

# Determinants of household per capita consumption in Nigeria: Blinder-Oaxaca decomposition model approach.

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**Abstract-** Socio-economic development, household income, and finances are all significantly influenced by household per capita consumption. The primary objective of this study is to investigate the determinants of household per capita consumption in Nigeria using the Blinder-Oaxaca decomposition model approach. Longitudinal data were collected from the World Bank publication of the 2020 covid-19 national longitudinal phone survey conducted in Nigeria.

Blinder-Oaxaca decomposition model was applied and the model is statistically significant which indicate that household per capita consumption is significantly associated with the socio-economic factors, finance, percentage of working adults working, percentage of working adults working in agriculture, percentage of working adult working in the wage work and phone sample. Additionally, the result of the analysis of this study shows that the coefficient of finance, percentage of working adult working and percentage of adult working in the wage work have a positive significant impact on household per capita consumption which suggest that the more the account from the financial institution, the more the percentage of adult working and percentage of adult working in the wage work, the more or greater will be the household per capita consumption.

Consequently, it is advised that coordinated efforts be made to improve the income base of households. The government should also support inclusive finance since it will empower Nigerian households, increase employment, and increase household income, all of which will increase per capita spending overall.

**Keywords:** Household per capita consumption, Socio-economic factors, Blinder-Oaxaca decomposition.

## 1. INTRODUCTION

According to Ekong and Effiong (2020), the most significant factor in national income accounting and aggregate demand is household per capita consumption. It is the primary economic activity that determines the economy's health and accounts for a large amount of households' disposable income on a microeconomic level (Venn and Dixon, 2018).

According to Venn et al. (2018), household per capita consumption has a significant impact on socioeconomic development, household income, and personal finances. People's moderate consumption habits and size contribute to maintaining economic health and scale of expansion, and this is the actual manifestation of people's living standards. According to Ashakah (2019), household consumption refers to all commodities and services that household's buy at market prices to meet their needs and wants. It encompasses all products, both long-lasting and short-lasting, such as automobiles, home washing machines, televisions, etc.

Additionally, household consumption does not include home purchases but does include imputed rent for owner-occupied homes (World Bank, 2020). Due to its significance in shaping aggregate demand, consumer choice is essential for short-run analysis (Mankiw, 2015).

Venn, Dixon, Banwell, and Strazdins (2018) define consumption as the products and services that households purchase across a variety of product categories. Changes in consumption are a major factor in the booms and recessions of the business cycle because they account for two-thirds of GDP. Given how vital consumption is to economic growth, the long-term analysis also depends on it. The components of GDP include household consumption, investment, government spending, and net export. Consumption expenditures are included in macroeconomic policies for fiscal planning since they account for a large portion of GDP. Policymakers attempt to foresee how consumers will act in the face of changes in income (Mankiw, 2015).

More specifically, the choice made by the household regarding how much to spend or save is a microeconomic issue because it involves the different components of the economy (Ekong et al., 2020). Nevertheless, it has an impact on the economy as a whole since aggregate household consumption affects both the short- and long-term behaviour of the economy (Ekong & Effiong, 2020). For short-range analysis, the impact of shifting consumer spending on overall demand is essential. About two-thirds of GDP is made up of consumption (World Bank, 2020). As a result, changes in consumption levels have the potential to jolt the economy (World Bank, 2020). The fiscal policy multiplier is influenced in the near run by the marginal willingness to consume (World Bank, 2020; Venn and Dixon, 2018).

Due to its impact on the expansion of the economy, household per capita spending also has a role to play in long-term analysis (Ashakah, 2019). Consumption and consumer spending are phrases that are frequently used interchangeably. There is a definite distinction between the two. One part of human life that cannot be eliminated is consumption. The consumption situation is

occasionally discussed by both the government and private households. The consumption hypothesis, which describes consumer behaviour, is not widely accepted among economists, even though consumption is one of the key factors affecting overall economic activity. Various schools of thought have proposed different techniques to measure consumption. Therefore, the specific objective of this study is to investigate the determinants of household per capita consumption in Nigeria using the Blinder-Oaxaca decomposition model approach.

## 2. LITERATURE REVIEW

This section presents the theoretical and empirical literature review.

### 2.1 Theoretical Literature Review

It is not unexpected that the study of consumer behaviour has taken up a significant amount of space in economic science given that consumption is the most fundamental part of economic activity. Economists have long been interested in the study of what, how much, and when people consume. This is hardly surprising because, in economics, the customer takes Centre stage.

### 2.2 An Evolutionary Theory of Household Consumption Behavior

Nelson and David (2010) claim that although not yet fully developed, the study provides the following general theoretical framework, which contains the potential to incorporate a behavioural and evolutionary economic theory into many elements of consumer behaviour. As we've mentioned, several empirical studies strongly concur with the idea that households have a solidly defended coherent general utility function about the objectives and satisfaction they seek when making purchases of goods and services. Instead, we assume that each family has certain requirements that it meets and that the goods and services it purchases are intended to be utilised to meet those needs. The study also assumes that households can reasonably determine if certain wants are being satisfied or if the degree of satisfaction is a consideration, how efficiently a particular want is being satisfied in diverse settings.

On the other hand, although not strictly random, the study hypothesises that households may have trouble determining whether they are better off or worse off when one want is satisfied better and another less well than in a previous situation, and their evaluation of this can be inconsistent (Nelson & David, 2010). This strategy significantly departs from conventional neoclassical economic theory, which maintains that households act as "utility maximizers" and have stable, precise utility functions.

On the other hand, the wording is consistent with the notion that households are making every effort to meet the expectations and demands of their members. When it comes to the trade-offs involved in meeting a variety of demands to varied degrees, households are viewed as being less confident and consistent than when it comes to how to better or worse satisfy specific wants. Of fact, certain desires are partially biological and fundamental. However, even in these societies, a lot more requirements than only those immediately connected to biological necessities are satisfied. Furthermore, there are notable cultural variances in how certain needs, particularly fundamental ones, are frequently addressed. Both the wants that families prefer to attend to and the conventional means of satisfying those wants are significantly influenced by the environment and culture in which those households' members are raised. The fact that each household has a distinctive collection of experiences, circumstances, and other characteristics that sets them apart from one another is also clear (Mitchell & Ginzberg, 2017).

Clear limitations have an impact on how households behave in terms of their expenditures. If we set aside cultural boundaries and the constraints and requirements imposed by unique household peculiarities, household purchases of the goods and services used in their activities to satisfy demands are subject to two additional sorts of restraints. The first is that conventional consumer theory has financial constraints. The well-known essay "The backward art of spending money" expressed surprise that many households lacked the skills essential to managing their budgets prudently. The second limitation is brought on by how much time is needed for domestic consumption activities. It can take more or less time to work or sleep. People may be hired to provide a variety of services. Because of this, many households face a time constraint when considering what they would like to do and can afford financially (Mitchell & Ginzberg, 2017).

According Nelson & David (2010), household spending patterns are never completely stable, according to the study's evolutionary economic ideas. Every new circumstance that has an impact on consumer spending includes some novel elements. Adults and children both age. Accidents happen, and sicknesses exist. As old acquaintances go away, new friends are established. Activities generate fresh thoughts. These kinds of changes continue to take place even when wages and prices are set. We feel that the concept of household consumption equilibrium, which we define below, can be utilised as a starting point for a study of how households respond to altering conditions and perceptions. When everything is in harmony, the household's mixture of activities, their intensities, and the way it arranges its activities barely fulfil goals for satisfying wants, and the input purchases easily fit within its time and budgetary constraints. And of particular importance is the household's resistance to change or its conviction that adjustments run counter to what it knows or thinks.

### 2.3 Empirical review

Increasing household consumption is a successful strategy for maintaining economic growth, claim Liu et al. (2018). According to Keho (2019), household consumption is crucial in determining welfare and the dynamic impact of economic shocks. Keho (2019) also makes the point that comprehending the factors influencing household consumption can help inform policies aimed at reducing poverty and boosting the economy.

Using time series data for the years 1981 to 2010, Akekere and Yousuo (2012) conducted an empirical examination of the impact of changes in income on private consumer expenditure in Nigeria. They discovered a significant correlation between private consumption expenditure and gross domestic product, a measure of income.

Similarly to this, Oduh and Patterson (2012) used panel data analysis to evaluate how consumer confidence and expectations affected consumption in Nigeria. The outcome demonstrated that the factors influencing consumption expenditure in Nigeria are

consumer confidence, current income, income expectation, and the expected change in the prices of food and durables, and the exchange rate.

Ikwuagwu, Ariwa, and Onyele (2017) looked into the factors that affected Nigeria's total consumer spending between 1981 and 2015. The study used the ARDL approach, and the findings indicated that aggregate consumption expenditure is positively and significantly impacted in both the short- and long-term by gross domestic product, which is used as a proxy for income. Additionally, it was found that interest rates had a big impact on total consumer spending. It was advised that measures be taken to increase the gross domestic product, such as promoting small businesses and foreign investors by fostering a welcoming investment climate in the Nigerian economy. This will help to increase productivity, which will then increase demand for goods and services.

According to Ashakah and Berhanu's research from 2019, older individuals often live shorter lives than younger people, save less money, and spend more. The elderly may have seen a decline in income, and as a result, they must decide how to distribute money throughout the final part of their lives, according to Berhanu (2019). To maximise happiness, households may borrow to pay down debt early in life, repay the debt and build wealth during middle age, and then borrow from savings to make up for reduced income in retirement. The age distribution in the household is significant. Younger family members might spend a lot of money on schooling, while older relatives might prefer to invest a lot of money in health insurance. Households with the same income level but varied age structures may have a diverse spending patterns for a single consumption item. Based on the age of the household head, there is a distinct difference and pattern in the allocation of resources for the consumption of food and beverages. It indicates that as age rises, so does the proportion of income spent on food. The younger the age of the household head, the higher the housing expense. The fact that housing costs are viewed as long-term investments may be one factor in the growth in the share of spending on housing. Major investing decisions are typically made by people when they are younger. It is logical to assume that throughout their prime years, people spend more on entertainment and leisure activities. As people age, their health deteriorates and more money must be spent on medical treatment and other health-related expenses.

Capital and skilled labour are complementary components of production, according to Beckler (2013). He emphasised further that highly skilled service jobs like management, teaching, and professional specialities needed the most education, skill, and training. This substantially increases the complementarity of capital and labour in these professions. Depending on the severity of the economic downturn, employment in various fields may be negatively affected. As a consequence of the unique characteristics of these various occupations, variations in employment growth rates during economic recoveries may also be anticipated. Due to the impact on the costs of goods and services and permanent earnings, it is anticipated that the educational level of the consumer unit's head and spouse, as well as their employment status, will influence spending habits. On the basis of home production models of behaviour devised by Becker (2013), it is hypothesised that homes produce fundamental products by combining the time of various household members with market-purchased goods and services. As the cost of time rises, it will take less time to produce all basic goods. On the other hand, the relative costs of labor-intensive basic goods will rise, resulting in a decline in demand for these products. As a result, the spending patterns of consumer units on marketed products and services will change. As a consequence, any changes in educational level that affect time valuation are expected to influence the pattern of consumer unit spending.

According to Berhanu (2019), it seems that as people's ages and family sizes rise, so do their expenditure shares on food and drink. A household's food expenditure as a percentage of total income rises as the number of residents does. Goods and services that are regarded as essential requirements, such as food, health care, and utilities, are positively impacted by the size of the household (Berhanu, 2019).

Ibbih and Peter (2018) attempted an ARDL-based analysis of the factors influencing consumption in Nigeria. Individuals do not behave by the consumption baseline models, according to the conclusions and findings. Additionally, consumption habits preferred essentials and non-durable goods. To improve wealth creation, savings, investment, and economic growth and development, the paper urged for economic policies and programmes that will shift consumption away from non-durables and towards durables.

### 3. DATA AND METHODOLOGY

#### 3.1 Data

Longitudinal data was publicly obtained from the World Bank publication of the 2020 covid-19 national longitudinal phone survey conducted across the 36 states including the federal capital territory in Nigeria via <https://microdata.worldbank.org>. It is also a secondary data because it was extracted from the World Bank Publication with a total household sample of 3958 collected using a purposive sampling technique based on the cleaning of the dataset by removing the missing values and outliers of the dataset.

#### 3.2 Methodology

The quantitative research design was adopted in this research work and the method of analysis used is the summary statistics (using mean, standard deviation, frequency and percentage) and the Blinder-Oaxaca decomposition for linear regression models.

##### 3.2.1 Model specification

The model adopted for this study can be specified as functional equation below.

Household per capita consumption = f (socio-economic factors, finance, any\_work, ag\_work, ext\_work, phone sample).

According to Jann and O'Donnell et al. (2008), the Blinder-Oaxaca decomposition for linear regression models examines the difference in the mean of a continuous dependent variable between two groups by segmenting the gap into that portion that is caused by variations in the mean values of the independent variable within the groups as well as taking into account the impact of the vector of the explanatory variables in the model. According to O'Donnell et al. (2008), the three-fold Blinder-Oaxaca decomposition can be represented by the three equations that are illustrated below using the study's relevant variables.

First, estimate separate linear household per capita consumption for individual's sex between the male and female independent group. We can illustrate the equation below as;

$$\text{Log (Household A}_i) = X_{Ai}\beta_A + \mu_{Ai} \dots \dots \dots \text{eq (1)}$$

$$\text{Log (Household B}_i) = X_{Bi}\beta_B + \mu_{Bi} \dots \dots \dots \text{eq (2)}$$

Where X represent the vector of explanatory or independent variables such as the socio-economic factors (like age, married, education level, work status, and rural), finance (account from the financial institution), any\_work (% of working adult working), ag\_work (% of working adults working in agriculture), ext\_work (% of working adults working in wage work) and phone sample while  $\beta_A$  and  $\beta_B$  are vectors of coefficient estimates and  $\mu$  is the stochastic error term.

Meanwhile, the third fold reveal the impact of between-group differences in the explanatory variable X, evaluated using the coefficients of the group predictions. Recall that average value of residuals in a linear regression is zero, therefore we have:

$$\text{Mean (log (Household Per capita A)) - Mean (log (Household Per capita B)) = } b_A \text{ mean (X}_A) - b_B \text{ mean (X}_B) \dots \dots \dots \text{eq (3)}$$

**Table 1: Variable measurement**

Variables	Description	Measurement
Sex	Male	Categorical
	Female	
Age	Age of the household in years	Continuous
Married	Individual married or not	Categorical
Education	Level of education	Categorical
Work	Working status (working or not)	Categorical
Rural	Rural or Urban Household	Categorical
Finance	Account from the financial institution	Categorical
any_work	% of working adult working	Continuous
ag_work	% of working adults working in agriculture	Continuous
ext_work	% of working adults working in wage work	Continuous
Phone sample	Those with active phone or not	Categorical
totcons	Household per capita consumption	Continuous

Source: World Bank

**4. RESULTS AND DISCUSSION**

This section presents the results of the data analysis conducted using STATA version 17.0 and the discussion of the notable findings deduced from the interpretation of the results.

**Table 2: Summary statistics**

		Frequency	Percent	Mean	Std.Dev
Sex	Male	1955	49.4	1.51	0.500
	Female	2003	50.6		
Age				27.90	19.521
Married	No	2595	65.6	0.34	0.475
	Yes	1363	34.4		
Rural	Rural	1234	31.2	1.69	0.463
	Urban	2724	68.8		
Phone sample	No	1555	39.3	0.61	0.488
	Yes	2403	60.7		
Work	No	2381	60.2	0.40	0.490
	Yes	1577	39.8		
Education	None	1682	42.5	0.93	0.967
	Primary	1213	30.6		
	Secondary	738	18.6		

	Tertiary	325	8.2		
Finance	No	1910	48.3	0.52	0.500
	Yes	2048	51.7		

Source: Author's computation using STATA software

Table 2 shows that the male household is 1955 represented 49.4% while the female household is 2003 represented 50.6% which implies that we have more females than males in the household. The average age of the household in this study is about 28 years with a variability of about 20 years. The household that is not married is 2595 representing 65.6% while the unmarried is 1363 representing 34.4%. The household in the rural area is 1234 representing 31.2% while those in Urban are 2724 representing 68.8%. The household recorded without a phone is 1555 representing 39.3% while the household with the phone is 2403 representing 60.7%. The household working is 1577 representing 39.8% while the household not working is 2381 representing 60.2% which is very consistent with the current situation in Nigeria as there is a high level of unemployment. The household with no education is 1682 representing 42.5%, the ones with primary education are 1213 representing 30.6%, those with secondary education 738 representing 18.6% and those with tertiary education 325 representing 8.2%. Besides, the household with accounts from financial institutions in 2048 represented 51.7% while those without accounts from financial institutions in 1910 represent 48.3%.

**Table 3: Blinder-Oaxaca decomposition**

Model for group 1 (Male)				
Source	SS	df	MS	Number of obs = 1,955
Model	195.794269	10	19.579	F(10, 1944) = 57.69
Residual	659.782277	1,944	0.339	Prob > F = 0.0000
Total	855.576547	1,954	0.438	R-squared = 0.2288
				Adj R-squared = 0.2249
logtotcons	Coefficient	Std. err.	t	P-value
age	0.001	0.001	1.28	0.200
married	-0.074	0.046	-1.62	0.106
educ	-0.046	0.015	-3.08	0.002
work	0.034	0.032	1.08	0.279
rural	-0.225	0.032	-6.98	0.000
finance	0.352	0.029	12.1	0.000
any_work	0.003	0.000	6.45	0.000
ag_work	-0.002	0.000	-3.93	0.000
ext_work	0.003	0.001	5.24	0.000
phone_sample	0.015	0.027	0.56	0.575
_cons	12.01	0.073	165.07	0.000
Model for group 2 (Female)				
Source	SS	df	MS	Number of obs = 2,003
Model	236.664181	10	23.666	F(10, 1992) = 69.11
Residual	682.185736	1,992	0.342	Prob > F = 0.0000
Total	918.849917	2,002	0.459	R-squared = 0.2576
				Adj R-squared = 0.2538
logtotcons	Coefficient	Std. err.	t	P-value
age	0.001	0.001	1.30	0.192
married	-0.006	0.03	-0.22	0.829
educ	-0.037	0.014	-2.57	0.01
work	-0.026	0.031	-0.83	0.404
rural	-0.269	0.032	-8.50	0.000
finance	0.388	0.029	13.42	0.000
any_work	0.004	0.000	8.12	0.000
ag_work	-0.002	0.000	-4.05	0.000
ext_work	0.002	0.001	3.82	0.000

phone_sample	-0.028	0.027	-1.05	0.296
_cons	12.063	0.071	170.23	0.000
Blinder-Oaxaca decomposition Number of obs = 3,958 (Pooled)				
1: sex = Male				
2: sex = Female				
logtotcons	Coefficient	Robust Std. err.	z	P> z
Differential				
Prediction_1	11.988	0.015	801.14	0
Prediction_2	11.996	0.015	792.52	0
Difference	-0.007	0.021	-0.34	0.734
Decomposition				
Explained	-0.007	0.011	-0.65	0.516
Unexplained	-0.0002	0.019	-0.01	0.991

Source: Author's computation using STATA software

Table 3 shows that the Blinder-Oaxaca decomposition has a three-fold decomposition. The first two group shows that the coefficient of educational level, rural and percentage of adult working in agriculture have a negative significant influence on the household per capita consumption which implies that the higher the household educational level, rural household and percentage of adult working in the agriculture, the lower will be the household consumption. Meanwhile, the coefficient of finance, percentage of adult working and percentage of adult working in the wage work has a positive significant impact on household per capita consumption which suggest that the more account from the financial institution, the more the percentage of adult working and percentage of adult working in the wage work, the more or greater will be the household per capita consumption. The overall model  $P = 0.000$  for both group which indicate that the model is statistically significant at a 5% level which implies that household per capita consumption is significantly associated with the socio-economic factors, finance, percentage of working adults working, percentage of working adults working in the agriculture, percentage of working adult working in the wage work and phone sample. The variance inflation factor (VIF) for all the explanatory variables in the appendix is less than 5 which implies that the model does not suffer from the problem of multicollinearity. The pooled Blinder-Oaxaca decomposition for the differential indicates that the prediction in groups 1 and 2 are positive and statistically significant at the 5% level which suggests that the fitted Blinder-Oaxaca decomposition is a good fit.

Figure 1: Coefficient estimate plot

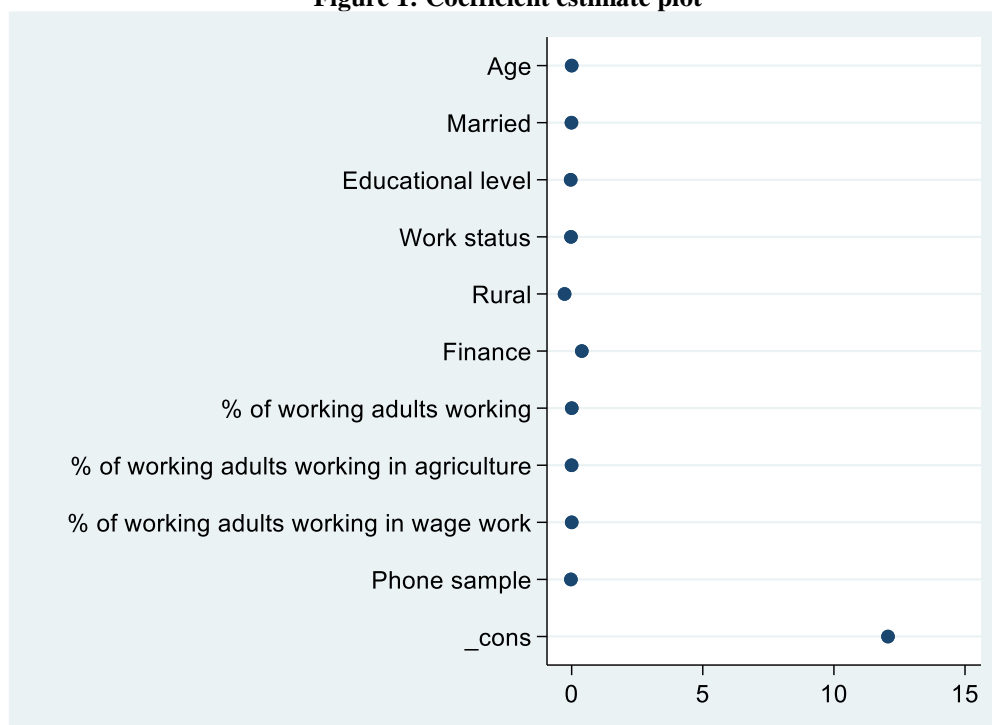


Figure 1 demonstrated the coefficient estimate plots of the vector explanatory variables in the model of both group 1 and group 2 of the Blinder-Oaxaca decomposition.

#### 4.1 DISCUSSION OF FINDINGS

Table 2 shows that there are more females in the household than males, with the male household being 1955 (representing 49.4%) and the female household being 2003 (representing 50.6%). The household in this study has an average age of about 28 years and a variance of roughly 20 years. 2595 households, or 65.6% of all households, are not married, whereas 1363 households, or 34.4%, are married. 1234 households, or 31.2% of all households, are in rural areas, while 2724 households representing 68.8% are in urban areas. The number of households without phones on record is 1555, or 39.3%, while the number of households with phones is 2403, or 60.7%. With a household working rate of 1577, or 39.8%, and a household unemployment rate of 2381, or 60.2%, Nigeria is now experiencing a highly unfavorable economic climate. Households with no education make up 1682, or 42.5%, those with elementary education make up 1213, or 30.6%, those with secondary education make up 738, or 18.6%, and those with postsecondary education make up 325, or 8.2%. Additionally, 2048 households, or 51.7% of all households, have accounts with a financial institution, compared to 1910 households, or 48.3%, who do not.

Table 3's findings further demonstrate the three-fold decomposition of the Blinder-Oaxaca decomposition. The first two groups demonstrate a negative significant correlation between the household educational level, rural household, and percentage of adults working in agriculture, which suggests that the higher the household educational level, rural household, and percentage of adults working in agriculture, the lower the household consumption will be. The household per capita consumption is affected positively and significantly by the coefficient of finance, the percentage of adults working, and the percentage of adults working in wage work, which suggests that the higher the account balance with a financial institution, the higher the percentage of adults working, and the higher the percentage of adults working in wage work, the higher the household per capita consumption will be. This is in line with the findings of Venn et al. (2018) and supports Nelson and David's (2010) evolutionary theory of consumer behavior.

Additionally, the overall model  $P = 0.000$  for both groups indicates that the model is statistically significant at a 5% level, suggesting that household per capita consumption is significantly correlated with socioeconomic factors, finances, the proportion of working adults, the proportion of working adults engaged in wage work, and the phone sample. All of the explanatory variables in the appendix have variance inflation factors (VIFs) that are less than 5, which suggests that multicollinearity is not a concern for the model. The prediction in groups 1 and 2 are positive and statistically significant at a 5% level, according to the pooled Blinder-Oaxaca decomposition for the differential, which demonstrates that the fitted Blinder-Oaxaca decomposition is a good fit.

#### 5. CONCLUSION AND POLICY IMPLICATION

The primary objective of this study is to investigate the determinants of household per capita consumption in Nigeria using the Blinder-Oaxaca decomposition model approach. The result of the analysis of this study shows that the coefficient of finance, percentage of adult working and percentage of adult working in the wage work has a positive significant impact on the household per capita consumption which suggest that the more the account from the financial institution, the more the percentage of adult working and percentage of adult working in the wage work, the more or greater will be the household per capita consumption

It is advised that coordinated efforts be made to improve the income base of households in light of the study's findings. This can be done, among other things, by supporting the households and reducing barriers to income generation like high taxes. The government should also support inclusive finance since it will empower Nigerian households, increase employment, and increase household income, all of which will increase per capita spending overall.

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#### Appendix

Variable	VIF	1/VIF
ag_work	1.74	0.575259
any_work	1.61	0.622355
age	1.60	0.623677
married	1.55	0.643319
work	1.35	0.743231
ext_work	1.29	0.776391
rural	1.27	0.784918
finance	1.21	0.823448
educ	1.11	0.902187
phone_sample	1.00	0.996715
Mean VIF	1.37	