Journal of Economic Development and Global Markets

GLINT OPEN ACCESS

Volume 1, Issue 1

Research Article

Date of Submission: 12 September, 2025
Date of Acceptance: 06 October, 2025
Date of Publication: 09 October, 2025

Impacts of Consumption Loans and Social Security on Households Welfare in Kano Metropolis

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Citation: Abdullahi, S, I., Tsauni, A, M. (2025). Impacts of Consumption Loans and Social Security on Households Welfare in Kano Metropolis. *Econ Dev Glob Mark*, 1(1), 01-15.

Abstract

This research examines factors that affect households' consumption pattern in Kano metropolis. Kano metropolis has its unique socio-economic and cultural settings which affect consumption activities of households. The study employs data gathered by means of questionnaire surveys carried out in Kano metropolis in 2023. The data was analysed using Tobit and exponential regression models. The findings of the study show that consumer loans and social security have positive impacts on household consumption. The results also show that food expenditure dominated consumption expenditure pattern, while cost of energy has negative effects on consumption. These findings have implications on government efforts to fight poverty, ensure food security and provide affordable energy to households. Therefore, government shall revitalize consumer loan schemes, boost assistance to the poor and provide cheaper alternatives means of energy such as renewable energy. Through understanding of factors that affect consumption and households' welfare, policymakers, researchers and stakeholders can develop good policies and strategies to deal with the challenges of poverty and welfare of households in Kano state and Nigeria at large.

Keywords: Consumption, Household Welfare, Consumption Loan, Social Security, Discrete Choice Model

Introduction

In developing countries of the world, households face a number of socioeconomic problems that left them in a state that makes their live very difficult. Poverty, unemployment and inequality are at the centre of problems that households in poor countries are battling with on daily basis. How household are expected to make the best of their lives with these challenges has remained a mirage. According to the World Bank (1995), 'current consumption (including consumption from own production) reflects households' ability to buffer their standard of living through saving and borrowing, despite income fluctuations. To that extent consumption is a better measure of well-being than income'. In 2021, Nigeria was put as number 163 in UN human development index (HDI), this show how Nigeria is lagging behind. Taxation has impacts on consumption, a lot of them negative, especially in case of higher taxation. For example, for heads of households who are in formal employment they pay about 13.50% in tax. This has negative effect on consumption because higher taxation tends to reduce consumption level of households.

Nigeria has one of the highest population growth rates in the world. Nigeria population is about 208 million people in 2020 and it will be over 400 million by year 2050. This has serious impact on consumption, increase in the size of a household without a corresponding increase in household income will mean more poverty and deprivation. Within a household with much number of children, each gets a smaller portion from the family's income in scenario where the family income remains constant. A father's marginal utility for money is often calculated to be greater with five hungry children than with three. Thus, it is assumed that he spends more and save less. Thus, additional children have an effect upon him such that he gives higher consideration to immediate consumption than to future consumption.

The estimated Kano state GDP is put at about $13.6 Billion, and according to NBS (2019) data of the percentage of consumption expenditure in Nigeria's annual GDP of 60% and data from the World Bank (2021) that put consumption expenditure at 62.2%; the approximate annual consumption of Kano state is about 61%. This estimation is influenced by many different variables. Kano state is classified as lower than Lagos, Oyo, Delta and Rivers states in term of aggregate consumption and percapita consumption according to NBS (2019) with 1,973,211,897,149.00 Naira as amount spend on consumption in Kano state annually. The average income in Kano is put at $ 974.38 NBS (2019). This put Kano as lower income state. Nature and composition of consumption itself differs from a society that is predominantly rich and well to do to one that is poor. Kano state as a poor state must have different consumption pattern from, for example, a rich state in USA or UAE.

According the NBS, the proportion of Kano inhabitants living below poverty line is very high. About 70% of Kano household income is allocated to consumption; literacy rate and annual expenditure in education sector are low; health expenditure and doctor per 1000 people are also low. There is high unemployment, population growth rate is also high, there is prevalence of malnutrition; food items prices are very high. Power supply is in poor state, cost of other energy sources high; so also is high cost of transportation. Thus, with all these, what shall be the main concern of policy makers on the issue of inequality reduction, consumption and welfare of people

in midst of poverty and socioeconomic crisis? This research is an attempt to find answers to some of these issues.

Theoretical Framework

The Permanent Income Hypothesis

Both the Friedman (1957) and Modigliani (1970) hypotheses assumed that consumer behaviour is the result of rational expectation. Consumers maximize utility by allocating lifetime earnings to lifetime consumption. In the Friedmanian analysis individual's consumption in a particular period of time is determined by income earned over his entire lifetime period. This is the permanent income hypothesis; the difference between current and permanent income is called transitory income. For an individual consumer who lives for time period T, his utility according to Romer (2012) is

$$U = \sum_{t=1}^{T} u(C_t), \qquad u'(*) > 0,\ u''(*) < 0, \qquad (5)$$

Where, u (*) means instantaneous utility function

C_t means consumption in period t

A_0 is initial wealth while Y_1, Y_2, …, Y_T is income in the respective periods of his lifetime. His budget constraint is

$$\sum_{t=1}^{T} C_t \leq A_0 + \sum_{t=1}^{T} Y_t \qquad (6)$$

The budget constraint is satisfied with equality where marginal utility is positive.

$$L = \sum_{t=1}^{T} u(C_t) + \lambda(A_0 + \sum_{t=1}^{T} Y_t - \sum_{t=1}^{T} C_t) \qquad (7)$$

Above is the lagrangian equation for the maximization process and as usual the first order condition is

$$u'(C_t) = \lambda \qquad (8)$$

At this point both marginal utility and consumption are constant. Thus, consumption across the periods will be $C_1 = C_2 = C_3 = \ldots C_T$. Taking this into consideration, the budget constraint will now be

$$C_t = 1/T(A_0 + \sum_{t=1}^{T} Y_t) \quad \text{for t periods.} \qquad (9)$$

According to Romer (2012), here the individual divides his lifetime resources equally among the different periods of his life.

Data and Methodology

Demographic Information

76.4% of the population of the study are male; while female made up 23.6%. The biggest age classification in the study is 36-50 with 45.1% of the respondents. For the educational qualification of the respondents, those with informal education are largest group (25.1%). For occupation, self-employed/artisan holds the largest percentage of 31.6%. Married household heads made up the majority with 74.9%; while single households have the remaining 25.1%. For the size of the households, in term of the number of inhabitants, the choice range of 6-15 has the highest share of 44.2%. Finally, for the type of accommodation, owner-occupier group has the largest share (52.8%).

Table 4: Background Information

Variable		Frequency	Percentage
Gender	Male	256	76.4
	Female	79	23.6
Age	18-35	85	25.4
	36-50	151	45.1
	51-72	89	26.6
	72-Above	10	2.9
Educational Qualification	Informal	84	25.1
	Primary School	24	7.2
	Secondary School	50	14.9
	NCE/Diploma	61	18.2
	First Degree/HND	79	23.6
	Masters	21	6.3
	PhD	14	4.2
	Others	2	0.5
Occupation	Self-Employed/Artisan	106	31.6
	Business Owner	81	24.2
	Civil Servant	93	27.8
	Private Sector Employee	25	7.5
	Student	13	3.9
	Unemployed	15	4.5
	Others	2	0.5
Marital Status	Married	251	74.9
	Single	84	25.1
Household Size	0-5	145	43.3
	6-15	148	44.2
	16-25	26	7.8
	26-35	6	1.8
	Above 35	10	2.9

Accommodation	Rent	89	26.6
	Owner-Occupier	177	52.8
	Government House	15	4.5
	Family House	38	11.3
	Company House	0	0
	Friend/Neighbor/Community House	12	3.6
	Others	4	1.2

Source: Field Work (2022)

Data/Variable classification

- Consumption: consumption for the purpose of this work is defined as the amount of money spends for monthly consumption.
- Income: regular income is the amount of money households make every month.
- Social security: the definition of social security here is broad. It includes pension, government assistance like conditional cash transfer, different types of palliatives, various categories of corporate assistance, gift, charity, special discounts, etc. Thus, the variable assesses whether respondent collected yearly charities that are paid to the poor, palliatives and other types of social security like pension, government and corporate assistances, continuous charities such as endowments, etc.
- Endowment: gauges the effects of savings, monetary wealth and other physical assets on consumption of a household.
- Monthly food expenditure: measures the main psychological needs of household, proxy by basic need (monthly food expenditure).
- Consumption loan: This can be money loan used to pay for consumption. It can also be in kind, such as taking goods from retailers but paying in future period. Banks, government and corporate agencies provide loans for use in consumption.
- Food price: increase or decrease in price of food affects consumption of average household.
- Insecurity: Insecurity affects supply of consumable goods and services in form of closure of markets, etc. It can lead to increase in the cost of goods and services.
- Cost of energy: Increase or decrease in price of domestic energy has implications on consumption.

- Accommodation: Accommodation is measured as different categories of accommodation.

Method of Analysis: Discrete Choice Model

The Tobit model

This is an extension of probit model. It is also called censored regression model. It places restrictions on values taken by the regressand. It is of the form:

$$Y_i^* = \alpha + \beta X_i^* + \varepsilon_i^* \quad (15)$$

$$Y = Y_i^* \text{ for } Y_i^* > 0 \quad (16)$$

$$Y = 0 \text{ for } Y_i^* \leq 0 \quad (17)$$

Exponential Regression Model

This model uses maximum likelihood (ML) estimation and places probability mass at nonnegative integer. Exponential regression model for count data are nonlinear with features linked with discreteness and nonlinearity. The exponential function is of the form:

$$p(X = X_i) = \left[\frac{1}{2\pi\sigma^2}\right]^{1/2} \exp\left[-\frac{(x_i-\mu)^2}{2\sigma^2}\right] \quad (18)$$

Where exp represents the exponential function; P is probability, x is variable, μ is mean, σ is standard deviation. From this likelihood function is drive as follows:

$$L(X, \mu, \sigma^2) = \left[\frac{1}{2\pi\sigma^2}\right]^{N/2} \exp\left[-\frac{\Sigma(x_i-\mu)^2}{2\sigma^2}\right] \quad (19)$$

Empirical Models

Model 1 measures how cost affects consumption. These are costs associated with food inflation, monthly food expenditure, cost of energy, accommodation cost and cost of insecurity. The model is thus:

$$C = {}^{\varphi} + \alpha IN + \beta FP + \psi FE + \theta CE + \gamma AC + \delta IN + \varepsilon \quad (20)$$

Where,

C = consumption, IN = regular income, FP = food price, FE = monthly food expenditure, CE = cost of energy, AC = accommodation, IN = insecurity

Model 2 find out how factors such as consumption loan, social security and endowment affect household consumption. Empirically the model is of the form:

$$C = \beta_0 + \beta_1 incn + \beta_2 csmln + \beta_3 zakrss + \beta_4 endw + \mu \quad (21)$$

Where, c = consumption, incn = regular income, csmln = consumption loan, zakrss = social security, endw = endowment

Descriptive Statistics

Table 3 provides mean and standard deviation statistics of variables in the study.

Table 3: Summary Statistics

Variable	**Mean**	**Std. Dev.**
Consumption	0.949 (47500 Naira)	1.202
Income	1.051 (49723 Naira)	1.215
Food Expenditure	1.498 (53179 Naira)	1.179 (41819 Naira)
Age	1.063 (43 years)	0.795 (20.93 years)
Education	2.44 (Sec. Edu.)	1.809
Accommodation	1.18 (Owner Occupier)	1.211
Assets/Endowment	1.64	1.198
Cost of Energy	1.303	1.177
Charity	5.5%	0.562
Food Price	0.775	1.114
Gender	0.234	0.424
Household Size	0.753	0.870
Insecurity	1.513	1.046
Loan	2.763	1.501
Luxury/Leisure	1.895	1.199
Marital Status	0.258	0.452
Occupation	1.408	1.345
Social Security	3.501	1.726
Largest share of consumption income	2.093 (Food)	1.349

Source: Field Work (2022)

Variables Distributions and Frequencies

The respondents are in five different income groups. The lower income group (0-45,000 Naira) is the largest and accounted for 40.6%. On how consumers spend their income, food took largest percentage 71.6%. See table 5 for details about the variables in the study.

Table 5: Consumption Pattern, Expenditure and Income

Variable		**Percentage**
Income groups	0-45,000 Naira	40.6
	46,000-100,000 Naira	34
	101,000-200,000 Naira	13.1
	201,000-300,000 Naira	2.7
	Above 300,000 Naira	9.6
Consumption patterns (show group that takes largest share of consumption expenditure of household)	Entertainment/Leisure/House furnishing	9.9
	Transportation/Utility bills/House rent	6.3
	Food	71.6
	Cultural and Religious festivals	2.7
	Clothes and footwear	3
	Health	0.9
	Education	2.4
	Gifts and Charities	3.2
Monthly consumption expenditure grouping	5,000-50,000 Naira	46.6
	50,001-100,000 Naira	31.3
	100,001-150,000 Naira	9.3
	150,001-200,000 Naira	4.8
	Above 200,000 Naira	8
Monthly food expenditure grouping	Below 21,000 Naira	17.6
	21,001-50,000 Naira	42.4
	50,001-80,000 Naira	22.7
	80,001-100,000 Naira	6
	Above 100,000 Naira	11.3

Source: Field Work (2022)

On how change in food price affects households' consumption, 54.6% of respondents says that it very much affect their consumption. On the effect of cost of energy on household consumption, 30% says it very much affect their consumption. Possessing physical or monetary assets is linked with stabilizing effect on consumption, here 34.9% say it impacts their consumption moderately, 22.4% say it affect them very much while 20.3% say it impact them much. On consumption loan, goods/services on credit took the lion share with 33.4%. On social security/transfer payment/charity respondents received, 51.9% received none, while 21.5%

received government/corporate assistance. 33.7% of respondents have patronized luxury/leisure moderately, 20.3% patronized luxury/leisure lowly. On charities, 71% gave 1-10% of income in charities. On moderation in consumption, 36.1% are moderate, 31% valued moderation highly. On insecurity and its effects on household consumption, 43.6% say it impacts them moderately, 22.7% say it impacts them very much.

Table 6: Respondents choice distribution on the other variables

Variable/Question		**Percentage**
How much is your monthly consumption being affected by change in food price?	Very much	54.6
	Much	26.6
	Moderately	10.7
	Little	1.5
	Very little	6.6
How much does the cost of energy (electricity, kerosene, cooking gas, firewood, etc.) affect your consumption?	Very much	30
	Much	29
	Moderately	28.4
	Little	4.5
	Very little	8.1
How much does the feeling/knowledge that you have physical-assets/accumulated-savings/investments affect your regular consumption?	Very much	22.4
	Much	20.3
	Moderately	34.9
	Little	14
	Very little	8.4
Do you take any of the following loans/credits to pay for consumption?	Bank loan	7.5
	Salary advance	8.1
	Goods/service on credit	33.4
	Borrowing from family and friends	26
	Others (Government/Corporate loans)	1.2
	None	23.8
Which one of the following Social Securities/Transfer Payments/Religious Charities have you received the most?	Pension	1.8
	Government/Corporate assistance	21.5
	Zakah (alms)	8.1
	Sadaqah (charity)	13.7
	Others ……	3
	None	51.9
How do you measure your desire/need for luxury things/leisure	Very high	15.8
	High	19.4
	Moderate	33.7

and the ability to pay for them on the scale of 1-5?	Low	20.3
	Very low	10.7
What percentage of your income do you give to charitable causes?	0%	21.5
	1-10%	71
	11-30%	6.3
	31-50%	0
	Above 50%	1.2
Do insecurity makes much difference to your consumption in term of how it affects price and the availability of consumer goods and services?	Very much	22.7
	Much	19.4
	Moderately	43.6
	Little	11
	Very little	3.3

Source: Field Work (2022)

Results of Regression Analyses

Model 1 accesses the impacts of different types of costs on household consumption. The findings explain that food price, aggregated food expenditure cost and cost of energy are statistically significant; but accommodation and insecurity are not statistically significant. The findings indicate that higher food price causes higher spending on household consumption. The price elasticity of demand for food is inelastic. This explains the reason why higher food price did not cut food consumption. But not all increase in consumption expenditure is the result of increase in price, some increase are due to other factors affecting consumption. The findings also indicate that higher aggregate food expenditure causes higher consumption expenditure. The findings also indicate that energy cost has negative impact on consumption. This means that higher cost of energy reduces consumption expenditure. The problem of electricity supply, high cost of fuel and charcoal in Kano metropolis are good pointers.

Table 7: Results showing Ordinal Logit, Tobit and Exponential regression analyses for model 1

Variable	**Exponential Regression Model**	
	Coefficient	**Prob.**
Income	0.381604	0.0025
Food Price	0.313872	0.0187
Food Expenditure	0.910142	0.0000
Cost of Energy	-0.439756	0.0043
Accommodation	-0.103652	0.3557
Insecurity	-0.048721	0.6796
Constant	-2.004142	0.0000
Pseudo R	-	

Mean dependent var.	0.948949
Log Likelihood	-78.17721
LR statistics	474.7470
R Square	-5.453260
Number of Observations	333

Source: Author's Analysis Using Eview (2023)

Model 2 examines the impacts of regular income, consumption loan, social security and endowment on consumption. The findings indicate that income, loan and social security have positive impacts on consumption. In Kano, the effect of lower income on consumption is clear, particularly on patterns of household consumption; consumption in Kano metropolis favored necessities. The results also show that households in Kano metropolis depended on different kinds of consumer loan to pay for consumption. Social security (including Zakat and Sadaqah) also has positive impact on consumption.

Table 8: Results showing Ordinal Logit, Tobit and Exponential regression analyses for model 2

Variable	**Tobit**	
	Coefficient	**Prob.**
Income	0.651059	0.0000
Loan	0.096976	0.0032
Social security/Zakah	0.119483	0.0002
Endowment/Asset	-0.013570	0.8017
Constant	-0.094863	0.5883
Pseudo R	-	
Mean dependent var.	1.785311	
Log Likelihood	-149.6379	
LR statistics	-	
R Square	-	
Number of Observations	333	

Source: Author's Analysis Using Eview (2023)

Conclusion

Families and friends have traditionally contributed in providing consumption loan and assistance. The study has shown that households relied on loan, palliatives and charity to pay for consumption. This has implications on providers of consumer loans and charitable foundations, etc. Institutions that provide soft loans shall be supported and empowered to expand their

businesses; there is also need for individuals and charitable organizations to provide more for the poor. The removal of fuel subsidy provided by the federal government is a form of consumption tax on the citizens. The findings show that consumer loan and social security have positive impacts on household consumption. The findings also indicate that food price and aggregate monthly food expenditure have positive impacts on household consumption; while energy cost has negative impacts. The statistical analyses show that food takes larger share of consumption 65%; 75% of households in the study are in lower income group; 81% are affected by change in food price; and 60% are affected by high cost of energy.

The findings of the study on welfare, spending patterns, philanthropy, finance and poverty have policy implications. Nigerian policymakers at all level must increase efforts to fight poverty, ensure high living standard, income distribution and domestic saving generation. Policy makers shall put focus on projects and policies that help reduce the toll on the poor. Wastage and unnecessary spending shall be minimized; moderate and sustainable behaviour shall be encouraged. Level of charitable giving and spirit of cooperation shall be boosted. Nigerian government must ensure food security and poverty eradication. Since insecurity has linked with food security and general consumption, government must ensure security of lives and properties in every corner of Nigeria. This has impact on efforts to boost citizens' welfare [1-65].

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