.12
Personal business, borrowing	0.12
Professional practice e.g. Photographing, catering services etc.	0.47
Reduced consumption	7.12
Religion assistance	0.12
Religion assistance, assistance from relatives & friends.	0.35
Sales of assets	0.12
Savings	0.35
Self-adjustment	36.52
Sold acquired shares	0.12
Tailoring, cut expenses	0.12
Transport services	0.12

Source: Authors' compilation

Conclusion and Recommendations

It is a fact that disposable income plays a significant role in consumption smoothing, any drop in income is likely to affect not only household consumption but also their economic activities and wellbeing. Mid-2015 to 2018 is regarded as a period of economic downturn and unexpected income shock for state government workers in Southwest Nigeria. Motivated by the fact that public workers are susceptible to volatility and non-insurability of income and consumption during fiscal policy distortions and economic crises, this study investigates the extent of the income shock on the affected workers, using individual household survey data collected during the crisis. Contributing to the existing literature on the consumption response during unexpected income shock, this study assesses the response of consumption and analyses how people meet their consumption needs during salary cuts and change in the time of payment of salaries in three selected states in southwest Nigeria. The OLS technique was employed in analysing the information gathered using

self-administered questionnaires and content analysis was used to analyse FGDs. It is observed that the income shock disrupted the consumption of the affected workers, with some of them cutting their expenses to cope with the income loss. The findings also revealed that income shock has a devastating effect on the workers, especially their health status as most of them contracted unexplained illnesses and sicknesses, while some have died. The analysis of the coping strategies shows that most workers reorganised their expenses and adjusted quickly to the crisis, managing the available resources. Many people also coped with the income shock, cutting back on non-food consumption and capital projects (such as building and cable TV subscriptions), as well as getting assistance from their relatives and friends. Contrary to the standard theory of consumption, savings and borrowing were found to be negligible as coping strategies. This is due to the poor saving habits of the respondents before the crisis and the fact that financial institutions and insurance were not able to help due to lack of collateral and means of paying back. Table 6 also shows that most people adopted multiple strategies to reduce the adverse effect of the unexpected crisis and those efforts to achieve daily food consumption were the major concern of the people.

Consistent with the previous studies, this study shows that inconsistent or sudden cessation of payment of workers' salaries has a significant negative effect on workers' consumption and overall wellbeing. Thus, the crisis is an eye-opener to the workers and all government employees to cultivate the habit of savings, and accumulate productive assets or invest in illiquid assets no matter the family responsibility or how little the income maybe, as it will serve as a buffer during uncertainty and the assets can be converted into cash. There is a need to prepare for uncertainty in the future. Workers can also participate in social investment schemes such as staff cooperatives societies which can promote savings and serve as a buffer during unexpected negative income shocks if properly managed. The study shows that spouses employer contributes to decline in consumption because most of the spouses are also state government employees in Ondo state. It is essential for the family to have investments or other sources of income such as personal business and farmland where they can grow their foodstuff to complement the labour income when negative income shock arises. The findings also show that salary cuts in the case of Osun and irregularities of salary are not appropriate policies, neither are they perfect ways of reducing the government's statutory burden. Regular and consistent payment of salaries plays a significant role in consumption and overall wellbeing, drives personal savings and investment, and hence, is essential to aid aggregate demand within the states.

Over the years, whenever there is a shortfall in crude oil prices and demand in the global markets, it often leads the economy into a financial crisis, this means that the country and the state governments cannot continue to rely on oil revenues for survival. Therefore, the state government should look inward to boost internally generated revenue (IGR) through taxes and other sources rather than depend on monthly allocation by the federal government. More so, there are some sleeping investment opportunities that the state governments need to awake which can generate more funds to the government. For instance, Ondo state has abandoned the palm oil processing factory in Okitipupa; this needs to be revived. Osun state has gold and other natural resources. The states need to develop the agricultural sector for more revenue through exports. The federal allocations should be a supplement to augment the state's IGR. Reliance on oil revenue and federal allocations by states spell continuous crisis whenever there is an oil price crisis. Also, there must be prudence and discipline in financial management for both workers and the government to prepare for the rainy day. There must be high accountability in revenue collection in the state to block every loophole and curb corruption. Social insurance policy(s) must be put in place by the civil service commission to help workers.

Researching in Nigeria is very challenging especially when primary sources of data are involved. The study relies on the information from the respondents due to the unavailability of data during the crisis. The workers were so indisposed in supplying the necessary information relating to their privacy such as age, salary, salary grade and step, thus limiting the number of responses for the analysis. Moreover, a typical Nigerian consumer most of the time does unexpected shopping or spending; hence the study is also limited

by a lack of data on consumption expenditures as most workers indicate that most often they do emergency spending outside their budget which they cannot account for.

In the future, it may be useful to group the household into rural and urban dwellers to know whether location influences the ability to smooth consumption. It may also be interesting to look at the implication of the shock on savings and financial institutions of the affected states and the economy as a whole. Also, the prospective researcher may be interested to know the determinants of the adopted coping strategies by the respondents as well as the impact of the strategies on the desired consumption which is very essential. This may make the work robust rather than just identify.

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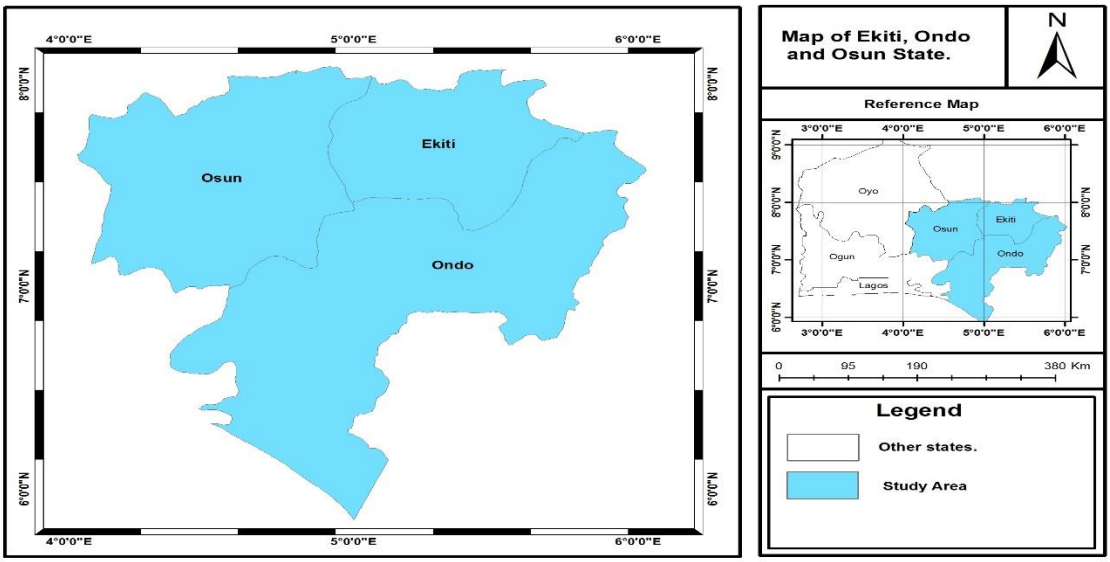
Appendix I
(A brief Geo-political background of Ekiti, Ondo and Osun States)

Ekiti state was created from the then Ondo state in 1st October, 1996 with the state capital city in Ado Ekiti. The state is located in southwest geo-political zone of Nigeria. The state consists of three senatorial districts namely: Ekiti North, Ekiti South and Ekiti Central. Ekiti North senatorial district is made up of five local governments, out of which Ikole_Ekiti and Ido/Osi were selected for the study. Ekiti Central consists of five local governments out which Ado-Ekiti and Efon were chosen for the study and Ekiti South senatorial district also made up of six local governments, Ikere and Emure were selected for the study. The state is made of six Federal constituencies. The state is mainly an upland zone, rising over 250 meters above sea level. It lies on area underlain by metamorphic rock. It is located between longitude 40º51` and 50º45` east of the Greenwich meridian and latitude 70º151`N and 80º51`N of the Equator. It situated between south of Kwara and Kogi state, east of Osun and bounded by Ondo state in the east and in the south. Ekiti state has a land mass of 5,887.890sq km with the population of about 2,398,957 (2006 National Population Census). Ekiti state has 16 LGAs. Majority of the population are civil servant (government workers), farmer, and trader.

Ondo state was created on February 3, 1976 from the former western state with the capital city in Akure. Ondo state is located in southwest geopolitical zone of Nigeria. The state is nickname as sunshine state. The state has latitude 7º10`N and longitude 5º05`E with a landmass area of 15,500km^2 (6,000sq miles) and population of 3,640,877 (2006 National Population Census) with the population density of about 221.9/km^2 (574.8/sqmi). The state consists of three senatorial districts which include Ondo North, Ondo Central and Ondo South. Each senatorial district is made of six local governments. Thus the state has eighteen (18) local government areas. The people of Ondo state are predominantly Yoruba speaking with sub-ethnic groups, languages and dialects comprising mainly of Akokos, Ikale, Ilaje, Ondo and Owo, and Ijaw in minority such as Apoi and Arogbos inhabit the coastal areas. Majority of the people are civil servants, while others are subsistence farmer, fishermen and traders. Akure and Ifedore were selected for the study from Ondo central. Akoko South West (Akungba) and Owo from Ondo North senatorial district and Okitipupa and Ore from Ondo South were chosen for the study.

Osun state was created in August 27, 1991 from the Old Oyo state. The state comprises three senatorial districts namely: Osun Central, Osun East and Osun West. Each of the senatorial district consists of ten (10) local governments making a total of thirty (30) local government areas in the state. The state is located between latitude 7º30`0"N and longitude 4º30`0`E and approximately 14,875km^2 landmass area. Osun state has a population of 3.423,535 (National Population Census, 2006 estimated) and predominantly Yoruba speaking with sub-ethnic groups such as Ife, Ijesha, and Igbomina. The state is bounded in the north by Kwara, in the east partly by Ekiti and Ondo state, in the south by Ogun state and Oyo state in the west. In summary, the three selected states from the southwest are often referred to as civil servants state in the region. From Osun Central senatorial district, Osogbo and Ifeloduin, Ile-Ife and Osu from Osun East senatorial district and Ayedande and Ede from Osun West senatorial district for the study.



Source: Salaudeen (2017)

Figure 5: Map of Southwest of Nigeria showing the selected study states