

## Household consumption and labour participation in Nigeria: Survey-based evidence



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### ABSTRACT

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Labour participation is a vital component of economic development because of its significance in influencing the well-being of individuals in an economy. As a result, this paper investigated how labour participation influences household consumption in the developing country of Nigeria. For simplicity, the paper used only the labour participation of the head of the household as a proxy for the labour participation of the whole household. The study made use of data extracted from the Nigerian Living Standard Survey (NLSS) carried out in 2018–2019 by the National Bureau of Statistics in conjunction with the World Bank. The data was analysed using descriptive statistics, linear regression, and logit models. The results showed that households whose head is self-employed consume less than those whose heads are unemployed, while households whose heads are employed consume significantly more than those whose heads are unemployed. The outcome for the self-employed contradicts the notion that unemployed household heads are likely to consume less than self-employed household heads.

**Contribution/ Originality:** To the best of our knowledge, little or no empirical literature has examined the effect of household labour participation on household consumption in Nigeria. The study also adds to the literature on how household heads' level of education affects household consumption in Nigeria.

### 1. INTRODUCTION

The consumption unit of society has mostly been defined as a unit that acquires inputs for immediate and future consumption (Olawaju, 2018). Households usually participate in the labour force to acquire the means of consumption of goods and services. Through participating in the labour force, therefore, households generate the ability to consume goods and services. Participation in the labour market has been described as socially desirable in many societies for several reasons (Hall & Petrosky-Nadeau, 2016). Handriyani, Sahyar, and Si (2018) noted that labour is a very important factor of production because it acts as an economic agent in a society. The growing significance of labour participation across various sectors of the economy in many countries around the world cannot be over-emphasized (Chai, 2018). This is due to its importance in affecting the well-being of individuals in an economy. An economically active population in a country is likely to have a better standard of living than a population not actively involved in economic activities.

The economically active population is the labour force that participates in the labour market, and it may be classified into three broad categories: employed, self-employed, and unemployed. As noted by Folawewo and Orija (2020), the Nigerian labour market is heterogeneous and dualistic in nature as it is segregated into rural–urban and formal–informal sectors, with the formal labour market comprising public sector organizations and large private firms, while the informal segment is made up of micro, small, and medium-scale enterprises, petty trades, and other forms of individual economic activity.

Over time, Nigeria has been characterized by low labour participation growth in the formal sector, which is mostly dominated by government and large private firms as a result of the rising cost of governance and slow growth of large manufacturing firms. Folawewo and Orija (2020) pointed out that the labour force participation in Nigeria is largely dominated by the informal sector, from which a majority of the populace draws their source of livelihood. The informal sector in Nigeria is dominated by agriculture and other economic activities in which individuals are self-employed or operate family-owned businesses. This sector is associated with lower productivity, poor wages, absence of social security, poor capital and low levels of finance (Folawewo & Orija, 2020). These features then supply the reason that labour participation is volatile and affected by economic uncertainties around the world. Volatility in labour participation tends to affect the consumption of households, which in turn affects the welfare and social well-being of the individuals within the households. This shows the significance of informal sector employment to policymakers who strive to improve household consumption and income.

The recurring farmer-herder clashes and the insurgency in the northern part of the country have impaired agricultural production and labour, affecting employment in the sector. The insecurity is contributing to low agricultural productivity, as well as affecting household consumption. Several other factors have also been found to affect household consumption, such as educational levels, location, earnings uncertainty, and more (Olawejaju, 2018). Dreze and Srinivasan (1997), as quoted in Olawejaju (2018), reported that in India households that are headed by a female are more likely to suffer from lower household consumption than those headed by a male.

Given the significance of labour participation in various sectors of the economy, it is imperative to determine how labour participation affects household consumption in Nigeria. Therefore, the main objective of this study was to determine how labour participation affects the consumption of a household in a developing country such as Nigeria. To the best of our knowledge, little or no empirical literature has examined the effect of household labour participation on household consumption in Nigeria. The study also adds to the literature by examining how household heads' level of education affects household consumption in Nigeria.

This paper is divided into five sections. Following this introduction, the second section reviews the previous theoretical and empirical literature. The third section explains the study's methodology, while the fourth describes the results of the study. Finally, the fifth and final section concludes the paper.

## 2. LITERATURE REVIEW

### 2.1. Conceptual/Theoretical Framework

#### 2.1.1. Theories of Consumption

Theoretically, the three early, and most important, theories of consumption can be traced to the work of Duesenberry, Keynes and Kounots. These are the Relative Income Hypothesis Theory of Consumption, the Life Cycle Income Hypothesis Theory of Consumption, and the Permanent Income Hypothesis Theory of Consumption. The relative income hypothesis claims that a household's consumption expenditure is influenced by its present level of disposable income, as well as its current level of income in relation to previous levels and other families' incomes. In the 1950s, this theory was widely accepted; however, it no longer is. It proved simpler to connect two additional Nobel laureate ideas with the micro-foundations of consumer choice: the life-cycle hypothesis model put forth by Franco Modigliani and the permanent-income hypothesis advanced by Milton Friedman. Modern consumption theory is a combination of these two theoretical schools. The main difference from their original forms is that the life-

cycle theory placed greater emphasis on natural variations in income earnings over the course of a household's finite lifetime, whereas the permanent-income hypothesis model placed greater emphasis on general variations in the income level over an illimitable time horizon.

### *2.1.2. Labour Market Fundamentals*

On the other hand, although the Neoclassical and Keynesian opinions on the labour market in the economic literature are regarded as equal to the traditional and modern approaches, specific attention is paid to the establishment of labour market balance and the formation of overall balance in the economy. Therefore, it is worth analysing at least some of the employment and labour market theories, especially those that stress the problems of workforce mobility and employee movement. Neoclassical employment theories refer to the model of a perfectly competitive labour market, which was developed by Arthur Cecil Pigou and based on certain assumptions.

First, it assumed that employers and employees have almost full information on wages and employment options available in the market; thus, the labour market is systematically transparent and open. Second, both employers and employees are 'rational beings' in the economic sense: employers focus on maximizing profit and employees focus on maximum satisfaction of real wages (income). Third, each employer and employee represents such a small proportion of the overall labour demand that their individual choices do not influence wages. Fourth, there are no obstacles to labour force mobility and other production factors. Fifth, employers and employees act individually and independently, without agreement with other employees or employers, when making pay or employment decisions in the marketplace. Sixth, the labour in particular markets is assumed (Cellini & Cuccia, 2021) to be homogeneous, uniform and changeable (movable in the economic sense) (Kryńska, 2000).

### *2.2. Previous Literature*

There is a dearth of empirical literature on household consumption and labour participation, especially for developing economies like Nigeria. Understanding households' consumption patterns given their level of labour participation and employment is very significant for public policy (Campos & Reggio, 2014). From our exploration, it appears that studies on the effect of labour participation on household consumption have been relatively scarce. Also, the studies that have been conducted around these variables have used different proxies and methodologies and have, therefore, resulted in varying conclusions.

A review of empirical literature showed some studies had been conducted on gender roles, as regards participation in the labour force and their impact on the consumption of certain goods and services. For example, Cellini and Cuccia (2021) considered the effects of female workforce participation and household expenditure on culture and recreation in Italian regions. Their findings indicated that the share of household consumption devoted to culture and entertainment is significantly and positively affected by the female workforce participation rate, while the effect seems to be less clear-cut for the male labour participation rate. Enfield (2019) considered gender roles and inequalities in the Nigerian labour market and concluded that a large percentage of the workforce was self-employed, about 8% of the working population was employed in the formal sector, while others were unemployed and actively looking for jobs.

Lazaro, Molto, and Sanchez (2000) examined unemployment and consumption pattern in Spain because that country has one of the highest unemployment rates in the Organization for Economic Cooperation and Development (OECD). The variables from the household expenditure survey they considered included education, age, family background, number of household earners, and household income. They explained that in terms of gender, the women were found to have higher rates of unemployment than their counterparts during the review period (1983–1992). Results from the study showed that during the economic upswing, the rate of unemployment amongst women within the central age group increased compared to the period of recession. They also observed that the more educated a married woman was, the less likely she was to become unemployed.

Olarewaju (2018), in his study “Organising Household Consumption and Occupational Proportions: Evidence from Nigeria,” scrutinized the effect of changes in the occupational status proportion of households on household consumption. His results suggested that the proportion of individuals in each occupational category has implications for household consumption. The contribution of each employment proportion changed at different quantiles, with self-employed individuals increasing household consumption at the lower quantiles but reducing household consumption at the upper quantiles. Importantly, having a higher proportion of unemployed individuals in the household is oftentimes better than having a higher proportion of self-employed individuals.

In a bid to get a clearer view of the factors underlying the decline in labour force participation, Hall and Petrosky-Nadeau (2016) examined how work trends change across different age groups and income levels. Their findings suggested that the observed decline in workforce participation of people of prime working age was concentrated in higher-income households. Also, workers between the ages of 16 and 24 exhibited the same trend. However, older workers over the age of 55, particularly those in households at the top of the income distribution, increasingly participated in the labour force.

Having examined the related literature, a gap can be identified; most reviewed works of literature did not examine the effect of labour participation on the consumption of the entire household.

### 3. METHODOLOGY

#### 3.1. Data Source

The study made use of data extracted from the Nigerian Living Standard Survey (NLSS), which was carried out in 2018–2019 by the National Bureau of Statistics in conjunction with the World Bank. The NLSS was a large-scale household survey covering educational indicators, health expenditure on food and non-food, housing conditions, exposure to crime and many more factors. The survey of 5000 households was conducted across the 36 states of Nigeria, and the sample selection took place using a random systematic sampling technique. Two questionnaires were administered, one at the community level and the other at the household level. The data collection started on 28 September 2018 and ended on 28 September 2019. Computer Assisted Personal Interviews (CAPI) were deployed in administering the questionnaires (National Bureau of Statistics (NBS), 2021).

#### 3.2. Data Analysis

The study utilised four NLSS data files for analysis: the *sect1\_roster*, *sect2\_education*, *sect4a1\_labour* and *totcons* data files. The *sect1\_roster* data file contains individual-level data, including a roster of individuals living in the household, their relationship to the household head, their gender, age, and more. The *sect2\_education* data file contains data on educational attainment, school characteristics, expenditure, and repetition. The *sect4a1\_labour* data was used to determine the employment category of the household heads; it contains variables such as labour market participation during the last 7 days, temporary absence, job search, and wage work. The *totcons* data file was used to ascertain household consumption and contains variables such as food and non-food aggregated consumption.

Household heads’ level of employment was used to proxy labour participation and was categorized into three distinct levels: wage earners were delineated as employed, participants in agriculture (farm and non-farm) and apprenticeship were delineated as self-employed, while those with no activity were delineated as unemployed. Similarly, educational attainment was classified into five categories.

#### 3.3. Model Specification

The study examined the relationship between the household head’s labour participation and the household’s total consumption as captured in the survey. The study analysed only the household heads’ total consumption and labour participation while controlling for age, age-squared, gender and educational level.

The analysis of labour participation within and between the categories of self-employed, employed and unemployed is situated within the framework of linear regression and logistic probability models. In other words, a standard binary logistic model and a linear regression model were used to investigate the total consumption level across and between different categories of labour participation.

The choice of the models used in the study was informed by the study's major objective and the fact that the regressors were categorical and continuous in nature. More so, the use of a linear regression model in the study was for the purpose of a robustness check.

The linear regression model was specified using the standard ordinary least squares (OLS) technique. The specification is given below;

$$Intotcons = \alpha + \beta_1gender + \beta_2labour + \beta_3age + \beta_4agesqr \quad (1)$$

Equation 1 presents the linear regression model specification using the OLS technique.

$$Intotcons = \alpha + \beta_1gender + \beta_2labour + \beta_3age + \beta_4agesqr + \beta_5educ \quad (2)$$

Equation 2 shows the linear regression model specification where the educational level is included as a control variable.

The logistic model is specified below. If we assume the log odd of labour participation as  $= P(Y = 1)$ , given the labour participation category, then the standard logistic model can be specified as in Equation 3:

$$l = \log_b \frac{P}{1-P} = \beta_0 + \beta_i Z_i \quad (3)$$

Where  $b$  is the base of the logarithm, and  $Z_i$  is the vector of individual participation in labour. The odds of transition are recovered by expressing the log odds in exponential form, as presented in Equation 4:

$$\frac{P}{1-P} = b^{\beta_0 + \beta_i Z_i} \quad (4)$$

The logit model is carried out explicitly to reflect consumption levels across the different employment categories and genders of household heads. Thus, the logit model is carried out in three forms, corresponding to the labour categories – that is, whether the source of income (proxied by total consumption) was self-employed, employed or unemployed. Also, whether the source of income in the household was from a male or female head across the geographical zones.

Our model captures the following variables: total consumption, gender, age, age-squared and labour participation (categorised into employed, unemployed and self-employed), as well as the educational level of the household heads. The dependent variable (total consumption) was measured as a categorical variable that assumed the value 1 if household consumption was high ( $\geq$  mean) and the value 0 if household consumption was low ( $<$  mean). Age and age squared were captured as continuous variables, while gender, labour participation and educational level were captured as categorical variables.

**Table 1.** Socio-economic characteristics of all households and households headed by males and females.

Characteristics	Mean	Standard deviation	Total respondents
Age	48.5	15.95	20,875
Household consumption	218730.1	218730.1	20,875
Household size	5.2	3.3	20,875
Male			
Age	46.67	15.27	17,028
Household consumption	209716.8	185428	17,028
Household size	5.64	3.35	17,028
Female			
Age	56.6	16.37	3,847
Household consumption	258625.5	199877	3,847
Household size	3.27	2.2	3,847

## 4. RESULTS

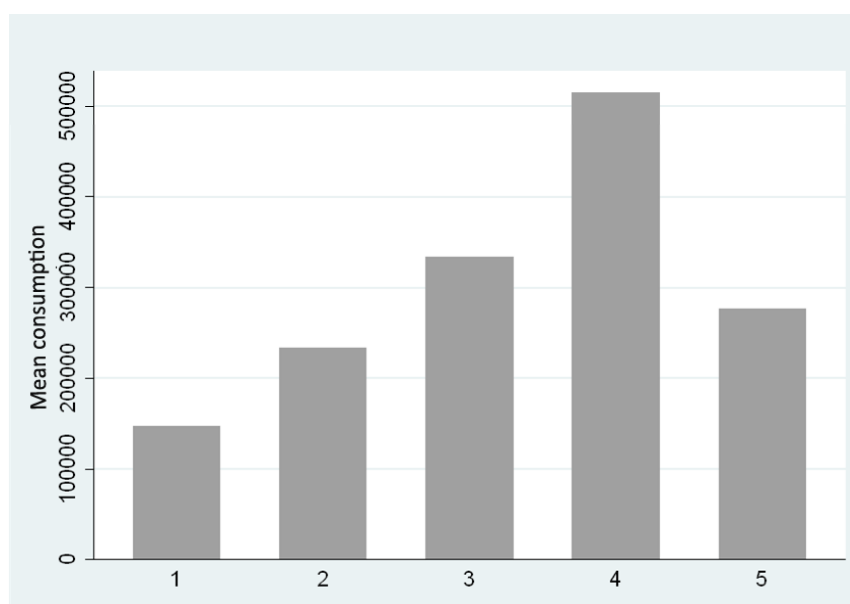
### 4.1. Descriptive Statistics

Table 1 presents the socioeconomic characteristics of all selected households, households with a male head and households with a female head. With an average household size of 5.2, the sampled households were closer to nuclear families than extended ones. However, the average household size for households headed by a male was 5.64, which is significantly lower than the 3.27 average for households headed by a female. Despite the disparity of household size between genders, on average, households headed by a female consumed more than households headed by a male.

**Table 2.** Summary of consumption level when the heads of households have formal wage employment, are self-employed or unemployed.

Formal wage employment		
Consumption level	Frequency	Percent
Low	1,021	42.740
High	1,368	57.260
Self-employed		
Consumption level	Frequency	Percent
Low	10,919	70.470
High	4,566	29.530
Unemployed		
Consumption level	Frequency	Percent
Low	1,665	55.440
High	1,338	44.560

Table 2 presents the frequency distribution of the respondents, classifying them according to their employment status and consumption level, where a high consumption level indicates that the respondents' consumption falls above the mean and vice versa. The table shows that for formal wage employment, 42 per cent of the respondents had high consumption while 53 per cent had low consumption. This implies that the distribution of households whose head is in formal wage employment is almost evenly distributed between the two levels of consumption.



**Figure 1.** Mean consumption across various educational levels.

Similarly, Table 2 shows that for the self-employed heads of households, 70.47 per cent of the respondents had a low household consumption level while 29 per cent of the respondents had a high household consumption level. This implies that low household consumption is associated with the head of the household being self-employed. Lastly, the

table shows that the distribution between the consumption levels when the head of the household is unemployed is almost identical.

Figure 1 presents the mean consumption of households according to the educational level of the household's head. The educational level is classified into 5 categories, the first are household heads without any formal education, the second category are household heads with a senior school leaving certificate, and the third category represents household heads with educational qualifications above a senior school leaving certificate but below master's level. The fourth category represents household heads with master's or doctorate degrees, while category 5 represents household heads with vocational certificates. From Figure 1, it can be deduced that the higher the educational qualification of the head of a household, the higher the household consumption, as might be expected.

**Table 3.** Regression estimate of employment categories on total consumption.

Variables	Total consumption
Gender	-0.285*** (0.0123)
Self-employed	-0.155*** (0.014)
Employed	0.333*** (0.019)
Age	-0.0284*** (0.002)
Age squared	0.000*** (1.59e-05)
Constant	13.380*** (0.046)
Observations	20,875
R-squared	0.088

Note: Standard errors in parentheses.  
\*\*\* indicates  $p < 0.01$ .

#### 4.2. Discussion

The regression results in Table 3 show that the mean consumption is lower for households headed by individuals who are self-employed than those who are unemployed. On the contrary, mean consumption increases for households headed by individuals in formal wage employment compared to those who are unemployed. This implies that waged employment has a higher impact on household consumption than whether the household head is unemployed or self-employed. Surprisingly, the result shows that households consume more when the head is unemployed than when they are self-employed.

**Table 4.** Logit model.

High consumption	Odds ratio	Std. err.	P> z	Number of obs. = 20,875
Gender	0.480	0.018	0.000	LR chi2(4) = 1271.83
Age	0.950	0.005	0.000	Prob > chi2 = 0.000
Age squared	1.000	0.000	0.000	Pseudo R <sup>2</sup> = 0.047
Self-employed	0.608	0.027	0.000	
Employed	2.093	0.125	0.000	
Constant	3.015	0.414	0.000	

Table 4 presents the results of the logit model. They show that the likelihood of a household having high consumption is 0.6 times higher when the head of the household is self-employed than when they are unemployed. Likewise, the probability of a household having high consumption is 2.09 times higher when the head of the household is employed than when they are unemployed.

Table 5. Log odds.

High consumption	Coef.	Std. err.	P> z	Number of obs. = 20,875
Gender	-0.733	0.018	0.000	LR chi2(4) = 1271.83
Age	-0.052	0.005	0.000	Prob > chi2 = 0.000
Age squared	0.000	0.000	0.000	Pseudo R2 = 0.047
Self-employed	-0.498	0.027	0.000	
Employed	0.739	0.125	0.000	
Constant	1.501	0.140	0.000	

Table 5 presents the log odds results. These show that the chance of a household having high consumption is 0.5 times lower when the head of the household is self-employed than when the head of the household is unemployed. Similarly, the chance of a household having high consumption is 0.7 times higher when the head of the household is employed than when the head of the household is unemployed.

Table 6. Marginal effect.

High consumption	dy/dx	Std. err.	P> z
Male	-0.174	0.009	0.000
Age	-0.012	0.001	0.000
Age squared	0.000	0.000	0.000
Self-employed	-0.116	0.008	0.000
Employed	0.177	0.015	0.000
Marginal effect = 0.342			

Table 6 shows the marginal effect of the logit model. From the results, it is clear that the probability of having high consumption is 34 per cent higher when the head of the household is self-employed or employed compared to when the head of the household is unemployed.

Table 7. Regression analysis of total consumption and employment category based on education level.

Consumption by education level	Total consumption (Education level 1)	Total consumption (Education level 2)	Total consumption (Education level 3)	Total consumption (Education level 4)	Total consumption (Education level 5)
Gender	-0.519*** (0.026)	-0.242*** (0.018)	-0.375*** (0.040)	-0.583*** (0.167)	-0.202 (0.128)
Self-employed	0.036 (0.029)	-0.114*** (0.021)	-0.226*** (0.040)	-0.109 (0.126)	-0.264** (0.104)
Employed	0.288*** (0.060)	0.171*** (0.028)	-0.022 (0.042)	-0.022 (0.120)	-0.387*** (0.134)
Age	-0.044*** (0.003)	-0.035*** (0.003)	-0.037*** (0.005)	-0.029 (0.028)	-0.024 (0.015)
Age <sup>2</sup>	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000 (0.000)	0.000* (0.000)
Constant	13.010*** (0.091)	13.21*** (0.062)	13.90*** (0.134)	14.24*** (0.739)	13.17*** (0.426)
Observations	4,005	9,623	2,520	214	307
R-squared	0.159	0.060	0.084	0.066	0.073

Note: Standard errors in parentheses.  
\*\*\* p < 0.01, \*\* p < 0.05.

Table 7 presents a linear regression of total consumption for the different education levels and employment categories. The result for education level one revealed that for household heads without any formal education, mean consumption increases when they are self-employed compared to when they are unemployed. This implies that when the household head does not have any formal education, the household is better off when the head is self-employed than when they are unemployed. Similarly, for education level one, mean consumption is higher when household heads are employed than when they are unemployed.



For education level two, mean consumption decreases when household heads are self-employed compared to when they are unemployed. Similarly, for the second education level, mean household consumption increases when household heads are employed compared to when they are unemployed. However, for the third education level, the results revealed that household consumption decreases when the household head is self-employed or employed compared to when the household head is unemployed. For education levels four and five, which represent household heads who attained master's or doctoral degrees and household heads with a vocational qualification, the results similarly showed that the household's mean consumption decreases when the household heads are self-employed or employed compared to when they are unemployed.

## 5. CONCLUSION AND DIRECTIONS FOR FUTURE RESEARCH

This study examined the effect of household labour participation – proxied by the different levels of employment (formal employment, self-employment and unemployment) of household heads – on the consumption pattern of the entire household. The 2019 Nigerian living standard survey data supplied by the World Bank was used. The data was analysed using descriptive statistics, linear regression and binary logistic regression models. The results showed that households whose heads are self-employed consume less than those whose heads are unemployed, while households whose heads are employed consume significantly more than those whose heads are unemployed.

For the self-employed, the result is contrary to the expectation that households with heads who are unemployed are likely to consume less than households whose heads are self-employed. This can be attributed to the fact that income from other household members significantly contributes to the total consumption when the household head is unemployed. Additionally, given that female household heads had an average age of 56 years and male household heads an average age of 48, a fair number of the household heads could be retired and living on a pension. Similarly, the effect of remittance is another likely reason for the phenomenon.

The household consumption levels were also examined according to household heads' education levels; the regression results revealed that when the head of the household had no formal education and was not employed, the household consumption was significantly lower than otherwise. However, when the household head had a senior school leaving certificate, the household consumes more when the head is in wage employment than otherwise.

The study, therefore, calls for further research to be done on these aspects of the problem while considering variables that were omitted from the model. One variable that would add value to similar studies is to include the employment status of all other household members in the model. Additionally, a variable that captures remittances in and out of the household would add considerable value as it would capture windfalls and gains that could explain consumption that is not related to income.

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**Authors' Contributions:** All authors contributed equally to the conception and design of the study.

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